

# Interpreting Imperatives

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# Preface

This thesis explores what imperatives are, and what semantics can do to clarify why one and the same form type is used to do a surprisingly wide variety of things.

Part I sets out to clarify that imperatives are to be understood as form types of natural language that come with a certain prototypical function. Having individuated imperatives that way, I take it to be important that semantics cover all these usages. I argue that the fact that this wide spectrum of usages is so surprisingly stable cross-linguistically speaks in favour of that position. A reference framework (following largely Stalnaker (1978)) is established that allows us to capture the interaction of semantic objects and effects on the discourse. The semantic analysis of imperatives is aligned with the two questions (i) how imperatives are associated with their prototypical function of requesting, and (ii) which speech act types are assigned to imperatives in actual conversations. Certain approaches to imperatives are compared with respect to how much pragmatic notions are integrated into the semantics.

Part II introduces a semantic framework for modality in possible worlds semantics along the lines of Kratzer (1991). Imperatives are integrated step by step as a special type of necessity modals, which are likewise known to have non-descriptive, so called performative usages. The task of an additional presuppositional meaning component is precisely to restrict their usage to contexts in which corresponding modal verbs would result in having a performative usage. In Chapter 7, it is explained how certain contextual constellations can give rise to (indirect) permission usages for the necessity modals. Chapter 8 shows that the semantics as modal operator extends straightforwardly to an analysis of imperatives modified by *if*-clauses. Chapter 9 deals with the problematic topic of imperatives and their putative (un)embeddability. I give a tentative overview of the respective phenomena and provide a short typological comparison of imperatives in reported speech contexts.

Part III takes into account the phenomenon of imperatives in coordinations that in coordination with declaratives assume conditional readings. Both conjunctions and disjunctions are investigated in detail and shown to be fundamentally different in nature (Chapter 11). The modalized imperative semantics allows a surprising, but as I think very successful integration into a recent approach to natural language disjunction in Chapter 13. The modalized imperative semantics can also be turned into an analysis for the conjunctive cases, but it is also shown that most likely,

something is still amiss about these conditional conjunctions (cf. Chapter 12).

In apparent contradiction to all that has been said so far, part IV turns to evidence that underlyingly imperatives are possibility operators after all. This is not to say, however, that the previous chapters are hopelessly flawed. Only that the necessity semantics I have been advocating should be further decomposed into possibility and exhaustification.

Before going into all that, I would like to acknowledge the support and friendship of a number of people without whom I could not possibly have finished this thesis.

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All errors and shortcomings are of course mine.



## Part I

# Imperatives as Semantic Objects



# Chapter 1

## Individuating Imperatives

In many respects, the discussion of imperatives is blurred by confusion as to what one is talking about. This is aggravated by the fact that researchers in different disciplines use ‘imperative’ as a *terminus technicus* for a phenomenon emerging at their respective interfaces. Consequently, linguists and philosophers working in various subdisciplines of their fields (including morphology, syntax, semantics, pragmatics, logic, artificial intelligence, ethics, . . .) each have their own understanding of what an imperative is. Or rather, most of the disciplines show a tendency towards a default understanding, the principal parameter being whether the bias of the criterion used for individuation is on the form or on the function side.

This being an investigation in natural language semantics, I am interested in an understanding of imperatives that would somehow relate the concept to natural language grammar. The idea is to understand **imperative** as one of the major sentence moods, namely the one that is not concerned with what the world is like at the moment, but is rather used to request or command what the world is to become like. Being interested in grammar, I will of course also be concerned with **imperative** as a morphological form of the verb.<sup>1</sup> Before saying anything about the role of semantics with respect to imperatives, this pre-theoretic understanding of the topic has to be made more precise.

I see three radically different ways of determining what should count as an imperative. First, it could be taken as a classification for a certain linguistic form. Second, it could stand for a certain pair of form and function. And third, it could denote the class of objects that are used to fulfill a certain communicative function (theoretically, in the sense of potential usage, or empirically, referring to usages observed in a corpus).<sup>2</sup>

In the following, I want to show that neither of the two extreme positions (namely individuation by function, cf. 1.1, and individuation by form, cf. 1.2), can provide

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<sup>1</sup>To avoid confusion, I will sometimes distinguish this as **imperative<sub>v-form</sub>** in the following.

<sup>2</sup>As I have already indicated above, the function itself could of course not be an appropriate object to be studied in semantics. Nevertheless, such a concept of a particular function in communication could still be used to single out the class of linguistic items one wants to talk about.

us with a concept of the object we are after intuitively, namely a sentence mood on a par with the slightly less controversial classes of declaratives and interrogatives.

## 1.1 Trying a Purely Functional Individuation

A solution adopted rarely in linguistics<sup>3</sup>, but quite freely (and sometimes without warning) in philosophy, is to rely on a purely functional conception of imperatives. This is clearly what underlies Hamblin's (1987:3) decision not to *make a case for any particular use of the word imperative other than what I take to be the usual and natural one.* and leads to a couple of shortcomings discussed in Merin (1992).

But could we make the functional individuation precise enough to provide us with a useful classification for research in natural language semantics? I do not think so. The most widespread functional understanding of 'imperative' amounts to something like 'directive speech act' or 'conduct-guiding act in conversation'.<sup>4</sup> Such a purely functional understanding is hopelessly forced to classify as imperatives not only explicit performatives (cf. (1a)) or certain usages of modals (cf. (1b))<sup>5</sup>, but likewise questions used in indirect speech acts (cf. (1c)) and elliptic utterances (cf. (1d)). All of them are used to give an order - certainly a most prototypically directive/conduct-guiding speech act. Therefore, we would have to call them imperatives (and this is indeed the position taken by Hamblin 1987).

- (1) a. I hereby order you to leave.  
 b. You must leave immediately!  
 c. Could you please leave the room?!  
 d. Out!

It should be immediately clear that this fails to provide an interesting basis for semantic discussion. Taking into account linguistic considerations, we would clearly want to keep these cases separate.

An explicit argumentation for keeping e.g. indirect speech acts apart is given by Sadock and Zwicky (1985). In order to allow for strings normally taken to be interrogatives (cf. (1c)) to count as imperatives, we would have to assume that they were truly ambiguous between a question and an imperative understanding. But the case of indirect speech acts seems to be fundamentally different from other instances of natural ambiguities, though. (i) The effect of indirect speech acts draws precisely on a deviation from a usage associated with their conventionally associated meaning. (ii) A duality between posing a question and giving a command does not seem to be part of the grammar of the respective language (English, in that case); in that, it differs crucially from structural ambiguities that can often be resolved by

<sup>3</sup>van Rooy (2000) maybe comes close to it in using 'imperative' to designate performatively used modal verbs.

<sup>4</sup>Broadie (1972) reserves 'imperative' for commands and orders and coins *imperation* for the larger conduct-guiding class of conversational moves.

<sup>5</sup>Modals under such a usage are often called *performative modals*, cf. Section 3.1.2.

grammatical operations. Coonsider for instance (2) (their (144)/(145)):

- |     |    |                                     |    |
|-----|----|-------------------------------------|----|
| (2) | a. | The boy decided on the boat.        | && |
|     | b. | The boat was decided on by the boy. | 1  |

And (iii), indirect speech acts differ from classical ambiguities in not being language specific. *Equivalent forms in other languages are likely to be just as effective in getting requests across and would succeed for exactly the same reasons.* (Sadock and Zwicky 1985:192)

## 1.2 Trying a Purely Formal Individuation

Assume now in contrast that *imperative* classifies certain linguistic forms.<sup>6</sup> We could then only draw on formal features exhibited by certain morphological or syntactic entities, dependent on the possibility to understand ‘imperative’ as referring to verbal forms or to entire sentences. One possibility to make sense of imperatives as form types at sentence level consists in ‘a matrix sentence that has an uninflected verb and lacks a subject pronoun’. This might be a good approximation to single out the class of linguistic elements traditionally understood as English imperative clauses (but cf. Bolinger 1967, Broadie 1972 for problems). We could then safely talk about the class of sentences that has exactly these properties in English. Nevertheless, in general, we take *imperative* to be a cross-linguistically applicable concept. And intuitively, what we want to single out here is not just a certain morphosyntactic property a language might instantiate or not (viz. a language might use sentences with uninflected verb forms and lacking subject pronouns for some purpose or other). It might indeed be interesting to see what is cross-linguistically encoded by such forms. And interestingly enough, we would find that many languages in fact use them to encode a clause type that often serves for requesting and commanding (thus the intuitive understanding of imperative we are after). Nevertheless, such an understanding of our empirical finding would already presuppose that we know what we are looking for. Remember that to us these formal properties only become of interest in connection with other properties, namely, (i) some sort of default function of influencing the addressee’s behaviour, and (ii) in relation to other types of sentences that are traditionally classified as declaratives, interrogatives or exclamatives. Consequently, even if an imperative was to be identified with some sort of syntactically marked type of matrix sentence, we would still have to know which type of sentence to pick out (e.g. given an arbitrary language, we would not want to single out the type of object normally used for questioning). Again, that could not be done on the basis of purely formal criteria. Even if cross-linguistically lack of an overt subject pronoun and unusual inflectional poverty seem to constitute a characteristics of sentences traditionally classified as imperatives, other languages

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<sup>6</sup>In the following I will presuppose the common core underlying all attempts to single out imperatives. I will thus not be concerned with the possibility of understanding ‘imperative’ as referring to the class of interrogative complementizers.

employ sentence final particles (e.g. Korean) or morphological marking of the verb (e.g. Maricopa<sup>7</sup>) to do so, and some even have special pronouns to designate the imperative subject (e.g. Yokuts<sup>8</sup>), (cf. Sadock and Zwicky 1985, Wratil 2004 for general discussion).

Therefore, we may conclude that the traditional concept of imperative as a cross-linguistic category can not be rendered in purely formal terms.

### 1.3 Imperatives as Clause Types Individuated by a Form-Function Pair

The (heuristic) concept of imperative I want to employ is an understanding as a clause type as put forth in Bach and Harnish (1979) and Sadock and Zwicky (1985).

Clause types are defined as pairs of form types at sentence level and their (prototypical) functions. They have to form a partition of the class of sentences (that is, each sentence belongs to exactly one clause type). Given this understanding of clause types as inducing a partition, we find sets of sentences the members of which differ only with respect to their respective sentence type, e.g. (3):

- (3) a. Verena called Christian.  
 b. Did Verena call Christian?  
 c. Verena, call Christian!

The following observation concerning universal tendencies should be taken in favor of the cross-linguistic relevance of the distinction, thereby providing an incentive to explain these pairings:

It is in some respects a surprising fact that most languages are similar in presenting three basic sentence types with similar functions and often strikingly similar forms. These are the declarative, interrogative, and imperatives. (Sadock and Zwicky (1985:160))

I assume that syntax distinguishes a set of form types  $D$ .<sup>9</sup> Pragmatics distinguishes a set of speech act types  $T$ .<sup>10</sup> A clause type system  $CT$  for a language  $L$  can now be defined as in (4).

- (4) The clause type system of a language  $L$  is a set  $CT_L \subseteq D \times T$ , where  $D$  is the universal set of sentence level form types (LFs),  $T$  the universal set of speech acts.

<sup>7</sup>A North American Indian language spoken in Arizona.

<sup>8</sup>A family of North American Indian languages spoken in central California.

<sup>9</sup>With Gazdar (1981), I assume that these are not surface structures but logical forms. The objects of  $D$  are already language independent. Not all languages have to have grammaticalized the same inventory of form types at sentence level.

<sup>10</sup>Throughout the entire text, I will use SMALL CAPS to indicate speech act types.



Adding the category of **exclamatives** to these three most common types<sup>11</sup>, we arrive at the following classification:

- (5) **Clause Type System**
- a. `declarative.ct := <declarative.ft, ASSERT>`
  - b. `interrogative.ct := <interrogative.ft, QUESTION>`
  - c. `imperative.ct := <imperative.ft, REQUEST>`
  - d. `exclamative.ct := <exclamative.ft, EXPRESS.SURPRISE>`

Looking at the picture in (5), it is easy to see that the traditional way of assigning the same name to both the form type (.ft) and the pairing of this form type with a function type to give a clause type (.ct) could give rise to confusion. But having clarified this, we can pursue in taking clause types to consist of the respective form type paired with its prototypical function. Wherever a more fine-grained distinction is needed, I will indicate .ft or .ct respectively. The right hand side of the object is meant to indicate a function type, which I will understand as a **speech act type**.<sup>12</sup> Being ultimately interested in the semantics of imperatives, I will not be able to give an elaborate discussion of speech acts (but cf. Section 2 for the conception of the semantics-pragmatics interface). For the moment, it should suffice that speech acts are the moves in the conversational game people make with utterances. Thereby, they change the commitments (both with respect to how to act and what to believe) of the various participants in the conversations.

But not only does each form type  $d \in D$  encoded by a language  $L$  correspond to its prototypical speech act type  $t \in T$  (according to the clause type system  $CT$  of the respective language  $L$ ), I will also assume that each normal utterance<sup>13</sup> is assigned a speech act type.<sup>14</sup> In Section 1.4, we will be concerned both with the prototypical pairing as encoded in the clause type system and the actual pairing of sentences and speech act types for concrete utterances.

Endowed with this understanding of clause types, we can try to individuate imperatives across languages as elements in a closed system of sentence types. The

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<sup>11</sup>I abstract away from permissives, commissives and the like, as are for example found in Korean (cf. Pak, Portner, and Zanuttini 2004 for extensive discussion). Ignoring permissives might at first glance seem problematic when studying imperatives, given that this is a function partly covered by imperatives in other languages (cf. Section 7). Nevertheless, I will argue that it is unproblematic in so far as even a language with an overtly marked permissive as Korean allows for a strikingly similar range of usages as for example German or English do (both lacking permissives).

<sup>12</sup>These are often called illocutionary forces, cf. e.g. Gazdar (1981), who reserves **speech acts** for the combination of sentence meaning and illocutionary force in a concrete utterance. *Speech act types* would then most likely be categories of speech acts comprising the sentence meaning, e.g. the type of ‘commanding someone to pass the salt’, a concept I have not reserved a term for. For me, the corresponding speech act type is just ‘commanding’. I avoid the term ‘illocutionary force’ because of the heavy bias it seems to have achieved in favour of the **literal meaning hypothesis**, cf. (18).

<sup>13</sup>Gazdar (1981) introduces “normal utterances” for those utterances that are used to perform a speech act.

<sup>14</sup>Cf. Kissine (2005) for a DRT-implementation of the idea that utterances come with a speech type variable that has to be resolved just like any other presupposition.

crucial point of this understanding is that it ultimately gives primacy to the form side. That is, if we have individuated a certain sentence form type as being prototypically used as a request, a token of that form type in utterances that clearly cannot be meant as requests should not be taken as evidence for its ‘not being an imperative’ in those cases. At best, we could claim that two form types are related to one and the same surface structure, giving thus rise to an instance of ambiguity. At first glance, mutual exclusion or deviation from a clause type’s prototypical function often seems to constitute an argument in favour of postulating such ambiguities. Consider for example (6).

- (6) a. Close the door!  
 b. Be blond!

While it is easy to imagine (6a) used as a command (assumed to be the prototypical function of an imperative), usage as a command seems hardly possible for (6b). Should this mean that cases of apparent imperatives containing individual level verbs<sup>15</sup> like (6b) should belong to yet another clause type (e.g. *optative.ct*, prototypically linked to wishes)? Certainly not, I would say. Rather, we should make sure that mutual exclusion between clause types is not based on lexical properties. Instead of distinguishing two clause types that occur depending on lexical properties of the respective content propositions, I would prefer to acknowledge that one and the same clause types interacts with certain lexical properties to render a particular speech act type more plausible in the respective context (ideally, all clause types should be able to co-occur with all propositions - especially imperatives are known to be problematic in that respect, though).

Note that the understanding of a clause type system we have put forth does not require all languages to encode the same inventory of clause types. In particular, not all languages have to encode imperatives (that is, have a clause type  $\langle \text{imperative.ft}, \text{REQUEST} \rangle$ ), though most of them do (cf. Sadock and Zwicky 1985; Portner 2005 who also aims at an explanation for it, cf. Section 3.2.2).

In most languages, though not all, a morphological form of the verb figures prominently in distinguishing the form type (exceptions being e.g. Hungarian that uses subjunctives; or Chrow that marks imperatives by intonation, cf. Sadock and Zwicky 1985). To an overwhelmingly large extent, these forms are indeed confined to the sentence type, which leads to ‘imperative’ used interchangeably for morphological verb form and sentence mood - a common practice I will also subscribe to as long as it does not cause any harm. Where there is need for clarification I will resort to ‘imperativized verb’ vs. ‘imperative clause type’.

But some languages also distinguish subtypes of the imperative clause type, as

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<sup>15</sup>Cf. Kratzer (1995) for the distinction between **stage** and **individual level predicates**. It has been claimed at various points that individual level predicates cannot be imperativized (cf. e.g. Han 1998). I do not think that this is correct. (6b) is a perfectly natural thought (or, rather silent wish) for someone on his/her way to a blind date, hoping that the person one is about to meet would be blond.

for example Tagalog that distinguishes imperatives influencing immediate vs. non-immediate future, or Maidu<sup>16</sup> that distinguishes imperatives to be carried out in presence or absence of the speaker.

A closely related clause type (maybe not a subtype) is constituted by past imperatives as existing at least in Dutch (cf. Mastop 2005) and Tsakhura<sup>17</sup> (cf. Wratil 2004). These express that something should have been done at a particular time in the past (cf. Section 6.1.1 for discussion).

Another important area of typological variation is constituted by person agreement. Some languages seem to have specialized form types for third person imperatives (cf. Mauck 2005 on the Indian language Bohjpurī). Other languages allow for first person equivalents of imperatives (called *hortatives*). English *let's* + INFINITIVE has been handled as a case in point, likewise German subject-verb-inverted structures without interrogative intonation:

- (7) a. Let's get started now.  
 b. Fangen wir endlich mal an!  
 start.1P.PL we finally PRT VPRT  
 'Let's finally get started.'

Nevertheless, these cases hardly ever reach the same degree of grammaticalization (cf. e.g. Hopper and Traugott 1993) second person imperatives do. Therefore, in this study, I will confine my attention to the clearly addressee related constructions. Further research will have to show how much of it carries over to investigating these other cases. Hopefully, the insights gained on the second person case provide a basis for discussion of third and first person imperative-like clause-types (or imperative subtypes). There, the question is above all if the addressee still figures prominently as the one to bring about the action of someone else doing what is requested, or if this should rather be treated as an epiphenomenon, maybe due to Gricean (1975a) relevance. For some cases, it is quite hard to decide between a subcase of an existing clause type and an independent but related clause type. An instance where this has indeed led to some discussion (cf. Sadock and Zwicky 1985) is negation. The data in (8) would in principle allow for either theory spelt out in (9):

- (8) a. Get yourself one more beer.  
 b. Don't get yourself one more beer.
- (9) a. <imperative.ft, REQUEST>  
 <prohibitive.ft, PROHIBITION>  
 b. <imperative.ft, REQUEST>

Depending on whether one wants to assume (9a) or (9b), (8b) is understood either as a negated imperative (used e.g. to request that something should not happen), or an independent sentence type *prohibitive* (used to issue a prohibition). Opting for the solution in (9a) would lead one to claim that English does not allow for negated

<sup>16</sup>A cover term for three closely related North American Indian language spoken in California.

<sup>17</sup>A (Lezgi-Samur) Dagestan language spoken in Azerbaijan.

imperatives. Ultimately, questions of that sort can only be answered by closer investigation of the data in the respective language. For the case of English imperatives formed from propositions containing negation/prohibitives, I would want to argue in favour of (9b). A strong motivation for that is the fact that we find the same range of non-prototypical functions for the negative case as for the positive case. Just as (10a) can under certain circumstances be used as stepping aside from a prior request that the addressee should not go, so can (10b) from the one that he should go. Likewise, (10c) and (10d) seem to be parallel in being able to convey permissions to take an apple and to abstain from taking an apple respectively.

- (10) a. Okay, go then.  
 b. Okay, don't go then.  
 c. Take an apple, if you like.  
 d. Don't take one, if you don't want to.

I will therefore conclude that (at least in English) negation counts as part of the semantic object that expresses the content of a request (or a commission or permission in less prototypical cases).<sup>18</sup>

Having said that much, I want to show that the adopted understanding of 'imperative' leaves us with a wide range of functions besides the prototypical request.

The very detailed study of German imperatives by Donhauser (1986) lists at least the following functions imperatives can be used for; typological studies like Palmer (1986), Bybee, Pagliuca, and Perkins (1994), and Xrakovskij (2001) parallel these observations for all sorts of languages whose imperatives have been studied. It is particularly interesting that this spectrum of usages is even available in languages that have more specialized forms grammaticalized to express one or the other of them (e.g. Korean has an explicitly marked clause type *permissive* in addition to imperatives, but can still employ imperatives to convey permissions).

- (11) a. Lies das!  
 read.IMP this  
 'Read this!' COMMAND
- b. Bleib weg vom Projektor!  
 stay.IMP away from-the projector  
 'Stay away from the projector!' WARNING
- c. Geh nicht auf diese Party!  
 go.IMP not to this party  
 'Don't go to the party!' PROHIBITION
- d. Hab viel Spaß auf der Party!  
 have.IMP lot fun at the party  
 'Have fun at the party!' WISH
- e. Dreh bitte das Licht ab.  
 turn.IMP please the light off  
 'Turn off the light, please!' REQUEST

<sup>18</sup>Compare also Sadock and Zwicky (1985) for arguments against an independent clause type *denial*.

- f. Nimm den A, wenn du nach Harlem willst.  
take.IMP the A, if you to Harlem want  
'Take the A train if you want to go to Harlem.'<sup>19</sup> ADVICE
- g. Fahr zur Hölle!  
go.IMP to-the hell  
'Go to hell!' CURSE
- (12) a. (Es beginnt um 8, aber) komm früher, wenn du magst!  
(it starts at 8, but) come.IMP earlier, if you like  
'(It starts at eight, but) come earlier if you like!'<sup>20</sup> PERMISSION
- b. Ok, dann komm eben nicht! (Wenn du dich für so schlau  
ok, then come.IMP PRT not (if you yourself for so clever  
hältst.)  
take)  
'All right, don't come then! (If you think you are so clever.)'  
CONCESSIVE
- (13) a. Komm pünktlich und du kriegst einen Sitzplatz.  
come.IMP in-time and you get a seat  
'Come in time and you'll get a seat.' Conditional *and*, (IaD)
- b. Komm pünktlich oder du verpaßt den ersten Vortrag!  
come.IMP in-time or you miss the first slot  
'Come in time, or you'll miss the first slot!' Conditional *or*, (IoD)

Being faced with this wide range of speech act types imperatives can be associated with in appropriate contexts, I first want to record that reducing this range of speech acts or accounting for the assignment of a respective speech act type to an imperative token in a given context constitutes a tricky problem for pragmatics or the semantics-pragmatics interface, cf. (14).

(14) The Problem of Functional Inhomogeneity (FIP)

Cross-linguistically, imperatives get associated with a rather inhomogeneous range of speech act types (COMMANDS, WARNINGS, PROHIBITIONS, WISHES, REQUEST, ADVICE, CURSES, PERMISSIONS, CONCESSIONS, ...) and, at least in some languages, also further functions (in a pre-theoretic sense of the word) on a sub-speech act level (namely as conditional antecedents).

For the challenge of how to explain the encoding of the clause type pairs, keeping an eye on FIP means above all not to overdo the task of determining the prototypical function so as to exclude assignment of further, more marginal functions as mentioned by FIP. In addition, we have to note that besides general inhomogeneity as recorded by FIP the range of functions observed embodies a particular, highly intriguing inhomogeneity. Most of the speech act types (such as REQUESTS, COMMANDS, PROHIBITIONS, WISHES, WARNINGS, ADVICE, ...) assigned to imperatives seem somehow concerned with constraining the development of the situation

<sup>19</sup>Billy Strayhorn/via Sæbø (2002).

<sup>20</sup>Example from Hamblin (1987).

so as to verify the proposition expressed within the imperative. But a few of them (PERMISSIONS, CONCESSIONS) are concerned with opening up further possibilities for developments of the situation. This pragmatic distinction of sharpening or liberalizing commitments is often paired by universal vs. existential quantification as assigned in semantics to the elements that are used to achieve that effect (e.g. the modal verbs *must* and *may*, cf. Section 2). Let us record this as the Problem of Quantificational Inhomogeneity (QIP), cf. (15).

(15) The Quantificational Inhomogeneity Problem (QIP)

The functional spectrum associated with imperatives in many natural languages displays both elements that are normally associated with universal quantification in semantics (COMMANDS, REQUESTS, WISHES, ...) and elements that are usually associated with existential quantification in semantics (PERMISSIONS, CONCESSIONS).

Can we respond to FIP (and especially QIP) by eliminating some of the speech act types as being assigned to homophonous doubles of imperative clauses only? I think there are two good reasons against such a strategy: (i) on the one hand, there is the theoretical obstacle of how we have carved out the clause type system (namely, under a bias for the form side), and (ii) on the other hand, there is the empirical observation that this puzzling range of functions is not confined to a few extravagant Indo-European languages like English or German (a strong argument against ambiguity!). Consequently, I consider it important that we do not throw away the more troublesome usages before we embark on the enterprise of assigning semantic value to imperatives. To my knowledge, none of the existing approaches to the semantics of imperatives gives priority to that. For a large part of the literature, the main goal lies in capturing the impossibility of imperatives to be used as assertions, and therefore, to make them differ from declaratives (cf. McGinn 1977 for stating this particularly emphatically). What is stressed is that imperatives cannot describe the world as it is. I want to accent that this only one side of the coin, and that somehow, even if not normally in form of descriptions, imperatives do give information after all (cf. Aloni 2004 for a guarded argumentation in that direction). In Section 3.3, I will present a couple of arguments why the non-declarative/non-descriptive side should not be stressed so exclusively as it has been recently (cf. Portner 2005, Mastop 2005, Veltman 2005, Franke 2005).

Consider a couple of examples from the literature displaying that knowledge of what imperatives do is presupposed when setting out to explore their semantics.<sup>21</sup>

In natural language, the distinction between imperative mode and declarative mode is made by assuming that declarative sentences describe a state of the world, while imperative sentences convey an intention of the speaker that the addressee takes responsibility for changing

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<sup>21</sup>A very telling example I cannot retrace at the moment is constituted by *imperative sets a norm (related to the addressee) wrt to the existence of the event the clausal proposition (virtually) refers to*.

the world in some particular way. We will study some simple logical languages where commands to change the world are interpreted literally as transitions that make things happen by effecting the desired change. (van Eijck (2000:41))

As a first, intuitive approximation, we can say that imperatives represent actions which the addressee should take (cf. Portner 2005)<sup>22</sup>

I will assume for the remainder of this chapter that we can identify such a thing as the ‘imperative sentence type’. By this I mean a syntactically and/or semantically definable class of sentences of which all members share an interpretation of being some kind of instigation from the speaker to the hearer to perform some action. (Mastop (2005:10))

Basing upon such an assumption, the task is to enrich one’s model of the semantics pragmatics interface to encompass the particular function presupposed to underly imperatives. This differs crucially from the task of assigning adequate (static or dynamic) meaning to a linguistic expression and is therefore in opposition to the the ultimately form biased individuation via clause-types I am advocating here. The position exemplified by the quotes allows (or rather: opts) for a far more specific and confined semantics than will be needed for my task.

I think that any serious attempt to explore the semantics of imperatives has to take into account the entire range of functions to be found. Assigning a semantics that does not cover part of the data has to be motivated carefully by arguments in favor of ambiguities. Without further justification, neither carving out the class of imperatives relying on a prototypical function a priori, nor excluding certain usages as being not truly imperatival a posteriori constitutes a viable option.

## 1.4 Understanding Clause Types

At this point, the natural question to ask is how the relation between a certain form type and a certain function type is mediated, thus, how the ordered pairs of a clause type system are encoded (cf. (16a)). This has to be distinguished strictly from the question in (16b).

- (16) a. **The Problem of Clause Type Encoding (PCTE)**  
How is the relation between a certain form type and a certain speech act type encoded?
- b. **The Problem of Assigning Types of Speech acts (PASTA)**  
What determines the speech act type assigned to an utterance?

I will first focus only on (16a), and show at a later point how they are related.

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<sup>22</sup>Despite this rather narrow view, his analysis captures a much wider of FIP without refining what is taken to count as an imperative, cf. Section 3.2.2 for discussion.

I assume that the relation between form type and (prototypical) function as listed in a clause type system is mediated by the semantic value of the form type. Let us call this the **Mediating Semantics Hypothesis for Sentence Mood** and phrase it as follows:

(17) **Mediating Semantics Hypothesis for Sentence Mood (MSHSM)**

Assume that the system of clause types for some language  $L$  is the set of ordered pairs  $CT_L \subseteq D \times T$  (again  $D$  the set of sentence level form types,  $T$  the set of speech act types; cf. (4)). Assume further that  $I$  is an interpretation function for  $L$ .

Then, for each  $a_i \in CT_L$ ,  $a_i = \langle d_i, t_i \rangle$ ,  $I(d_i)$  determines  $t_i$ .

At first glance, (17) looks similar to what Gazdar (1981) ascribes to Searle (1975) as the **Literal Meaning Hypothesis**, formulated as in (18).<sup>23</sup> Assume that there is a function  $\$ \in T^C$ , such that for each context  $c$ ,  $\$$  maps the linguistic object  $c_E$  uttered in  $c$  to a set of speech act types  $t \in T$ .<sup>24</sup>

(18) For each context  $c$ ,  $c_d \in D$  is the full (syntactic) structural description of the linguistic object  $c_E$  uttered in  $c$ .

There exists a function  $\mathcal{F} \in T^D$  such that for all  $c \in C$ ,

$\mathcal{F}(c_d) \in \{t : t \in \$(c)\}$ .

If  $c_d$  contains a performative prefix, then  $\mathcal{F}(c_d) = t'$  where  $t'$  is the speech act type named by the performative verb in the prefix. Otherwise:

$\mathcal{F}(c_d) = \text{QUESTION}$ , when  $c_d$  is interrogative

$\mathcal{F}(c_d) = \text{REQUEST}$ , when  $c_d$  is imperative

$\mathcal{F}(c_d) = \text{ASSERTION}$ , when  $c_d$  is declarative

Gazdar (1981:74f) argues convincingly that this runs into various kinds of problems. But note that MSHSM is in fact very different from the Literal Meaning Hypothesis. MSHSM is an answer to PCTE, the question in (16a), not to PASTA, the one in (16b). The Literal Meaning Hypothesis on the other hand could be seen as a strengthening of MSHSM to provide an answer to PASTA (cf. (16b)). What I will in the end propose as an answer to the latter, the problem of which speech act type to assign to a concrete utterance, is more in the spirit of Hausser (1980)<sup>25</sup>:

(19) **the Speech act Assignment Hypothesis (SAH)**

The speech act type of an utterance  $c_E$  is determined by interplay of the

<sup>23</sup>Translated into my framework by substituting speech act type for illocutionary force.

<sup>24</sup>Note that the hypothesis is formulated so as not to exclude that one and the same utterance performs more than one speech act. This can of course be easily tightened to assigning a unique speech act to each utterance as assumed by most proposals considered in the rest of this book.

<sup>25</sup>*Syntactic mood does not determine the speech act. Rather, syntactic mood participates with all the other linguistic properties of a given surface expression  $\phi$  in delimiting the set of use-conditions of  $\phi$ . Since there is no one to one relation between syntactic moods and speech acts, it would be a mistake to implement speech act properties in the semantic characterization of syntactic mood.* (Hausser (1980:))



semantic object  $I(c_d)$  with properties of the utterance context  $c$  (to be described in terms of beliefs, desires, obligations, etc. of the participants to the conversation in  $c$ ).

For the moment, we will only be concerned with the *problem of clause type encoding* (PCTE) as formulated in (16a) and its answer as given by the MSHSM. The former is actually tightly related to what has been dubbed *modularitätsfrage* (*question of modularity*) by Grewendorf and Zaefferer (1991):<sup>26</sup>

- (20) **Modularitätsfrage:**  
Is sentence mood a semantic or a pragmatic phenomenon?

Although we have not yet said what ‘determine’ should mean (cf. Section 3.2 for that), it is quite easy to see that adopting the MSHSM amounts to a semantic solution to (20).

An alternative would have been a purely pragmatic view on the matter, as could most likely be seen in Montague (1974). He claims that, in semantics, sentence moods can be treated by substituting truth conditions by adequate other conditions: answerhood conditions for questions, and compliance conditions for imperatives. Similarly, Dummett (1973) conceives of all clause types as having the same Fregean sense,<sup>27</sup> but are supplied with a force (comparable to the speech act types I have been talking about) that is to be analysed in pragmatics (cf. McGinn 1977 for discussion).

Without arguing against the possibility of such an approach in detail, I want to give a couple of more or less standard arguments in favour of a semantic treatment of sentence mood.

First, phenomena that prove to be robust with respect to embedding are traditionally classified as part of the recursive component of meaning assignment encoded in semantics. Sentence mood distinctions as established for matrix sentences are typically paralleled in the realm of embedded sentences:<sup>28</sup>

- (21) a. John knows that it rains.  
b. John knows whether it rains.

Given the well-known resistance of imperatives against embedding (cf. Section 9), phenomena are harder to find for that particular type. Some instances seem to exist

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<sup>26</sup>Semantics should here be understood not in the sense of Montague (1974) who sees it as completely independent of contextual notions, but rather in the sense of Cresswell's (1973:238) **semantic pragmatics**, namely as occupied with meaning as a function from context to senses. That is, the way in which context produces the sense is part of the meaning.

<sup>27</sup>Note that this is not Frege's point of view as he explicitly states in *Der Gedanke* that the sense of an imperative cannot be a **thought** as assumed to underly declarative sentences.

<sup>28</sup>Even if generally accepted, this criterion has not gone completely undisputed. Cf. Kamp (1978) for willingness to let pragmatics (certain implicatures) enter the recursive component of meaning assignment in favour of a pragmatic treatment of free choice effects with disjunction and free choice items.

after all. One case are quantifiers taking wide scope with respect to the imperative (cf. Section 9.1.1).

- (22) a. Die meisten Anträge hat Hans nicht mal gelesen.  
 the most proposals has Hans not PRT read.PARTPERF  
 ‘For most proposals it is the case that John has not even read them.’  
 b. Die meisten Anträge lies erst gar nicht.  
 the most proposals read.IMPSEG PRT PRT not  
 ‘Most proposals don’t even read.’

Another case is constituted by languages that do embed imperatives after all. I.e. this seems to be the case for colloquial varieties of German:

- (23) Hans hat dir doch schon gestern gesagt, geh da  
 Hans has you.Dat PRT already yesterday told go.IMP2 there  
 morgen hin!  
 tomorrow PRT  
 ‘Hans told you already yesterday to go there tomorrow.’

In general, under a purely pragmatic conception, sentence mood should never be expected to come into play at a sub-speech act level. Nevertheless, the phenomena found with conditional imperatives seem to contradict that (cf. Part III):

- (24) Take a step to the left and you’ll fall off the stairs.

The sentence form type of the first conjunct bears all characteristics of an imperative clause type. Yet, it does not seem to constitute an independent speech act, and the overall speech act type assigned to (24) is most likely THREAT or WARNING.

Second, we have to take into account that besides the most prototypical function indicated at the right hand side of the clause type, most form types can cover a variety of other functions (the *problem of functional inhomogeneity* (FIP)). A purely pragmatic solution would require that for each form type all the speech act types it can be used for are listed either along with the most prototypical one, or that a supertype could be given that would encompass all the other types.

Third, the meaning function in semantics is quite well-studied. If we can define a suitable architecture of the pragmatics-semantics interface that allows the semantic object to constrain the speech acts that can be performed by expressing it, we are spared defining an additional meaning assignment that would generate the list of clause types for a given language. The clause type systems we have been looking at so far paired formally distinguishable form types (the object named by  $x.ft$  has formal properties that distinguish it from  $y.ft$ ) each with a different prototypical function (cf. (25)). But, so far, we do not exclude that languages might have clause type systems that contain pairs as in (26), either.

- (25)  $CT_1 = \langle x.ft, F1 \rangle$   
 $CT_2 = \langle y.ft, F2 \rangle$

- (26) a.  $CT_1 = \langle x_1.ft, F1 \rangle$

- CT<sub>2</sub> = <x<sub>2</sub>.ft, F2>
- b. CT<sub>1</sub> = <x.ft, F1>  
     CT<sub>2</sub> = <x.ft, F2>
- c. CT<sub>1</sub> = <x.ft, F>  
     CT<sub>2</sub> = <y.ft, F>

The pairs in (26a) should indicate that one surface form type is associated with two different structural disambiguations (x<sub>1</sub> and x<sub>2</sub>) that are assigned different function types (looking like ambiguity).<sup>29</sup> In contrast to that, I use the schema in (26b) to indicate that one and the same form type is associated with two different function types (thus being reminiscent of polysemy). Last but not least, two different form types could also be associated with one and the same function type (cf. (26c)).<sup>30</sup> None of these possibilities is excluded as long as we take the listing of such pairs as primitive; a semantic encoding of clause type systems automatically excludes cases like (26b) (due to *I* being an interpretation function), allowing for both (26a) and (26c) though.

Fourth, a pragmatic solution seems to run into trouble if indirect speech acts are to be distinguished from direct usages. Any form of indirect speaking seems to consist in the exploitation of the literal meaning of a linguistic item to convey something different. Hence, it depends on the literal meaning being computed and understood - including the sentence mood and the speech act it 'would normally be used to perform under the given circumstances'. Compare (27a) and (27b):

- (27) a. I am cold.  
       b. Am I cold?

While the declarative can quite naturally be understood as an incentive for the addressee to close the window (thus constituting a typical indirect speech act), its interrogative twin requires a bit more of context in order to fulfill that task. If sentence mood belonged into the realm of pragmatics, the status of other pragmatic processes overwriting it in a second step would be entirely unclear.

Fifth, McGinn (1977) points out that we have to distinguish between what he calls the force associated with an utterance and the sentence mood associated with a linguistic object. While the former can be entirely suspended in a non-intentional context (e.g. example sentences in a grammar book, testing a microphone), sentence mood stays unaffected. That is, a token can be understood as an imperative without being associated with any particular speech act type.

Sixth, relying on a purely pragmatic meaning for sentence mood, it seems that there is no way for it to be encoded compositionally in the syntax. Despite the formal marking of clause types, it is not entirely clear how this formal marking

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<sup>29</sup>Note that this is somehow reminiscent of lexical or structural **ambiguity**, we cannot call it ambiguity at this point though, because that would mean to understand a clause type as a form meaning pair. So far, I have remained silent as to meaning, though.

<sup>30</sup>Note that as for function types we need not make any such distinctions, since we are only interested in the object as such, not in ways of naming it.

could be associated with the pragmatic meaning other than via association in a list that yet had to be introduced into the popular conception of natural language grammar.

Having thus motivated a semantic solution to PCTE as embodied in MSHSM, it is worth saying that the latter allows us to reconsider clause types as ordered pairs of form and function types as a purely heuristic tool for the semantic analysis. This is of course desirable, given that the function type could only be indicated as a prototypical one. A plausible list of sentence types will tell us which linguistic objects an imperative semantics has to cover in a certain language. We will see that these notions differ slightly from language to language. The convergences between the languages that have been studied in more detail will be broad enough though to allow for an underspecified object as the encoding semantic device. Eventually, it will be far less underspecified than one might expect on the first glance, especially given QIP. But taking into account the small deviations, too, the MSHSM provides us with a reasonable picture for languages that have clause types that are almost like imperatives in other languages but maybe a bit more or a bit less specific (one example being interaction with tense and reference time, cf. Section 6.1.1).

Having thus decided to resort to semantics for the encoding, we can proceed to clarify how the semantic object denoted by the linguistic object expressed in an utterance  $U$  (the interpretation  $I$  of  $c_E$ ) can determine the function the speaker of  $U$  wants  $U$  to fulfill ( $U$ 's illocutionary role, or as I have chosen to say,  $U$ 's speech act type).

## Chapter 2

# Conceiving of the Semantics-Pragmatics Interface

It is now time to come back to the two questions posed at the beginning of the preceding section, and look at how the answers given there can be made to work. (16a)/(1b) and (16b)/(19) are repeated in (1) and (2):

- (1)
  - a. **The Problem of Clause Type Encoding (PCTE)**  
How is the relation between a certain form type and a certain speech act type encoded?
  - b. **Mediating Semantics Hypothesis for Sentence Mood (MSHSM)**  
Assume that the system of clause types for some language  $L$  is the set of ordered pairs  $CT_L \subseteq D \times T$  (again  $D$  the set of sentence level form types,  $T$  the set of speech act types; cf. (4)). Assume further that  $I$  is an interpretation function for  $L$ .  
Then, for each  $a_i \in CT_L$ ,  $a_i = \langle d_i, t_i \rangle$ ,  $I(d_i)$  determines  $t_i$ .
- (2)
  - a. **The Problem of ASsigning a Type of speech Act (PASTA)**  
What determines the speech act type assigned to an utterance?
  - b. **the Speech act Assignment Hypothesis (SAH)**  
The speech act type of an utterance  $c_E$  is determined by interplay of the semantic object  $I(c_d)$  with properties of the utterance context  $c$  (to be described in terms of beliefs, desires, obligations, etc. of the participants to the conversation in  $c$ ).

Under the view of the semantics-pragmatics interface I will adopt in the end, we will see that the two questions are indeed tightly related, but that the small difference in how they should be answered will permit exactly to assign a unique semantic object that determines a prototypical function on the one hand, but allows for a wide variety of functions that cannot be easily traced back to a common core on the speech act side. The correlation is easy to see: **Whatever semantic object determines the prototypical speech act type according to MSHSM, is (a**

**prominent) part of assigning a speech act to a token of the respective form type according to SAH.**

I will again start out with the problem of clause type encoding. In the following, I will compare various ways of making precise the concept that the semantics assigned to a form type should determine its prototypical speech act type. Two basic strategies have to be distinguished.

One strategy is to allow for pragmatic notions to be in some sense directly part of the semantic denotation. I will discuss two principally different shapings of this spirit in Section 3.1. I argue that, apart from two theoretical problems, an approach along these lines invariably faces what I have introduced as the **functional inhomogeneity problem** (FIP). That is, it cannot sensibly be extended to also provide reasonable insights to the second question of speech act assignment (PASTA). It simply cannot be made general enough to cope with all kinds of usages at a speech act, let alone sub-speech act level that imperatives can be made use of.

In Section 3.2, I will then present alternative solutions that adopt conventional semantic objects and assume that these objects themselves can provide reasonable restrictions on the speech act types that can be executed by expressing them. I argue that in its more liberal understanding, this provides a promising starting point for our investigations.

Before going into a discussion of the various approaches, I will introduce the standard conception of the semantics-pragmatics interface as assumed in possible worlds semantics in Section 5. Many of the approaches I'll be looking at are directly spelled out that way, some are immediately translatable, and for those that are different in spirit it will still provide a useful basis of comparison.

## 2.1 A Reference Framework for the Semantics- Pragmatics Interface

It has first been pointed out by Robert Stalnaker that the relation between context and content is twofold; on the one hand, *context influences content, since the expressions used to say something are often context-dependent: what they are used to say is a function, not only of the meanings of the expressions, but also of facts about the situations in which they are used. But second, the contents that are expressed also influence the context: speech acts affect the situations in which they are performed.* (Stalnaker (1999a:4)).

In order to explain some particular aspects of these two sided dependence, I will model a discourse following the informal outline in Stalnaker (1999b), deviating slightly from Stalnaker's own implementation, e.g. in Stalnaker (1978). This allows us to integrate a Kaplanian concept of indexicality (cf. Kaplan 1989) and follows a wide spread practice in linguistic semantics.

In 1.4 I assumed that a context  $c$  is a quadruple containing a speaker ( $c_S$ ), an addressee ( $c_A$ ), a time ( $c_T$ ) and a world ( $c_W$ ). It can be shown (cf. Lewis 1980),

that  $c$  is uniquely determined by these four components.<sup>1</sup>

- (3) The set of contexts  $C$  is the set of quadruples  $\langle c_S, c_A, c_T, c_W \rangle \in (E \times E \times T \times W)$ , such that  $c_S$  is speaking to  $c_A$  at  $c_T$  in  $c_W$ .<sup>2</sup>

Each context determines a set of contexts  $DS$  (the **Discourse Set**), such that for each context  $c$  in  $DS$ , speaker and addressee (jointly) cannot distinguish  $c$  from their actual context  $c_o$ .<sup>3</sup>

- (4) The **Discourse Set** ( $DS$ ) in a context  $c_o$  is defined as follows:  
 $DS(c_o) = \{c \in C \mid \text{the mutual joint beliefs of } c_{oS} \text{ and } c_{oA} \text{ at } c_{oT} \text{ in } c_{oW} \text{ cannot distinguish } c \text{ from } c_o\}$

That means, if presented with any of the contexts in  $DS$ , the participants to the conversation in  $c_o$  could not exclude that this is the situation they are actually in.

Given  $DS$ , we can define a set of worlds  $CG$ , the **Common Ground**, such that for all worlds  $w$  in  $CG$ , at  $c_{oT}$ , speaker and addressee (jointly) cannot distinguish  $w$  from their actual world  $c_{oW}$ .

Whenever there is no insecurity as to the basic facts about the context (that is the identity of speaker, addressee and time of  $c_o$ ), the quadruples in  $DS$  will agree on the first three parameters. Therefore, we only need to evaluate the proposition expressed in the actual context  $c_o$  with respect to  $CG$ . For these cases, without reference to  $DS(c)$ , it might be convenient to describe the Common Ground of  $c$  as follows:

- (5) The **Common Ground**  $CG$  of a context  $c$ :  
 $CG(c) = \{w \in W \mid \text{the mutual joint beliefs of } c_S \text{ and } c_A \text{ do not allow them to distinguish } w \text{ from } c_W\}$

For the issues I'm looking at in the rest of this investigation, it will be sufficient to confine our attention to idealized contexts  $c$  where there is not doubt as to the identity of  $c_S$ ,  $c_A$  and  $c_T$ .<sup>4</sup>

$DS/CG$  keep track of information pertaining to the issues the participants in the discourse going on in  $c$  are interested in, but also facts about the discourse that is currently taking place. E.g. if both  $c_S$  and  $c_A$  are aware that  $c_S$  has just pronounced the sentence *I am not a fish*. and are not in doubt about their respective identities and furthermore have perfect knowledge of their context time  $c_T$ , then all worlds  $w$

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<sup>1</sup>In fact, it is already uniquely determined by the corresponding triple excluding the addressee  $c_A$ . From  $c_S$ ,  $c_T$  and  $c_W$ ,  $c_A$  can always be determined as the person  $c_S$  is addressing himself to at  $c_T$  in  $c_W$ . Analogously, the location of  $c$  is determined as the place  $l$  such that  $c_S$  is at  $l$  in  $c_W$  at  $c_T$ . And so forth.

<sup>2</sup>Note that thereby we constrain the notion of "context" in the sense of Kaplan (1989), for discussion cf. Zimmermann (1997).

<sup>3</sup> $CG$ ,  $DS$ , and also  $PS$  should in the following always be understood with respect to a context. If not indicated otherwise, it should be understood as "the context we are talking about".

<sup>4</sup>While this is of course relatively plausible for the first two parameters, it already reaches a relatively high degree of idealization with respect to the last parameter.

in  $CG$  will make true that  $c_S$  has pronounced a five-word sentence of English at a moment (shortly) before  $c_T$ , thus reflecting facts about the discourse. And if  $c_A$  is willing to believe that  $c_S$  was right in what he said (namely, that indeed he is not a fish), all  $w$  in  $CG$  will further have the property that  $c_S$  is not a fish, thus reflecting information pertaining to the issue of the conversation.

When looking at various speech acts, we are not only interested in what the participants to the conversation jointly believe, but also for example what one is permitted or obliged to do according to the other. Therefore, Lewis' (1979a) classical implementation of commanding and permitting as a language game between master and slave adds to the set of worlds that describe mutual joint belief a second set of worlds that describe what the slave is permitted to do according to the master. Lewis calls this set the **Permissibility Sphere** ( $PS$ ).

In principle, we could define  $PS$  as a function from contexts into sets of possible worlds. Permissions and obligations are thus stored independently of  $CG$ .<sup>5</sup> Alternatively, and this is the strategy I will pursue here, we can also assume that  $PS$  is determined by what is known to be allowed and can thus be read off from  $CG$  (or  $DS$ ). Assume that for each time  $t$ ,  $R_o(t)$  is an accessibility relation between worlds, such that  $\langle w, w' \rangle \in R_o(t)$  iff in  $w'$  the addressee obeys whatever is commanded by the speaker in  $w$  at  $t$ . The semantics for *being commanded* and *being permitted* is given in (6a) and (6b) respectively. Thereby, *being commanded* and *being permitted* come out as duals<sup>6</sup> (cf. Lewis 1979a).<sup>7</sup>

Let  $f_t = \lambda w \lambda v. \langle w, v \rangle \in R_o(t)$ .

- (6) a.  $\llbracket \text{is commanded} \rrbracket^{c,s}(w) = \lambda p. (\forall w' \in f_t(w)) [w' \in p]$   
 b.  $\llbracket \text{is permitted} \rrbracket^{c,s}(w) = \lambda p. (\exists w' \in f_t(w)) [w' \in p]$

For each world  $w$  we can define the set of worlds permissible to the addressee according to the speaker at  $t$  as  $\{w' \in W \mid \langle w, w' \rangle \in R_o(t)\}$ . The permissibility sphere  $PS$  given by the Common Ground of  $c$  can now be defined as follows:

$$(7) \quad PS = \bigcap \{p \subseteq W \mid (\forall w \in CG(c)) [\{w' \mid \langle w, w' \rangle \in R_o(c_T)\} \subseteq p]\}$$

So,  $PS$  results from the intersection of what is commanded in all of the worlds in the Common Ground. Consequently,  $PS(c)$  describes what speaker and addressee know to be commanded (and permitted) in  $c$ .

Speech acts of commanding  $\phi$  ( $\text{COMMAND}(\phi)$ ) and permitting  $\phi$  ( $\text{PERMIT}(\phi)$ ) can now be described as restricting  $PS$  to  $\phi$ -worlds, and adding  $\phi$ -worlds to  $PS$  respectively. Which  $\phi$  worlds have to be added is absolutely not trivial, dubbed

<sup>5</sup>All approaches that employ such a distinct storage for epistemic vs. deontic commitments have to ensure that the state of deontic commitments is epistemically accessible. As far as I know, this is mostly abstracted away from.

<sup>6</sup>Two operators  $O$  and  $P$  are **dual** if the inner negation of one is equivalent to the outer negation of the other,  $\lambda p. O \neg p = \lambda p. \neg P p$ .

<sup>7</sup>Cf. Mastop (2005) for a different view on the issue with reference to von Wright (1996), who treats this assumption as a closure condition on artificial systems of permissibility, as e.g. the law for a political unit, and a corresponding elaboration within the system of partial update semantics.



the Problem about Permission by Lewis (1979a).<sup>8</sup> Rohrbaugh (1997) takes it as a reason to give up possible worlds semantics as a framework for analysing deontic speech acts and resorts to updates in terms of paths; van Rooy (2000) proposes a solution within a possible worlds framework, relying on a relation of comparative reprehensibility between worlds.

We are now ready to take a closer look at speech act types. Given the conception of the semantics-pragmatics interface layed out here, speech act types are basically descriptive categories. This is clearly meant to obviate what Bierwisch (1980) (criticizing the position taken by Wunderlich (1977)) calls the *original sin* of speech act theory, namely to *consider speech act theory to be an extension of the theory of meaning in natural language*. Here, speech act types rather classify sequences of contexts, such that the precontext  $c'$  meets certain requirements (the preconditions, familiar from speech act theory as Searle's (1969) *felicity conditions*), the postcontext  $c''$  meets certain other conditions and there is an intermediate context  $c'''$  that is characterized by the speaker uttering an element of the context language, complying with Grice's (1975a) intentionality condition. This assures that the context transformation is indeed brought about by a speaker who employed his utterance with a straightforward communicative intention (cf. Grice 1975b for extensive discussion of all kinds of neurotic cases concerning this condition, and a precise notion of the principle).<sup>9</sup>

Before trying to specify particular speech acts in terms of the properties of pre-context, postcontext, and transitional context with the respective linguistic object, a word of caution should be said as to the postconditions. That of course touches the tricky question of when a speech act has been performed, in particular if performance is to be distinguished from successful performance. Zeevat (2003) provides a useful distinction in drawing a line between the *aim* that the speaker wants to achieve and the *minimal effect*. The former can be of various kinds and it does not depend on the speaker alone whether she is going to reach it. The latter is the effect the utterance will achieve simply in virtue of being perceived and recognized as such (with the intended speech act type). I will depart from the traditional notion of the *perlocutionary act* in favour of Zeevat's distinction between *aim* and *minimal effect*. For the semantic analysis, we will only be concerned with the latter. For each speech act type, it has to be distinguished carefully what should

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<sup>8</sup>It is quite clear that we cannot simply add all  $\phi$ -worlds to *PS*. E.g., giving the permission in (ia) should not result in also permitting (ib).

- (i) a. You can use my car tonight.
- b. You may drink 6 pints of beer tonight and then drive home in my car.

Nevertheless, worlds where the addressee makes use of the permission in (ib) are of course worlds in which he uses the speaker's car. Consequently, these worlds would be added by a naive analysis of permissions that consists in unifying *PS* with the complement proposition of the permission modal/operator (*the addressee uses the speakers car*, for (ia)).

<sup>9</sup>This means, I rely on an intentional treatment of speech acts, much in the spirit of Bach and Harnish (1979), as opposed to a rule based one (cf. Searle 1969).

indeed be taken to be part of the minimal effect. In the case of  $\text{COMMAND}(\phi)$ , I would assume that the postconditions should indeed include that  $\phi$  is commanded (thus differing from the intentional approach that would only require that the intention has been recognized, cf. e.g. Allan 1986). I take this to be crucial, because commanding relies on the speaker being an authority. Thus, the authority taken together with his intention being recognized by the other participants to the context should automatically lead to the obligation being established. On the other hand, I will not assume that the addressee's actually complying with an order should be part of the postconditions.

Let's look at the particular consequences for individual types of speech acts.<sup>10</sup> In (9) and (8), I translate at least two speech act types into the  $c$ -framework. Each speech act type is characterized by preparatory conditions (P), sincerity conditions (S) and illocutionary intentions (I) (the latter representing a reflexive intention of the speaker that the addressee should recognize that in uttering U, the speaker intends to have the addressee recognize his particular illocution). For the interface to semantics, I assume that (P) are presupposed, (S) have to be possible (have to have a non-empty intersection with the context, or to put it differently, are not known to be false), and (I) is a condition on the intermediate context. My postconditions labelled (E) follow from what is said to be intended to be recognized in (I) (that is, the minimal effect).

Putting it all together, speech acts connect contexts  $c'$ ,  $c''$  such that  $c'_T$  (closely) succeeds  $c'_T$  and which are as close as possible given that  $c'$  makes the felicity conditions true ( $P_1, \dots, P_n$ ), and  $c''$  verifies the postconditions ( $E_1, \dots, E_m$ ).<sup>11,12</sup>

- (8) PERMIT( $\phi$ ):
- |                                                                                                                                                                                      |                                  |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| ( $P_1$ ) $\phi$ is prohibited.                                                                                                                                                      | $CG \subseteq \Box_d \neg\phi$ . |
| ( $P_2$ ) $c_S$ is entitled to permit $\phi$ to $c_A$ .                                                                                                                              |                                  |
| ( $E_1$ ) $\phi$ is permitted.                                                                                                                                                       | $CG \subseteq \Diamond_d \phi$ . |
| ( $E_2$ ) There is $c'''$ in between $c'$ and $c''$ , such that at $c'''$ $c_S$ utters $e$ and reflexively-intends that $e$ is recognized as an entitlement for $c_A$ to do $\phi$ . |                                  |
- (9) ASSERT( $\phi$ ):

<sup>10</sup>A detailed list for various speech acts in an intentional framework is given in Allan (1986).

<sup>11</sup>The definition in Allan (1986) that have been taken as an inspiration are given in (i) and (ii):

- (i) PERMISSIVES: S permits H to do A.  
(P) S is sanctioned to permit H to do A.  
(S) S believes that H may do A on his authority.  
(I) S reflexively-intends U to be recognized as an entitlement for H to do A.
- (ii) ASSERTIVES: S asserts that  $p$ .  
(S) S has reason to believe that  $p$   
(S) S believes that  $p$   
(I) S reflexively-intends that U be recognized as a reason for H to believe that  $p$

<sup>12</sup>Indices on modal operators refer to deontic (with respect to  $R_o$ ) and (some sort of) epistemic modality respectively.

(P<sub>1</sub>)  $\phi$  is taken to be possible and  $\neg\phi$  is taken to be possible.

$$CG \cap \phi \neq \emptyset \wedge CG \cap \neg\phi \neq \emptyset$$

(P<sub>2</sub>) It is possible that S has reasons to believe  $\phi$ .

(E<sub>1</sub>)  $c_S$  and  $c_A$  jointly believe  $\phi$ .

$$CG \subseteq \phi.$$

(E<sub>2</sub>) There is  $c'''$  in between  $c'$  and  $c''$ , such that at  $c'''$   $c_S$  utters  $e$  and reflexively-intends that  $e$  is recognized as a reason for  $c_A$  to believe  $\phi$ .

The truly interesting question for semantics is now to find out why a particular linguistic object  $e$  in an unmarked context  $c'$  constitutes a suitable means to perform the speech act type in question. Concentrating on speech act types, and thereby abstracting away from any lexical properties, what is at stake is really the contribution of sentence mood (and sometimes also that of the highest modal elements in a proposition). The goal of this particular investigation will be to answer this question for imperatives (against this more general background of the understanding of the interplay between semantics and pragmatics).



## Chapter 3

# Ways of Interpreting Imperatives

In this section, I will compare several ways of answering PCTE (cf. (1)) and PASTA (cf. (2)) for imperatives. This will of course sometimes necessitate a closer look at how these two questions are answered in a more general enterprise of explaining clause type systems (PCTE) and speech act assignment (PASTA).

As to imperatives, most solutions tend to start out from a negative and a positive observation. On the one hand, imperatives appear to be fundamentally different from declaratives in not allowing for classification as to being true or false. On the other hand, imperatives seem to somehow manipulate or constrain the future course of events with respect to what the addressee does.

Of course, the problem of not allowing for evaluation with respect to a truth value, imperatives share with all other non-declarative clause types. Traditional truthconditional semantics seems left in a quandary by the fact that sentence meaning is assumed to be constituted by truth conditions. Following Tarski (1936), the task of semantics translates as instantiating the schema in (1) for all sentences of the language under investigation. Under the prevailing Fregean view in the field, meaning of subsentential constituents is constituted by the contribution these parts make to the truth conditions of sentences in which it occurs (interplay of **context principle** and **compositionality principle**, Frege 1892)<sup>1</sup>.

- (1) The sentence “...“ is true if and only if ....
- (2)
  - a. **Compositionality Principle**  
The meaning of a complex expression is determined by the meaning of its (immediate) parts and their way of combining.
  - b. **Context Principle**  
The meaning of an expression is determined by the meaning of the

---

<sup>1</sup>It is a well known fact that Frege's work neither of the two principles is stated as explicitly as they usually are nowadays. Nevertheless it is generally believed that Frege himself did believe in both of them (throughout his scientific life). But cf. Janssen (2001) for an opposite standpoint.

sentences in which it occurs and the meanings of the other parts of the sentences.

When it comes to imperatives (or non-declarative sentences in general), we do not really now what it means for an imperative to be true, ruling out that (1) would be very helpful to get to the corresponding semantic object. But imperatives are not normally part of other clauses either, therefore, it is hard to get any information about their semantics from the contribution they make to the meaning of larger expressions. Consequently, the two Fregean principles do not seem to be particularly helpful either.

Let's compare this to interrogatives for a moment. There, the situation seems a bit more favourable. On the one hand, embedded declaratives are paralleled by embedded interrogatives. Those are mostly assumed to have a natural link to matrix interrogatives and should thus share common traits in semantics. Furthermore, interrogatives have often been argued to have a straight forward connection to the propositions (thus truthconditionally conceivable) that count as possible answers to them.

The classical solutions to the semantics of imperatives therefore consists in reducing them to some sort of proposition after all and hope for pragmatic constraints on usage to set them apart. (3) shows the three best discussed strategies of **propositional reduction** (cf. Hamblin 1987).

- (3) a.  $[[\text{Go home!}]^{c,s} = [\text{You will go home.}]^{c,s}$                       **you will-reduction**  
       b.  $[[\text{Go home!}]^{c,s} = [\text{You should go home.}]^{c,s}$                       **you should-reduction**  
       c.  $[[\text{Go home!}]^{c,s} = [\text{I order you to go home.}]^{c,s}$                       **performative hypothesis**

All of these have been disputed at length. Most of all maybe the *performative hypothesis* as developed in a syntactic variant (out of footnote remarks in Katz and Postal 1964) mostly by Ross (1967, 1970) and Sadock (1974). Extensive criticism of this is to be found in Grewendorf (1972) and Gazdar (1979). The semantic variant of the performative hypothesis has then been developed out of a footnote in Lewis (1970), but has likewise faced a lot of criticism e.g. Grewendorf (1979, 2002), for critical discussion pertaining especially to imperatives cf. Hamblin (1987) and recently Mastop (2005). A short glance at especially the problem of functional inhomogeneity (FIP) should lead us to the insight that the performative hypothesis cannot provide an interesting starting point for our investigations into the semantics of imperatives.

I will not say much about the *you will*-reduction, either, a modern elaboration of which can be seen in the ideas of Truckenbrodt (2005a), which is otherwise quite close to the *c*-framework I am using. I'll take a closer look though at what I take to be a modern extension of the *you will*-reduction that relies on a dynamic twist. I will show in discussing Asher and Lascarides's (2003a) work that some of the classical criticism against the old *you will*-reduction (cf. Hamblin (1987:101-112))

carries over to their dynamic framework.

Interestingly enough, at least in linguistics, a lot less energy has been put so far in both developing, and deconstructing the *you should*-theory. Hamblin (1987) shows that the link between *you should*-statements and ‘imperatives’ has gained much interest throughout the history of philosophy though, tracing back at least to Kant’s *Fundamental Principles of the Metaphysics of Ethics*.<sup>2</sup> But note that all of this is only partly of interest to us, in that it pertains to a clearly functional understanding of *imperative*, and the philosophical difficulties arising from the difficulties of treating *you should*-statements (cf. Carnap 1935). Despite these philosophical worries, from the point of view of linguistic semantics, this can still provide a useful tool, because semantics can stop at having individuated truth conditions, the problems with finding out if the actual world meets them or not should not concern us here. On the other hand, it is indeed true that some *you should* or *you must* statements do not relate to truth any easier than imperatives. Nevertheless, I will argue below that the connection to descriptive (and thus clearly truthconditional) usages of the respective modals is tight enough to allow us to gain the relevant insights. Therefore, in Section 3.2.3, I myself will argue for a version of a *you should*-reduction that makes use both of the rich interaction assumed between context and modals, the insights into semantic analysis of presuppositions gained in the meantime.

Most recent approaches entirely give up on propositional reductions in favour of exploiting additional possibilities to assign meaning after the dynamic twist. In a truly dynamic framework, the meaning of a sentence is no longer constituted by the set of models that support it, but rather by its potential to change the context. In contrast to (1), what semantics is concerned with can now be given as (4):

- (4) The meaning of sentence “...“ is the relation ... of pairs  $\langle c_i, c_o \rangle \subseteq C \times C$ , such that  $c_i$  the input context and  $c_o$  the output context.

Given such a Stalnakerian conception of formal pragmatics as I have depicted in Section 2, for many cases the difference is not that drastic as it might seem at first glance. It is above all investigation into pronouns, and potential asymmetric behaviour of conjunction, disjunction and presupposition filtering that necessitate a dynamic twist. For cases of simple declaratives, the difference is really in whether the update operation is taken to be an intrinsic part of the semantics, or whether it is an additional ingredient that brings together a formalized context and a truthconditional object (I call this a **core semantic view** of the dynamic idea).

In contrast to a purely static, classical analysis and likewise a core semantic view of the intuition behind a dynamic theory, intrinsically dynamic theories open up a lot of possibilities for assigning semantic objects to syntactic objects. Theories that make seminal use of that are discussed in sections 3.1. I will point out that none of them provides a satisfactory answer to PCTE and PASTA, and furthermore,

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<sup>2</sup>All imperatives are expressed by the word ought [or shall] and thereby indicate the relation of an objective law of reason to a will, ..., They say that something would be good to do or to forbear. (p.35).

that it seems to be an intrinsic problem of these approaches that they can't handle FIP, the problem of functional inhomogeneity. This can be shown clearest for its particular shaping in terms of the QIP. In presenting Mastop's (2005) analysis I will also mention a couple of strong points that really speak in favour of an analysis in terms of possible worlds (making it possible to evaluate entire histories), rather than smaller entities like situations or continuations of a given situation into the future.

The solution I'll ultimately develop in Section 6 relies on a core semantic view of the dynamic intuition. Being a propositional reduction analysis after all, it does make declaratives and imperatives come out alike in logical type. While this has mostly been taken to be a pain in the neck in the literature on imperatives (cf. McGinn 1977), I will discuss a couple of arguments in favour of such a view in Section 3.3.

Before introducing my own proposal though in 3.2.3, I will discuss two different strategies of giving a semantic answer to PCTE along the lines of MSHSM. On the one hand, there are approaches that crucially import pragmatic concepts into the realm of semantic denotata, on the other hand, we are faced with approaches that take core semantic objects to somehow automatically constrain the kind of use that can be made of them.

### 3.1 Pragmatic Concepts as Semantic Denotata

While MSHSM principally excludes that there is a direct non-semantic meaning relation between the sentence (as a form type) and a speech act type, it does of course not exclude that (correlates to) pragmatic objects, as for example speech act types exist as semantic objects and can thus be assigned by the semantic interpretation function. In the following, I will first discuss three different ways of importing pragmatic notions into the realm of semantic denotata. Section 3.1.1 discusses an approach put forth by Manfred Krifka that introduces speech acts as model-theoretic objects with special algebraic properties. Section 3.1.2 discusses Robert van Rooij's account of performative modals; he assigns update functions on the permissibility sphere as semantic denotata. Section 3.1.3 discusses the proposal for imperatives as put forth in the SDRT-framework developed by Nicholas Asher and Alex Lascarides. I will argue that none of these is general enough to capture FIP and especially QIP.

#### 3.1.1 Naming directive speech acts in semantics

One idea to make the semantics assigned to the form of a clause type determine its prototypical speech act type, is to introduce objects into the realm of possible (semantic) denotata that directly correspond to pragmatic objects. Attempts to spell this out have been taken by Parsons (1993), and a somewhat vague understanding



along these lines must underly Han's (1998) directive feature  $[+dir]$ .<sup>3</sup> The most explicit formulations have been given at various places by Manfred Krifka (e.g. in Krifka 2001, Krifka 2002, Krifka 2004c). Therefore, I'll confine my discussion of the general idea to his work.<sup>4</sup>

Krifka (2002) points out that in the classical picture (Frege 1891, Wittgenstein 1922, Stenius 1967, ...) the world of acts and the world of thought are strictly layered such that thoughts may contain thoughts (and may describe acts), but then these thoughts are used in the acts performed. Hence, acts contain thoughts, but never vice versa. In Frege's (1891) terminology, the content of a judgement as performed by uttering a declarative sentence, is a thought (*gedanke*,  $-\phi$ ) and has to be distinguished from the act of judging or asserting (*behauptung*,  $\vdash\phi$ ).

In Stenius's (1967) terminology, the classical picture of sentence mood in semantics results in a distinction between the **sentence radical** and the **force** (or speech act type):

	<i>Speech Act Type</i>	<i>sentence radical</i>
(5)	ASSERT	$p$
	QUEST	$p$
	IMP	$p$

Krifka (2002) observes that languages allow for a generous overlap of naming or describing and executing various things (e.g. the same word is used for thanking and for describing that someone performed the action of thanking), this being somehow in intuitive opposition to the classical picture.

He ventures the hypothesis that the embedding between acts and thoughts is a bidirectional one (even if asymmetrical, given that the limitations on the embedding of acts are much stronger than those on embedding of thoughts). Following Stenius (1967) in calling the propositional content that is part of a speech act the **sentence radical**, this spells out as the following hypothesis:

(6) **Krifka's Speech Act Embedding Hypothesis:**

Recursive semantics does not stop at the level of the sentence radical.

The cases he puts forth in order to support the *speech act embedding hypothesis* comprise at least the following: embedded questions vs. embedded question acts, quantification over speech acts in general, free choice readings in permission sen-

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<sup>3</sup>Also Franke (2005) should maybe be seen as a proponent heading in that direction, although he leaves the exact implementation of the semantics-pragmatics interface to further research.

<sup>4</sup>Before doing so, I would like to point out that Manfred Krifka himself has assumed that imperatives are characterized at a sub-speech act level as well, at least that is the solution he sketches when talking about IaDs, cf. 12.3.1. Therefore, while his framework is very convenient to present the idea, Krifka himself would most likely not let the clause type imperative directly denote a speech act, but maybe let it restrict with which speech act forming operators they can be combined. This would mean that pragmatic objects are available as semantic denotata, but that this fact is not made use of when trying to find an appropriate denotation for imperatives.

tences and conditional imperatives<sup>5</sup>.

Let's take a look at the first phenomenon, which has been elaborated most carefully. Interrogatives containing quantifiers like *every* allow for three different kinds of readings:

- (7) Which dish did every guest bring?
- a. R1: 'What dish  $x$  is such that every guest brought  $x$ ?'  
(A: Pasta.) narrow scope reading
  - b. R2: 'What (kind of) dish  $f$  is such that every guest  $x$  brought  $f(x)$ ?'  
(A: His favourite dish.) functional reading
  - c. R3: 'For every guest  $x$ , I ask you which dish did  $x$  bring?'  
(A: Shin-Sook brought Sushi, Cécile brought Millirahmstrudel, and Jiro brought Yakitori.) pair-list reading

What is crucial is the existence of R3, the pair-list reading (cf. (7c)). As is obvious from the paraphrase in (7c), the intuition is that here the universal quantifier *every guest* outscopes a silent question predicate *I ask you*.

Krifka compares this to cases containing non-universal quantifiers, and shows that these do not allow for pair-list readings. Just look at the case with *most*:

- (8) Which dish did most guests bring?
- a. R1: 'What dish  $x$  is such that most guests brought  $x$ ?'
    - b. R2: 'What (kind of) dish  $f$  is such that most guests  $x$  brought  $f(x)$ ?'
      - c. R3: \*'For most guests  $x$ , I ask you which dish did  $x$  bring?'

This sensitivity on the type of quantifier is mirrored by embedding of question predicates (I will in the following leave aside narrow scope and functional readings as always available in addition). The class comprising *know*, *find out*, *remember* allows pair-list readings for both universal quantifiers and others (cf. (9)).

- (9) a. Ede knows/found out/remembers which book every student liked.  
*ok*'For every student  $x$ , Ede knows/found out/remembers which book  $x$  liked.'
- b. Ede knows/found out/remembers which book most students liked.  
*ok*'For most students  $x$ , Ede knows/found out/remembers which book  $x$  liked.'

The class comprising *wonder*, *ask*, *investigate* parallels matrix questions in allowing pair-list readings only for universal quantifiers.

- (10) a. Ede wondered/asked/investigated which book every student liked.  
*ok*'For every student  $x$ , Ede wondered/asked/investigated which book  $x$  liked.'
- b. Ede wondered/asked/investigated which book most students liked.

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<sup>5</sup>Cf. Section 13.2 for critical discussion of that phenomenon

\*‘For most students  $x$ , Ede wondered/asked/investigated which book  $x$  liked.’

Let’s look at the solution to the puzzle. Krifka follows Groenendijk and Stokhof (1984) in assuming that, for a question, the content object corresponding to the proposition (Frege’s *gedanke*) in the declarative case, is an index dependent proposition. That means, it is a relation between possible worlds depending on the truth value of the respective proposition for a *yes/no*-question, cf. (12a), or the set of objects yielding true answers to the *wh*-question in the respective worlds, cf. (12b), for a *wh*-question. Intuitively, two worlds stand in the relation denoted by the question if the question predicate has the same extension in both (that is, they behave alike with respect to the truth of raining or with respect to the dishes brought by John).

- (11) a. Did it rain?  
 b. Which dish did John bring?
- (12) a.  $\lambda v \lambda w. \text{rain}(v) = \text{rain}(w)$   
 b.  $\lambda v \lambda w. [\lambda x. \text{dish}(x)(v) \ \& \ \text{bring}(j, x, v) = \lambda x. \text{dish}(x)(w) \ \& \ \text{bring}(j, x, w)]$

But now, Krifka crucially assumes that this is only part of the denotation for matrix questions. The relations in (12) are the arguments to a speech act forming element *Quest* corresponding to something like *I ask you*. Speech acts correspond to moves in conversational games and are conceived of as partial functions from commitment states into commitment states (the pre- and postconditions of which correspond more or less to what I have outlined as descriptive categories in the reference framework). Krifka does not specify the exact nature of the commitment states, but for the sake of explicitness, we could e.g. specify them to be our *discourse set DS* or also just the *common ground CG* (note that the contexts we have been introducing allow us at all points to recover the social commitments of any participant  $i$ , e.g. what  $i$  is known to believe (has committed himself to hold true), what  $i$  has promised to do (and is thus committed to do), and so forth).

Thus, a new set of objects  $D_a$  has been introduced into the discourse universe, membership to  $D_a$  is expressed as being of the corresponding new type  $a$ .<sup>6</sup> It is now explored which operations are defined on them. The restriction to be observed in that respect will provide an explanation for the contrasts observed above.

Speech acts can be conjoined with each other quite freely:

- (13) a. What did Jiro eat? And what did Verena drink?  
 b. I love ginger cookies. And Shin-Sook likes HobNobs.

Disjunction of speech acts seems as lot harder to express; consider (14):

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<sup>6</sup>Krifka remains silent about the exact nature of the commitment states. Depending on how those are to be constituted w.r.t. objects of the existing types (e.g. as sets of possible worlds,  $\langle st \rangle$ ), it is not entirely clear to me how to keep the two algebras apart (for the given example, a lot of functions in  $\mathcal{POW}(W)^{\mathcal{POW}(W)}$  should of course be part of the Boolean algebra).

- (14) a. Who was late? Or, who did not show up at all?  
 b. Did it rain? Or did you meet Peter?

Only very hardly could the examples in (14) be understood as offering a disjunction of two speech acts (which should per analogy to Boolean disjunctions of propositions either leave it open which question was performed and should thus be answered, or, alternatively, leave it to the addressee which one he wants to answer). If anything, speech act disjunctions are interpreted as sequences in which the second speech act corrects or replaces the first one.

From that, Krifka concludes that speech acts are associated with an algebra that is different from Boolean algebra as familiar from the realm of propositions. Conjunction is equivalent to consecutive performance of speech acts (thus, it comes out as function composition).

- (15) **The Speech Act Algebra:**  
 $\langle D_a, + \rangle$  forms an algebraic structure,  $D_a$  the set of speech acts, and for any  $A, A' \in D_a$  (that is, of type  $a$ ), and any commitment state  $s$ ,  
 $[A + A'](s) = A'(A(s))$

Given this weaker algebraic structure the asymmetric behaviour of universal and other quantifiers can be explained straightforwardly. Universal quantification can always be reduced to conjunction over the entire domain. If (16a) is evaluated in a context where the set of guests comprises Shin-Sook, Cecile and Jiro, (16a) can be translated as (16b), the latter being an instance of well-defined speech act conjunction. This accounts for example (7) under reading R3.

- (16) a. Which dish did every guest bring?  
 b. Which dish did Shin-Sook bring, and which dish did Cecile bring, and which dish did Jiro bring?

In contrast to that, wide scope for a non-universal quantifier like *most* as in (8) can not be reduced to speech act conjunction. Consequently, no corresponding operation is defined. A wide scope reading for *most* remains uninterpretable and is thus unavailable.

The explanation can now be extended to the embedded cases. Question embedding predicates have to be distinguished as to whether they embed a speech act (type  $a$ ) or an index-dependent proposition (type  $\langle s \langle st \rangle \rangle$ ). Consequently, assigning a non-universal quantifier scope over the complement of the embedding predicate is possible with  $\langle s \langle st \rangle \rangle$  embedders, but not with  $a$  embedders, thus explaining the contrast between (9) and (10).

Let's try to exploit the proposal for answering the two questions from Section 1.4, namely the *problem of clause type encoding* (PCTE) and the *problem of assigning a type of speech act* (PASTA). If the proposal allows for a satisfactory answer to these questions, it will of course in particular do so for the case of imperatives. In order to show that it does in fact not provide a satisfactory solution, it will thus be

sufficient to focus on the case of imperatives.

One problem with the approach presented here is that it is not entirely clear to me how the difference between a prototypical and the token-specific speech act type is to be analyzed. In order to allow for the rather wide spectrum of speech act types associated with imperatives (not to mention declaratives), we would be forced to either assume a high degree of underspecification in the speech act designated by the respective clause type, or postulate manifold ambiguity. The second option is highly inelegant from a theoretical point of view. Consider on the one hand the cross-linguistic stability of the wide range of functions, and on the other hand, the intuition that, after all, some common semantic core is to be felt (e.g. for imperatives, all seem to express some sort of preference that the addressee make the respective proposition true). Both are usually taken to speak against an analysis of ambiguity associated with an item.

This leaves us with the first option. Can we find a function from commitment states into commitment states that is not completely trivial, but still general enough to encompass the range of functions associated with imperatives that we have seen in Section 1.3?

I remain pessimistic.<sup>7</sup> First of all, it is not clear, in what sense a wish and a request would display the same update on a commitment state:

- (17) a. Give me five pounds, please!  
b. Get well soon!

Intuitively, (17a) seems to induce a commitment for the addressee to give the addressee five pounds. It does not seem that (39) could be said to induce a comparable commitment for the addressee to get well soon. If anything, both of them have in common that the speaker wants the propositions *the addressee gives the speaker five pounds* and *the addressee gets well soon* to come true, thus inducing a commitment for the speaker to be satisfied if they should indeed come true. But not even that seems common to all imperatives. Consider a typical advice as in (18):

- (18) A: Where can I get a new telephone card?  
B: Go straight ahead, take the next street left and you'll find a cornershop at the second traffic light.

In those cases, the speaker is entirely indifferent as to the hearer complying with his advice or not.

All cases so far at least seem to have something in common in that they all serve to somehow constrain the commitment states by inducing a restriction on which possible worlds constitute possible continuations with respect to the commitment states. But now look at the contrast between permissions and requests as exemplified for German imperatives in (19).<sup>8</sup>

<sup>7</sup>Cf. Donhauser (1986) for a detailed discussion of the failure to turn the intuitive concept of directivity into a precise enough analysis of imperatives.

<sup>8</sup>In German, adverbials or particles are not necessary to allow for the respective speech act

- (19) a. Nimm dir sofort einen Apfel!  
 take.IMP you.DAT immediately an apple  
 ‘Immediately take an apple!’
- b. Nimm dir ruhig einen Apfel!  
 take.IMP you.DAT PRT an apple  
 ‘Take an apple if you like.’

Giving a command means to add something to the commitment state of the addressee, giving a permission  $\phi$  though means to remove a commitment  $\neg\phi$  from the addressee’s commitments. It is hard to see how such two moves could be unified in one underspecified speech act type.

Apart from this general pessimism as to the possibility of assigning a speech act type general enough to encompass the entire functional potential as associated with an imperative, extension of the proposal to provide a semantics for imperatives also seems to go wrong on a more specific prediction. Krifka (2002) cites a further mixed range of phenomena to corroborate his hypothesis of speech act embedding and their sensitivity to universal vs. non-universal quantification. Among other, imperatives are claimed to display the predicted contrast. Indeed, (20a) allows for a wide scope reading for the quantifier, while (20b) seems to prohibit that.

- (20) a. Confiscate every bottle of alcohol you can find!  
 b. Confiscate most bottles of alcohol you can find!

Nevertheless, I think that this is more an artefact of the examples chosen. Wide scope readings for *most* requires specificity of the set of bottles that are to be affected. But restricting the domain by *you can find* would (under normal circumstances) contradict this (it cannot be known beforehand which bottles will be found), thereby hindering a wide scope reading of *most*. Consider the following examples instead:

- (21) a. Die meisten Bücher in diesem Regal lies nie nach  
 the most books in this shelve read.IMP SG never after  
 Mitternacht.  
 midnight  
 ‘For most books x on this shelve: don’t read x after midnight.’
- b. Lies die meisten Anträge erst gar nicht.  
 read.IMP SG the most proposals PRT PRT not  
 ‘For most proposals x: you shouldn’t even read x.’
- c. Don’t even look at most of these proposals. (It is already clear from their titles that they are complete crap. But 2 or 3 might be really good.)

As long as the domain of objects is already fixed, imperatives allow quite naturally for wide scope of non-universal quantifiers.

Thus, imperatives do not seem to obey the restrictions observed with entities

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types, but favour certain usages. But compare e.g. Dutch for much stricter requirements, cf. Zeevat (2004).

that are speech act denoting according to Krifka. Without saying anything about an eventual additional necessity to let certain semantic operations apply to speech acts, we may draw a conclusion with respect to the semantics of imperatives. Irrespective of whether, as proposed by Manfred Krifka, speech acts should be visible in semantics, or not, the semantics of imperatives has to be characterized already at a sub speech act level.

### 3.1.2 Denoting update functions

Due to the dynamic twist in semantics, the semantic objects to be assigned need not be truth conditions. Knowing what a sentence means is not explained as knowing under which conditions it is true, but rather as knowing what effect it has on the context. Consequently, the meaning of a sentence is individuated as its *context change potential* (cf. Heim 1983, 1992).

Abstracting away for the moment from the puzzle of functional inhomogeneity puzzle FIP as observed with imperatives and concentrating on the prototypical use of an imperative  $\phi!$ , the prototypical change it would induce on the context of the conversation would be to render obligatory that the addressee makes  $\phi$  true. Consequently, to constrain the permissibility sphere (as defined in Section 2, so that afterwards (22) is true.

(22) You must  $\phi$ .

But sometimes, these modalized declaratives themselves can be used to induce the corresponding change on the context. Under these so called *performative usages*, they are not used to describe the way the world is like with respect to what is commanded or permitted, but they indeed change the way the world is like in that respect.

The examples in (23) describe what the world is like with respect to what is permitted or commanded. The change on the context they evoke is thus the one of an assertion, as is most likely the unmarked case for a declarative sentence.

(23) a. You must do the shopping today (as far as I know).  
b. Peter may come tomorrow. (The hostess said it was no problem.)

In contrast to that, (24) can easily be used to bring about an obligation for the addressee to call the speaker, or render it permissible for the addressee to come at 11, requiring by definition of the speech act types of commanding and permitting that that had not been the case before.

(24) a. You must call me.  
b. Okay, you may come at 11. (Are you content now?)

The effect on the discourse as induced by the cases in (24) is of course non-assertive, and in a way it seems very hard to decide if they are true or false. This is exactly

what we have seen with imperatives.

In order to decide how to capture the performative effect of imperatives in semantics, it might be useful to generally gain a better understanding of how performativity can be dealt with.

However the effect is to be achieved, (24a) constrains the permissibility sphere to worlds in which the addressee calls the speaker, whereas (24b) adds worlds to the permissibility sphere in which the addressee comes at 11.

In order to account for performative modals, the strategy in line with static semantics and truth conditions is what is generally called an assertoric treatment. In that case, the semantic object associated with the sentences in both (23) and (24) is the modalized proposition as computed in Section 2. Nevertheless, under certain contextual constellations, e.g. that the speaker speaks truthfully, that he has authority to command or request what is expressed by the complement of the modal, his asserting that the modalized proposition is true leads to the context adjusting so that it is indeed true (that is, the permissibility sphere is restricted or enlarged such as to make the respective modalized proposition true).<sup>9</sup> A purely assertoric treatment is argued for by Kamp (1978). The addressee's reasoning that constitutes the pragmatic aspect of a purely assertoric treatment is elaborated most carefully by Bach and Harnish (1979) (although they focus more on explicit performatives than on performative modals). Recent arguments in favour of an assertoric treatment are given in Schulz (2003).

Alternatively to such an assertoric treatment, it has been proposed that the semantics of performative verbs should inherently induce a change of the context (cf. Kamp 1973, Merin 1992 and van Rooy 2000). Relying on the potential of dynamic semantics, this can of course be formulated straightforwardly as a function that transforms the permissibility sphere according to the change corresponding to the command or permission executed in uttering the modalized declarative. While this is completely straightforward for commands (performative *must*) (cf. (25a)), it requires a lot of caution for permissions (performative *may*), due to the fact that the latter may not just add any world that makes its complement true. van Rooy's (2000) solution is to add only the least reprehensible worlds that make the complement true.<sup>10</sup> (Simplifying with respect to the agent, and using the notation of Heim 1992, using the simplest version for permission sentences that just obviates the permission problem; in the paper, van Rooy 2000 gives various elaborations to

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<sup>9</sup>Remember from Lewis's (1979a) language game of commanding and permitting between master and slave that Lewis (1979a) himself adds a specific requirement on the permissibility sphere, namely that it automatically adjusts to what the master commands. Strictly speaking this is not a purely assertoric treatment then.

<sup>10</sup>While explicitly constructed to solve the puzzle of free choice permissions, the problem makes the unwanted prediction that for *You may drink beer or wine.* to add both worlds in which you drink beer and worlds in which you drink wine, drinking wine and drinking beer have to be equally reprehensible. Given that sentences like *You may drink beer, or even wine.* are perfectly acceptable and still present the addressee with a choice, this seems an unwanted prediction. Since I will resort to a non-classical interpretation to disjunction anyway (cf. Section ??), this need not bother us too much at this point, though.



deal with conjunctions, disjunctions and lumping. I will not go into any of these complications at this point.).

- (25) a.  $PS(c)[\text{must}(\phi)] = PS(c) \cap \phi$ .  
 b.  $PS(c)[\text{may}(\phi)] = PS(c) \cup PS(c)_\phi^*$ , where  $PS(c)_\phi^*$  is the set of worlds that make as many propositions entailed by  $PS(c)$  true as possible, but make also  $\phi$  true.

Having seen the general ideas of how to deal with performatively used modals, we should take a look at imperatives again. At first glance it is tempting to simply assign them the same semantics as is assigned to performative *must*, namely (25a). But this might be too quick. Thinking back of the puzzle of quantificational inhomogeneity (QIP), we should remember that imperatives are sometimes also found to have the effect of a permission in rendering deontically accessible possibilities that had been prohibited beforehand. Consequently, imperatives can have both the effect encoded by performative *must* and the effect encoded by performative *may*. Therefore, it has to be said clearly that a semantic analysis of imperatives in terms of such an update function leaves no hope for reconciling their command and permission usages. Imperatives would have to be inherently ambiguous between (25a) and (25b). Furthermore, it is hard to see even for other functions that are associated with universal quantification, as for example wishes or advice, how they could be unified with an update of the permissibility sphere. Maybe, one would have to specify a set of sets of worlds (or spheres) that could be updated by an imperative. In any case, it should be clear at this point, that assigning a performative semantics to imperatives in terms of update functions means writing a good deal of the effect the object has on the discourse context into the semantics. In principle, by defining the semantics as e.g. constraining the permissibility sphere, an object is already forced to only ever be associated with the speech act type of commanding. Given the functional inhomogeneity to be observed with imperatives, this does not seem to be the right way to go. The amount of inherent ambiguity one would have to postulate for imperatives is seen most clearly with QIP and the proposed performative semantics for the modals *must* and *may*.

Zarnic's (2002) analysis of imperatives in terms of a dynamic update system can be seen as an explicit attempt to treat imperatives as having the same effect as observed with performative deontic *must*. The possibility of a permission usage or a universal but non-deontic usage is ignored.

### 3.1.3 Creating facts

One of the classical reduction strategies for imperatives as mentioned in Section 3 assumes that imperatives are alike to *you will*-statements. The syntactic version of the theory that takes imperatives to contain covert *you will* has gained some support from the fact that English only allows tagging involving precisely that auxiliary. Due to a couple of syntactic and semantic problems associated with such

a view (cf. Hamblin 1987), it proved unsuccessful, and so did ultimately also a purely semantic version of the theory that would simply map the imperative (26a) onto the same proposition as the declarative in (26b).

- (26) a. Go home!  
b. You will go home.

Recently, drawing on Segerberg's (1990) static action semantics, Nicholas Asher and Alex Lascarides have elaborated a theory of imperatives that in many ways can be seen as a dynamic version of a classical *you will*-theory.<sup>11</sup> In many ways, it relates analogously to an assertoric treatment of *you will* as a performative analysis of *you should* to an assertoric analysis of the latter. As I will argue in the following, the status of Asher and Lascarides' (2003a) account with respect to *you will* is not entirely clear because they explicitly decide to abstract away temporal information - a decision that might in itself be problematic for a theory of imperatives. Nevertheless, for cases that contain overt temporal modifiers, the predictions are clearly those of what I would call a performative *you will*-theory.

As far as I can see, the basic intuition underlying this choice is that sometimes imperatives allow us to proceed as if they had already been made true. Consider the example in (27) (Asher and Lascarides' (2003a) example (5)) that is most likely issued in a context where there is no round about to the right of the addressee, yet present indicative is fine.

- (27) Go to the traffic lights. There's a roundabout to your right.

Asher and Lascarides (2003a) first of all acknowledge the non-propositional behaviour of imperatives with respect to disjunction introduction that is well known under the name of Ross' paradox (Ross 1944).<sup>12</sup> Therefore, they depart from a propositional semantics of imperatives and choose Segerberg's (1990) theory of a modal logic of action as a starting point.

In order to capture the semantics of imperatives, Segerberg (1990) introduces a new type of semantic objects, namely *action terms*. Propositional formulae can be taken into action terms by the action operator  $\delta$ . That is, for a propositional variable  $p$ ,  $\delta p$  is the action term that corresponds to seeing to it that  $p$  is true. The command operator  $!$  takes action terms into *practical formulae*. These are the translations of imperatives. Action terms denote sets of pairs of possible worlds  $\langle w, w' \rangle$ , such that in  $w$  the action can be performed and in  $w'$  it has been performed. A formula  $\delta p$  is interpreted via a function  $D$  in the model which takes propositions to actions, i.e.,  $\llbracket \delta p \rrbracket^M =_{def} D \llbracket p \rrbracket^M$ , and  $D$  satisfies the constraint in

<sup>11</sup>The treatment in the book Asher and Lascarides (2003b) and the article Asher and Lascarides (2003a) are similar apart from a minor detail with respect to the treatment of disjunction and avoidance of Ross' paradox (I will not go into detail at that point since I rely on a non-classical account of disjunction anyway). My presentation follows the article which is self-contained.

<sup>12</sup>*Post the letter or burn it!* does not entail *Post the letter!* as would be predicted by a theory that relies on classical disjunction and interprets an imperative  $\phi!$  as *It is commanded that  $\phi$* .

(28):

$$(28) \quad D[p]^M \subseteq \{ \langle w, w' \rangle : w' \in \llbracket p \rrbracket^M \}$$

Asher and Lascarides (2003a) now rightly remark that Segerberg's (1990) theory fails to treat quantifiers (because it is propositional) and anaphoric dependencies (because it is static). Therefore, they translate it into their dynamic framework of SDRT (Segmented Discourse Representation Theory).<sup>13</sup>

The theory relies on the standard definitions of DRT (discourse representation theory, cf. Kamp and Reyle 1993) that represents discourse in terms of discourse referents (the entities talked about), and discourse conditions (what is said about them). The syntax is given in (29).

- (29) Suppose  $U \subseteq \text{Discourse Referents}$ . Then wellformed DRSs  $K$  and DRS conditions  $\gamma$  are defined recursively as follows ( $K \cap \gamma =_{def} \langle U_K, C_K \cup \gamma \rangle$ ):  
 $K := \langle U, \emptyset \rangle \mid K \cap \gamma$   
 Let  $R \in \text{Predicates}$  be an  $n$ -ary predicate and  $x_1, \dots, x_n$  be discourse referents.  
 $\gamma := R(x_1, \dots, x_n) \mid \neg K \mid K_1 \Rightarrow K_2 \mid K_1 \vee K_2$

The semantics relies on truth definitions that involve embedding of DRSs into a standard Tarskian model  $M = \langle A_M, W_M, I_M \rangle$ , where  $A_M$  is the set of individuals,  $W_M$  the set of worlds, and  $I_M$  the interpretation function that assigns  $n$ -ary predicates at a world  $w$  a set of  $n$ -tuples of  $A_M$ . In a static version of DRT, a DRS  $K$  is evaluated with respect to pairs of worlds and assignment functions  $(w, f)$ , and is said to be true if the DRT-conditions of  $K$  hold in  $w$  under the variable assignment  $f$ . Under the dynamic view, DRSs relate pairs of worlds and assignment functions to pairs of worlds and assignment functions. Consequently, an information state of a context  $c$  (as modelled by the set of worlds  $CG$  under the Stalnakerian view in abstraction from the variable assignment in Section 2) can be rendered as the set of world/assignment function pairs  $(w, f)$ , such that  $w$  makes true whatever is known in  $c$ , and  $f$  faithfully renders the referential intentions held possible in  $c$ .

The context change potential of a DRS  $K$  is now defined simultaneously in terms of a model theoretic transition  $P$  and a valuation function  $V$ .  $P$  extends the assignment function, and  $V$  treats the DRT-conditions as tests. The definitions are given in (30).

- (30)  $(w, f)P_M \langle U, \emptyset \rangle (w', g)$  iff  $w = w' \wedge f \subseteq g \wedge \text{dom}(g) = \text{dom}(f) \cup U$   
 $(w, f) \in V_M(R(x_1, \dots, x_n))$  iff  $(f(x_1), \dots, f(x_n)) \in I_M(R)(w)$   
 $(w, f) \in V_M(\neg K)$  iff  $\neg \exists g((w, f)P_M(K)(w, g))$   
 $(w, f) \in V_M(K \Rightarrow K')$  iff  $\forall g((w, f)P_M(K)(w, g) \rightarrow \exists h(w, g)P_M(K')(w, h))$   
 $(w, f) \in V_M(K \vee K')$  iff  $\exists g((w, f)P_M(K)(w, g) \vee \exists h(w, f)P_M(K')(w, h))$   
 $(w, f)P_M(K \cap \gamma)(w', g)$  iff  $w = w' \wedge (w, f)P_M(K)(w, g) \wedge (w, g) \in V_M(\gamma)$

<sup>13</sup>Cf. Asher and Lascarides (2003a) for coverage of the entire theory.

Now, the language is extended to contain action terms and the operation of concatenation, the result relation and implication. For the moment, I will confine my attention to plain imperatives. The relevant syntactic extension is given in (31a), the corresponding semantic rule is given in (31b).

- (31) a. If  $K$  is a DRS, then  $\delta K$  is an action term.  
 b.  $(w, f)P_M(\delta K)(w', g)$  iff  $(w', f)P_M(K)(w', g)$ .

Together with the definitions in (30), this says that the action term  $\delta K$  is the relation that holds between pairs of world and assignment function  $(w, f)$  and  $(w', g)$ , iff the world can be changed in whatever way so that the corresponding declarative condition holds between the pairs of the new world and the old and new assignment function respectively. Or, when applied to an information state  $s$ , it would map it onto an information state  $s'$ , such that all the worlds are changed to worlds where the imperative is complied with (or will be complied with for sure).

Basically, the CCP changes the world to an output world where the imperative has been performed.

I remain sceptical of this particular use of the world component for the following reasons.

The first problem I want to point out is a technicality. Intuitively, an imperative is to change the world component just like an indefinite would change the assignment function. But in the latter case, this is constrained to the old assignment function being a subset of the new one, and the domain of the new one constituting an extension of the domain of the old one by union with the discourse referents of the respective DRS. No comparable restriction is warranted for the change in the world component though. Consider an imperative as in (32).

- (32) Close the door!

Intuitively, we would not want an imperative like (32) to change the world to a world in which the addressee has closed the door but World War II had never taken place. That is, we would not want imperatives to change things that are known (not) to be the case. On the other hand, it should also not change the world to one that departs more than necessary in the future (e.g. there is a certain expectation as to how a particular imperative is complied with). And, last but not least, when applying the imperative to an information state, for issues independent of the imperative original diversity (representing the joint epistemic uncertainty of the participants), should not be diminished. That is, we should not end up with a communication state that represents knowledge independent of what is connected to the imperative. E.g., if before issuing the imperative the participants were insecure as to whether on the following day snow was to fall, there are both pairs with snow-worlds and pairs with no-snow-worlds in the information state. An imperative like (32) should therefore never provide information in either direction, leaving us with an information state that contained only snow-worlds, or non-snow-worlds.

So far, there is nothing in (31b) to prohibit this.

So far, there is nothing in (31b) to prohibit this. Consequently, the change of the world has to be restricted somehow. We could either try to do this pointwise in terms of a minimality restriction, e.g. along the lines of what Lewis (1973) proposes for counterfactuals (incorporating additionally - in contrast to counterfactuality - a restriction that the closest world has to be epistemically accessible). I am somewhat concerned if this can be made to leave open all (epistemically) possible ways of complying with the imperative.

On the other hand, one could also proceed from epistemic accessibility, and simply require that the information state gained by the update is a subset of the original one. We would then require that for each pair  $(w', h')$  in the new information state there is a pair  $(w, h)$  in the old information state such that  $h \subseteq h'$ . This guarantees that knowledge cannot be lost. Nevertheless, it does still not guarantee that epistemic uncertainty is retained as long as it is unrelated to the imperative. If that is taken into account as well (e.g. via a maximality operator on the change of the information state), the effect of the update boils down to that of the corresponding declarative proposition.

Consequently, it seems all but trivial to spell out the constraint on the change of the world parameter correctly and yet achieving an effect that differs in an interesting way from the update with the declarative counterpart.

Granted that some satisfactory condition of minimal change could be built into the theory, I'm still sceptical if the change in world is indeed what we want.

First, we should see that examples as in (27) can be paralleled by examples involving declaratives expressing modalized propositions.

(33) You have to go to the traffic lights. There's a roundabout to your right.

Reference to a background that has been introduced in a modal context is well-known as *modal subordination* (cf. Roberts 1989). But the general phenomenon differs slightly from what is observed for imperatives as in (27) and declaratives as in (33): Usually, indicatives can not be subordinated (cf. (34)).

(34) A thief might break in. There {would be/#is} a car waiting for him outside.

The contrast between (34) and (27) is indeed very interesting. I still do not think that should be taken as evidence though that the imperative does indeed change the world. If so, it could only do so hypothetically, because the participants to the conversation in (27) still know that the addressee is not yet located at the roundabout. If one was to take into account the time parameter after all and instead choose to interpret the imperative as "The addressee makes true that he goes to the traffic lights (and arrives there)" (granting also perfectivity in the sense that the result state is reached, and we do not end up with worlds that make true "the addressee is going there"), by analogy to the world parameter it is not clear any longer why the indicative proposition to be interpreted with respect to the result

state of that action can appear in the present tense.

Let's compare this with an imperative that contains an adverbial that explicitly locates the event requested by the imperative in the future as in (35). Promising to comply with the imperative could then be argued to be enough that both participants know that the addressee is to come to lunch the following day. The intuition that this is the case in some but not other scenarios (depending on the amount of scepticism involved) could naturally be covered by a contextualistic theory of knowledge, cf. Lewis (1996). Asher and Lascarides's (2003a) approach does not seem to be applicable in the more scepticistic environments. Neither is it completely clear to me how the effect of the imperative could be weakened in the case of a reply as in (35b). Intuitively, the imperative issued by the speaker is still the same, its effect on the world though is at best equivalent to the weaker one in (36).

(35) Come tomorrow for lunch!

- a. Okay!
- b. Okay, I'll try to do so.

(36) Try to come tomorrow for lunch.

Answers like (35b) seem very natural, but very hard to integrate in a theory that assumes imperatives to be either complied with or rejected.

To me, it seems that a much more natural assumption for these cases would be an allowance for imperatives and certain declaratives involving modalized propositions to invite something like "and imagine you have done that".

Second, I also find it problematic that imperatives can only either be commanded (in the sense of changing the world to one where they are complied with), or not-commanded due to getting attached via some non-veridical discourse relation. This is for example what happens to imperatives that occur in recipes, cf. (37), in contrast to what happens in (38).

(37) a. A: How does one make lasagne?  
 b. B: Chop onions, and fry with mince and tomatoes, boil the pasta, make a cheese sauce, assemble it, and bake in the oven for 30 minutes.

(38) a. A: What should I do now?  
 b. B: Own up to the police.

Both question-answer pairs are to be integrated into the discourse by appropriate discourse relations. Imperative answers to questions are assumed to always constitute indirect answers to questions (that is, a direct answer can only be inferred from the imperative answer). The discourse relation that can be inferred is IQAP (*Indirect Question Answer Pair*) in both cases. An additional axiom ensures that the imperative answer is commanded only in case the direct answer to the question would explicate a deontic necessity. Therefore, the imperative answer in (38) results as commanded, while the imperative answer in (37) is not.

Consider cases like (39). Despite wishful thinking this should not change anything about the situation in the world, consequently, it cannot really be commanded in the above mentioned sense. Nevertheless, the imperative is actually issued.

- (39) a. Get well soon!  
 b. Have fun at the party!

At least imperatives that are accepted only with a proviso (cf. (35b)) and wishes (cf. (39)) cannot be treated with the discourse relations elaborated so far for imperatives. Neither can these cases be taken as contributing the (unmodalized) proposition (as imperatives in non-veridical positions of discourse relations, cf. (37), do), nor can they be analyzed as leading to the change in the world assigned as the imperative's context change potential (when appearing in a veridical position, cf. (38)). Of course, there is nothing that would in principle prohibit an extension of the approach along these lines. Nevertheless, it is not obvious to me how to correctly constrain the respective new axioms.

We will also see later that it is a general problem of the theory that it often relies on the formal feature of imperativity to infer certain discourse relations. In many cases, the imperative could have been substituted for by a declarative containing a necessity modal. An alternative propositional semantics for imperatives would in many respects allow for unification of the proposed discourse relations that have to be doubled under the current version of the approach.

### 3.1.4 Conclusion on importing pragmatic objects

At this point, we can conclude that the approaches that rely on introducing pragmatic objects or effects on the discourse setting into the realm of semantic denotata all seem too specific to deal with the problem of functional inhomogeneity (FIP) and especially the problem of quantificational inhomogeneity (QIP). They either end up answering both the *problem of clause type encoding* (PCTE) and the *problem of assignment of speech acts* (PASTA), thus coming close to the literal meaning hypothesis, or they would have to postulate a high amount of ambiguity that would not only appear highly inelegant, but also fail to answer PCTE.<sup>14</sup>

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<sup>14</sup>The same criticism would carry over to an approach that postulates a more pragmatics related meaning component at an entirely different level of meaning, as for example the cognitive attitudes explored in Bierwisch (1980). There, an imperative  $\phi!$  is assumed to specify an attitude of the speaker towards the realization of what is denoted by  $\phi$ , namely that the utterer intends that  $\phi$ . It is easy to see that this would fall short of being applicable to imperatives used at least for giving advices, permissions, and concessions. Wilson and Sperber (1988) stick to associating the imperative with a similar cognitive attitude, but intend to obviate these problems by allowing also that someone different from the speaker might hold it. Cf. Mastop (2005) for criticism.

## 3.2 Core Semantic-Objects Constraining What They Can Be Used For

In contrast to the approaches mentioned above that crucially import pragmatic notions into the realm of semantic denotata, in this section I want to discuss approaches that assign core semantic objects to imperatives (that is, objects found at completely speech act independent levels of semantic composition), and assume that by their very nature these objects constrain the use that can be made of them, or the update operations that can be performed with them. This is crucially different from letting the object itself denoting the respective update operations. That is, the objects assigned determine their prototypical and token-specific functions without being explicitly linked to pragmatic objects. In a way, all approaches discussed in this section (and thereby also the analysis I'm putting forth myself), are recent elaborations of the attempt to treat the meaning of (irreducibly) non-declaratives *in terms of denotation conditions and conditions of social interaction*, as discussed and refuted by Bierwisch (1980).

I will first discuss Mastop's (2005) analysis that involves imperatives constraining schedules for future action (in doing so, it also shows similarities to the approaches discussed above). I will then discuss what I want to call the **Georgetown Analysis of Imperatives** (henceforth GAI), which has been put forth in partly joint work by Paul Portner, Raffaella Zanuttini, Miok Pak and Simon Mauck (Portner 2005, Portner 2003, Portner 2004, Pak, Portner, and Zanuttini 2004, Mauck, Pak, Portner, and Zanuttini 2005, Mauck and Zanuttini ta, Mauck 2005, Mauck, Pak, Portner, and Zanuttini 2005, Pak 2004, Pak ta, ...). Their approach to sentence mood relies on the idea that clause types denote semantic objects that by their very nature determine the kind of effect they have on the context. Imperatives are assigned a non-propositional semantics in order to ensure that they behave differently from declaratives. I want to argue that as it stands, this strengthens MSHSM to cover the speech act assignment problem (PASTA) and thus runs into the same problems as Searle's literal meaning hypothesis or the approaches discussed in Section 3.1.

In Section 3.2.3 I will finally sketch what I take to be the most promising approach to imperatives at the semantics-pragmatics interface. I will make use of some ingredients that are also employed by GAI, e.g. above all connecting imperatives to an ordering on the possible continuations of the situation in which the conversation is taking place. But crucially, I will make this ordering a part of semantics, while still leaving its exact nature to pragmatics (that is, interaction with the actual context). Also, I will not rely on assigning a non-propositional semantic type to force the non-assertiveness of imperatives, but rather employ an additional, non-truthconditional meaning component.



### 3.2.1 Scheduling actions

Before going into a discussion of the approach Rosja Mastop has recently proposed in his PhDthesis on imperatives (Mastop 2005), I should clarify that he explicitly sticks to a different strategy of individuating imperatives.

For him, imperatives are to be individuated semantically, that is, as forms encoding something that has the following characteristics: (i) it is inherently performative, (ii) it expands the plans of an agent (thereby constraining the set of future possibilities open to her).

Consequently, usages of the imperative clause type as I have identified it that do not carry these characteristics, are not taken to be imperatives, but rather optatives, prayers, wishes, or the like. They share the same form, but are taken to be semantically independent. Consequently, there has to be genuine ambiguity at least at the synchronic level.

This, to my mind unnecessarily, pessimistic strategy is motivated most of all by a particular understanding of semantics as something that has no reality apart from use, and that consequently, we may not postulate entities that do not correspond to a (unifiable class of) move(s) in the language game (cf. Wittgenstein 1953). For the moment, I will just set aside these deeper worries and go on accepting more abstract entities as meanings of natural language items.

In contrast to this deeper philosophical worry which I do not have much to say about at the moment, I disagree with the empirical arguments brought forth in favour of Mastop's drawing up of the border. He argues that some of the examples that fall outside of his semantic definition of imperatives would require the agent to be absent (which is not correct, I think, cf. Section 6.2.3). Moreover, he shows that one should not force a uniform analysis for the entire class of English infinitivals (vs. e.g. Bolinger 1967).

I agree with the argumentation concerning English infinitivals, but I would want to stress that a lot of languages clearly distinguish imperative forms from infinitivals in morphosyntax, but still use the imperatives for the same set of - in the sense of Mastop - clearly non-imperative functions. Additionally, we should keep in mind that the kind of usage depends heavily on properties of the lexical predicate, above all, if it describes an activity fit for being controlled and thus commanded, or not (e.g., individual level statives are used most of all as absent wishes).

Last but not least, even if they do not really correspond to one (type of) move in the language game, all these usages are clearly felt to have a common semantic core. Roughly, they all compare alternative ways the world might be or turn out to be. Consequently, FIP should not be resolved as ambiguity, at most it could be treated as an instance of polysemy. But this would require to derive the semantics for these different readings (or, usages, under my understanding) from a common semantic core, ideally compositionally.

The inherently performative treatment is also problematic in that it faces problems dealing with QIP, the problem of quantificational inhomogeneity. If all future

possibilities are to be constrained to making the imperative true, it is very hard to extend this to an analysis of permissions.

On the other hand, under this inherently performative understanding of the imperative's semantics, it is also unclear, why certain declaratives should sometimes acquire the same performative effect. Performatively used modals still correspond to declaratives, yet, under certain contextual constellations, they induce the same effects as imperatives do.

Therefore, while the solution given in Mastop (2005) is clearly interesting as an analysis of commanding or requesting, we should keep in mind that we haven't seen evidence so far that this is something actually grammaticalized by natural languages, let alone that this is the object grammaticalized by what is generally understood as the imperative clause type.

Mastop's analysis relies on extending the approach of partial update semantics as developed by Veltman (1996) to imperatives and root<sup>15</sup> modalities. In order to do so, cognitive states are represented as sets of pairs  $\sigma$  of situation descriptions  $s$  and schedules  $\pi$ . To make this distinction, a basic ontological dualism is assumed. Predicates with all argument slots filled describe events ( $E$ ) and are paired by actions ( $A$ ) that differ from the corresponding event in that the agent is not part of it. Mastop illustrates the distinction with the contrast in (40):

- (40) a. I enjoyed playing the piano.  
 b. I enjoyed my playing the piano.

In (40b) the agent is mentioned as part of what is enjoyed, consequently, the complement of enjoy describes an *event* that is seen from the outside, that is, it could well be a recording one is listening to. In contrast to that, (40a) describes the playing as an ongoing action the matrix subject is enjoying from an inside perspective, that is, the complement describes an *action* play the piano.

A function  $\mu$  maps an action  $a$  and an agent  $p$  to the corresponding event  $e$  of  $p$  doing  $a$ . Events are something one can describe as having taken place at a certain time, and actions are something one can plan to do, or command others to do at a certain time.

Going back to modelling cognitive states, the possibilities  $\sigma$  therein consist of a situation description  $s$  and a schedule  $\pi$ .  $s$  is a subset of  $((E \times T) \times \{\text{TRUE}, \text{FALSE}\})$ .  $\pi$  assigns to each agent  $p \in P$  (= the set of agents) a subset of  $((A \times T) \times \{\text{DO}, \text{DON'T}\})$  ( $T$  is the (standardly) structured domain of durations). Both situation descriptions and schedules are partial that is, not all events are specified as true or false, neither are all actions specified as to do or not to do.

All possibilities in the cognitive state will agree on associating pairs of events and times  $(e, \tau)$  with TRUE if  $e$  is known to be true at (some subinterval of)  $\tau$ , or FALSE if  $e$  is known to be false at all subintervals of  $\tau$ . Likewise, they will agree on associating a pair of an action and a time  $(a, \tau)$  with DO, if  $a$  is known to be

<sup>15</sup>Deontic and dynamic (circumstantial or metaphysical) modalities, as opposed to epistemic.

commanded to happen at (some subinterval of)  $\tau$ , and DON'T if  $a$  is known to be prohibited for all of  $\tau$ .

Crucially, a context of evaluation also specifies an event time  $\epsilon$ , an agent from whose perspective the evaluation takes place  $p$ , and a reference time  $\rho$ . Taken together with the possibilities under consideration, a context is thus a quadrupel of the form  $\langle \sigma, \epsilon, p, \rho \rangle$ .

Updating a context with declaratives means adding to the situation descriptions of the possibilities in  $\sigma$  pairs of  $((e, \epsilon), \text{TRUE})$  or  $((e, \epsilon), \text{FALSE})$ . Updating with imperatives means adding pairs of  $((a, \epsilon), \text{DO})$  or  $((a, \epsilon), \text{DON'T})$  to the schedule for the agent  $p$ , the holder of the perspective in the context of evaluation. By default,  $p$  is set to the interpreter, that is the addressee. Both updates are subject to constraints of consistency and executability of the resulting schedule, and crucially, updates with declaratives are restricted to adding only events allocated before the contextual reference time  $\rho$ , while updates with imperatives may only add actions that are allocated after the contextual reference time  $\rho$ .<sup>16</sup>

The contextual parameters can be shifted by various phenomena. The default for event and reference time is the actual *now* (the unshiftable parameter of the utterance time). Tense can shift the event time (past sets it to the entire interval preceding the reference time, future to the entire interval following the reference time), and modality can shift the reference time. As I have said above, the default perspective is the one of the addressee, but hortatives or third person imperatives (*let's do  $\phi$* , *let  $q$  do  $\phi$* ) can shift the perspective to first person plural or  $q$  respectively.

Apart from my general uneasiness about the consequences of a purely semantic individuation of imperatives, I'm also suspicious about some details in the analysis itself.

First, I do not think that the overtly missing subject of the imperative should really be treated as absent in semantics, so that the agent whose schedule is to be updated gets filled in due to a contextual (shiftable) parameter (namely, who holds the viewpoint). Consider (41).

(41) Wash yourself!

As far as I can see, the only way to analyze this in Mastop's (2005) framework, is to treat the reflexive as an addressee-referring pronoun, while the missing agent is still to be constituted by the view point of the context. Consequently, (41) comes out as somehow equivalent to (42).

(42) Hereby, the holder of the viewpoint is to wash the person I am speaking to.

By default, the view point is constituted by the interpreter, that is, by the addressee. Therefore, the predicted equivalence is normally innocent. But note that the conversational parameters view point, event time and reference time are in principle

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<sup>16</sup>Note that, therefore, declarative information about the future always has to be assumed to be somehow modalized.

shift-able (and are indeed shifted by various operators discussed in Mastop 2005). Consequently, the view point need not be the addressee. Neither does the imperative automatically set the view point back to the addressee (rather Mastop 2005 assumes that this is the function of the optionally found second person subjects in imperatives). Consequently, we would assume that (42) could sometimes mean that someone else was to wash the addressee. But this is of course not a possible understanding for (41). Whatever the properties of the context are, grasping the meaning of (41) includes grasping that whoever is the addressee is to wash him- or herself. That is, the reflexivity is semantically inherent, it is not an epiphenomenon of properties the context of evaluation has (by default).<sup>17</sup>

We should also compare this to cases that depend indeed on some sort of view point or contextually given standard:

- (43) a. This book is too heavy. Give it back to me.  
 b. Give the book back to me. It is too heavy.
- (44) a. This book is too heavy. Take it back.  
 b. Take that book back. It is too heavy.

In (43), *too heavy* is most likely taken to mean *too heavy for the addressee*, and in (44), it means *too heavy for the speaker* (irrespective of the sequential order). Nevertheless, the interpretation of the perspective for the action commanded stays completely unaffected. It can only be the addressee. Again, I would take this as an indication that the imperative subject is grammaticalized to be (one of) the addressee(s).

A further concern is that the approach crucially relies on imperatives corresponding to actions and the latter being always related to events via an agent  $\theta$ -role. Nevertheless, a lot of imperatives contain non-agentive predicates, or the subject can only be understood as a patient  $\theta$ -role. Some of these cases (as e.g. (45), (46)) would most likely fall outside of the scope of the analysis because of the strategy of semantic individuation Mastop pursues.

- (45) a. Be blond! (*said in a murmur while on one's way to a blind date*)  
 b. Please, don't have had an accident!
- (46) Werd mal selber von einem Haifisch gebissen, bevor du so  
 become once/PRT yourself by a shark bitten before you so  
 groß redest.  
 big talk.2P.SG.IND  
 (roughly) 'Be bitten by a shark yourself before you talk so presumptuously.'

Others are discussed in the thesis (Mastop (2005:124)), but argued to crucially involve some sort of reinterpretation that again involves an agent controlling that one does not let others spoil one's meal ((47a), his (8d)), or something like stressing

<sup>17</sup>Note that this argument does not depend on the reflexivity being expressed in syntax, although reflexives as in (41) have to be seen as an important argument for the presence of imperative subjects in syntax.

the addressees role in taking the advice ((47b), his (8b)), or actively take steps to be operated ((47c), his 8c).

- (47) a. Enjoy your meal.  
 b. Be warned: those candy bars can kill you.  
 c. Undergo an operation.

I partly agree with these reinterpretations, but do not quite see how they could be made precise in the sense of adding an agent  $\theta$ -role to the patient/experiencer  $\theta$ -role the missing argument would occupy in the corresponding event. It seems quite plausible to me to add something like *see to it that to undergoing an operation* in (47c), thereby making the experiencer of the operation the agent of the bringing about of an operation. Nevertheless, already for (47a) and (47b) I would find it pretty unintuitive.<sup>18</sup> Therefore, while resorting to agency has a certain intuitive appeal when first looking at imperatives, it is a lot harder to ultimately make sense of it when really analyzing them.

Another problem inherent to the approach is the decision to do with an operator analysis of tense. Temporal information is thus treated in terms of contextual parameters that fix of what intervals an event is true/false, or an action is to be done/not to be done. There are no variables for temporal entities in the formulae expressed by the recursive meaning component, consequently, there is no binding of or quantification over variables for temporal entities.

Consequently, the analysis buys the problem of making incorrect predictions with respect to intended temporal allocations of events and actions when the event time is not explicitly named. This is especially salient with negation, as exemplified by Partee's (1973) problem (cf. (48a)) for declaratives. Analogously, for imperatives, it seems too weak to simply require that they can be complied with at some moment in the future.<sup>19</sup>

- (48) a. I didn't turn off the stove.  
 b. Turn off the stove!

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<sup>18</sup>Technical proposals along these lines are to be found in the large literature of *stit*-approaches to imperatives and agency or causation in general (cf. e.g. Belnap, Perloff, and Xu 2001). Due to the limited scope of this thesis, I will not be able to take them into account in detail. I agree with the problems put forth in Mastop (2005), and I would like to point out that these approaches automatically involve the same narrow individuation of imperatives I have been discussing in detail for Mastop's account.

<sup>19</sup>Note that the contextually given event time cannot possibly play the same role as a temporal variable introduced within the sentence itself in a deictic account of tense. The contextually given event time is there independently of the sentence and can at best be assumed to be shifted by Past or Future, or restricted by an adverbial. Nevertheless, it cannot possibly be the time the speaker has in mind for allocating the next sentence he is going to issue - the individuation of the specific time he has in mind depends to a good deal on contextual knowledge about specific issues mentioned in the sentence, in combination with world knowledge with respect to the lexical elements involved, etc. This is all information that need not be activated before the sentence is issued; consequently, the specific time at which an action is to be executed or an event is allocated cannot be in the context independently of the information given in the sentence.

Furthermore, the framework of partial update semantics is very unhandy for expressing temporal quantification. In principle, introducing (infinite) disjunctions can only be avoided for classical quantifiers. E.g., in order to express universal quantification over events or actions, negative events are introduced ( $\bar{E}$ ) that express the absence of the corresponding positive event for the entire time. But of course, the ontology would have to be enriched by events or actions containing the respective multiplicity of primitive events for analyzing sentences like (49), additionally for quantifiers containing *at most* or *at least*, etc.

- (49) a. I have already called Cécile three times.  
 b. Call Ede at most three times while he is in Georgia.

As ontologically costly as that is, problems increase when it comes to quantification that involves interaction between situation descriptions and schedules. I do not think that there is a straightforward way to extend the approach to cases as in (50).

- (50) a. Whenever you see John, say hello.  
 b. Say hello at least every third time that you see him.

Even single instants are to be treated with caution though, given that declaratives (as constituted by the antecedent) cannot normally be allocated at times that lie after the reference time. Nevertheless, the complex sentence in (51) is taken to talk about the future.

- (51) If you run into Hong, tell him to give back *Formal Philosophy* to Cécile.

Mastop's (2005) proposal combines two features for an analysis of sentence mood that I am not particularly happy with:

On the one hand, the effect on the context is built into the semantics in a very specific way, which renders it impossible to account for alternative, less prototypical usages as are made of the corresponding form types. Given the way imperatives are individuated, one of my core questions, namely how a uniform semantic object (or a combination of various ingredients) can account for all the usages of imperative clause types is explicitly refused as a goal of investigation.

On the other hand, the particular implementation is not without problems. The dependence on shiftable parameters for imperative subjects seems too weak, and the close relation to agency is maybe hard to defend. Moreover the framework of partial update semantics runs into problems in accounting for the interaction with temporal quantification; in particular, due to the operator semantics for tense and the split between situation description and scheduling, it seems to prevent a satisfactory analysis of dependences as found in various conditionals. It seems that these latter complaints are inherent to any approach dealing with partial objects, consequently, I take them to make a rather strong case for a treatment in terms of possible worlds as I will be advocating myself.

### 3.2.2 The Georgetown Analysis of Imperatives (GAI)

My discussion of the Georgetown Analysis of Imperatives (GAI) takes as a reference point the outline in Portner (2005).

The GAI is framed by a theory of sentence mood that recognizes a universal inventory of clause types (*declarative, interrogative, imperative*) that can be flanked by less frequent types (especially *promissives, permissives and exclamatives*). These clause types are neither encoded by one (universal) element or a combination of grammatical properties, but are mediated by truthconditional, compositional semantics. I completely agree with this assumption and subscribe to it in terms of my hypothesis MSHSM (cf. (17)).<sup>20</sup> Nevertheless, I will ultimately argue for a completely different kind of semantic object as the denotation of the imperative.

For the interface to pragmatics, GAI assumes that the semantic objects corresponding to each clause type determine the kind of effect the object has on the discourse. The criticism I will have on this is that it leaves no room for variation between prototypical and token-specific speech act type as assigned to a given form type, and consequently, that this has to amount to some sort or other of the literal meaning hypothesis (cf. (18)). In contrast to that, I will try to allow for the utterance context to influence the speech act type of an imperative token by building a particular form of context dependency into the semantics of the imperative.

As to the special object corresponding to each of the clause types, GAI assumes a fine-grained distinction in drawing a sharp boarderline between the various sentence types, especially imperatives and declaratives. Crucially, declaratives, interrogatives and imperatives are taken to correspond to three different logical types. The minor clause types promissives and permissives are variants of imperatives, exclamatives have the same type as interrogatives, but come with a special presuppositional meaning component that prevents them from having the effect of interrogatives. Declaratives are taken to denote propositions  $\langle s, t \rangle$  as always, interrogatives denote sets of propositions  $\langle s, \langle st, t \rangle \rangle$  (proposed first by Hamblin 1973), and imperatives denote properties  $\langle s, \langle e, t \rangle \rangle$ , (proposed first by Hausser 1980). In a conversation, three sets have to be kept track of: the **Common Ground**<sub>*g*</sub><sup>21</sup>, a **question set** (a set of sets of propositions, cf. Ginzburg 1995a, Ginzburg 1995b), and a **To-Do-List-Function** that associates each participant to the conversation with a set of properties. Given that, communicating employs a generalized update function  $F$  that adds a semantic object to the set of the corresponding type:

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<sup>20</sup>The claim that there are no specialized force-indicating elements should not be confused with the fact that there are elements the denotation of which makes the denotation of the sentence they occur in come out as the semantic object corresponding to a particular clause type. In that sense, both the imperative operator/modal I will introduce in Section 6 and their imperative specific element encode a (maybe monotonically) crucial part of the imperative semantics. Still, these elements do so in terms of standard compositional semantics, not in terms of a direct correlation between the form and the function side of the clause type.

<sup>21</sup>In GAI, “Common Ground” is understood as the set of propositions describing the set of worlds I have introduced as the Common Ground in Section 2. Therefore, I indicate  $CG_g$  when following the GAI understanding of the term. Consequently, for any  $c$ :  $CG(c) = \cap CG_g(c)$ .

- (52) Generalized update function  $F$ : [Portner (2005:(5))]
- a. The generalized update function  $F =$  “take a set of  $x$ ’s and another  $x$ , and add the new  $x$  to the set” is universal (More precisely,  $F = \{ \langle c, \langle a, r \rangle \rangle$ : For some set  $X, c \in \mathcal{P}OW(X) \ \& \ a \in X \ \& \ r = c \cup \{a\} \}$ )
  - b. No other update function is universal, and  $F$  is the preferred update function in the sense that if  $F$  can be used to establish the force of a sentence, it must be.<sup>22</sup>

$F$  applied to a context and a semantic object amounts to adding the semantic object to the set of objects of its type. Consequently, declaratives are added to the set of propositions that constitutes the Common Ground, interrogatives are added to the question set, and imperatives are added to a To-Do-List.

As to the latter, it is not entirely clear to me, how  $F$  can handle the fact that it should target the right To-Do-List. It seems that this should be ensured by assuming that the property denoted by the imperative does not only comprise the lexical predicate that is part of the imperative clause, but also a restriction to being identical with the addressee:

$$(53) \quad \lambda P \lambda w \lambda x. x = c_A \ \& \ P(x)(w)$$

Consequently, according to (53), the extension of an imperative  $\phi!$  is the singleton set  $\{c_A\}$  in each world where the addressee has the property denoted by  $\phi$ , and the empty set  $\emptyset$  where the addressee does not. As it stands, the proposal does not say anything as to how this constrains applications of  $F$  so as to end up in the right participant’s To-Do-List. Obviously, it is not intended to exclude update of another individual’s To-Do-List via a consistency requirement on To-Do-Lists. Contrary to such an idea, it is explicitly assumed that allowance of inconsistent orders is a favourable consequence of modelling commitments by lists of properties (cf. Portner (2005:section 3)). And even if one was willing to draw on consistency after all, it would make incorrect predictions. Inherently contradictory imperatives like (54) clearly target the addressee, although the property is necessarily empty:

$$(54) \quad \text{Talk loudly without making a noise!}$$

As it stands, GAI does not account for the fact that imperatives exclusively target the To-Do-List of the addressee. For the moment, I will leave aside this technical problem.

For each participant, his To-Do-List provides a measure of rationality. A rational participant under idealized conditions strives to have all the properties in his To-Do-List. This should be expressed by the ordering relation that the properties in an individual’s To-Do-List induce on a set of possible worlds.  $TDL(i)$  is the To-Do-List

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<sup>22</sup>The latter condition is meant to cover cases like exclamatives that have the logical type of interrogatives, but come with a factivity presupposition that prevents them from being added to the Question Set (as they would by application of  $F$ ). Consequently, languages that mark exclamatives have to provide a special update operation to integrate them into communication.



associated with participant  $i$ .

- (55) **Partial Ordering of Worlds  $<_i$**  (Portner (2005:(12))):  
 For any  $w_1, w_2 \in \bigcap CG$ ,  $w_1 <_i w_2$  iff for some  $P \in \text{TDL}(i)$ ,  $P(w_2)(i) = 1$  and  $P(w_1)(i) = 0$ , and for all  $Q \in \text{TDL}(i)$ , if  $Q(w_1)(i) = 1$ , then  $Q(w_2)(i) = 1$ .<sup>23</sup>
- (56) **Agent's commitment** (Portner 2005(13)):  
 For any agent  $i$ , the participants in the conversation mutually agree to deem  $i$ 's actions rational and cooperative to the extent that those actions in any worlds  $w_1 \in \bigcap CG$  tend to make it more likely that there is not  $w_2 \in \bigcap CG$  such that  $w_1 <_i w_2$ .

To Do Lists thus constrain what will count as rational behaviour of the participants in a conversation.

In the following, I will discuss the approach in some detail and argue that it does not allow for a satisfactory answer to PCTE and PASTA.

First of all, the approach silently abstracts away from the necessary connection with the epistemic impact of having issued an imperative (or having made any other conversational move). Again, we have to add that the facts about the conversation should also constrain the set of possible worlds taken into account (e.g. that someone has made a statement; cf. Section 2). Therefore, in addition to  $F$  some mechanism is needed that keeps track of the moves made (e.g., after A's issuing of an imperative  $\phi$  to B, it should be part of the Common Ground of A and B, that A has issued an imperative with content  $\llbracket \phi \rrbracket^{c,s}$  to B).

One of the strong points of the analysis is that imperatives come out automatically as not having a truth value. Therefore, imperatives cannot be said to be true or false, or, presenting the same from another side, they cannot be used to make assertions.

Let us focus on that for a moment. The method to ensure this is to assign imperatives the type of properties, and thus set them apart from proposition denoting declaratives and interrogatives that denote sets of propositions.<sup>24</sup>

An initial concern applies to the choice of object that is taken to determine the

<sup>23</sup>Note that  $<$  intuitively means the opposite as in Lewis 1973 and Kratzer 1991;  $u <_i w$  means that  $i$  has more of the properties in his To-Do-List in  $w$ , than she has in  $u$ . That is,  $w$  is "better" according to the TDL than  $u$ .

<sup>24</sup>This is only technicality to distinguish imperatives and declaratives, since contingent propositions and addressee-related properties that contain the identity relation with the addressee can always be translated into each other.  $\Rightarrow$  For any property  $P_{\langle s \langle e, t \rangle \rangle}$ ,  $E_1 = \lambda Q \lambda w. Q(w)(c_A)$  applied to  $P$  yields the proposition that the addressee has the property  $P$ .  $\Leftarrow$  For any contingent, proposition  $p$ , application of  $E_2 = \lambda q \lambda w \lambda x. q(w) \& x = c_A$  to  $p$  yields the property of being in a  $p$ -world and being identical to the addressee. Note, that the property is not unique for tautologies or contradictions, which give rise to the constant function to the set containing the addressee or the empty set respectively. Note furthermore, that the mapping from contingent propositions to properties is only unique because the identity restriction to the addressee is built into the GAI semantics. Otherwise, an addressee-containing proposition of the form  $\lambda w. \text{sleep}'(w)(c_A)$  could be mapped to either  $\lambda w \lambda x. \text{sleep}'(w)(x)$ , or  $\lambda w \lambda x. \text{sleep}'(w)(x) \& x = c_A$ .

effect on the discourse. An interesting criticism has been put forth by Bierwisch (1980) against Hausser's (1980) analysis, who likewise assumed that an imperative  $\phi!$  denoted the complex property of being the addressee and being  $\llbracket\phi\rrbracket^{c,s}$ . Bierwisch (1980) rightfully remarked that there seemed to be more to an imperative than just expressing that. It is indeed an unfavourable prediction of GAI that other linguistic objects that are assigned the same denotation would be expected to have the same effect on the discourse. Nevertheless, this does not seem to be the case. Most likely, the interpretation function would assign the same meaning to (57a) as assumed for (57b) by GAI, namely (53). Nevertheless, (57a) does not seem to achieve the same effect on a context as (57b) does.

- (57) a. Der Addressat sein und gehen.  
           the addressee be.INF and go.INF  
       b. Geh!  
           go.IMPSG

Surprisingly, in absence of a linguistic context like *What do you want me to do?*, or *What would be definitely wrong?*, the most straight forward interpretation is some sort of (irrealis) wish the speaker has for himself (*If only I could be the addressee and leave!*) - something completely unavailable for the grammatically marked imperative in (57b). If semantic type determines the effect on the discourse, it is very hard to understand how the different behaviour of (57a) and (57b) could be predicted. Faced with Bierwisch's (1980) criticism, Hausser (1980), who relied on the same contrast in semantic types, could draw on additional pragmatic constraints associated with imperatives vs. such artificially composed expressions with the same denotation. Such additional (pragmatic) meaning components in terms of *gebrauchsbedingungen* would of course contradict the spirit of GAI and can thus not be considered a way out.

Furthermore, the semantic object assigned to imperatives is unmodalized. No scope taking element is introduced, consequently, we would predict that imperatives behave just like infinitives in not allowing for scopal ambiguities:

- (58) to read most books 1

In contrast to that, imperatives do allow for scopal differences. GAI fails to account for the data in (21), repeated in (59).

- (59) Lies die meisten Anträge erst gar nicht. &&  
       read.IMP the most proposals PRT not.at.all not  
       R<sub>1</sub>: 'For most x, x a proposal, don't read x.' *most* >  $\square$   
       R<sub>2</sub>: 'Do the following: for most x, x a proposal, don't read x.'  $\square$  > *most*

Apart from the particular choice of a semantic object, also the general architecture of letting the semantic type determine the effect on the discourse seems problematic.

On the one hand, we have to ask ourselves if really all imperatives should go into the To-Do-List of the addressee. While at first glance this might seem absurd for imperatives like (60), it fares far better on capturing FIP than all the approaches we have seen so far.

- (60) a. Get well soon!  
       b. Please be rich!                   *muttered to oneself on a successful blind date*
- (61) Don't have broken another vase!

Of course it does not make sense to assume that the addressee could do something to make them true (and that's not what they are said for). Nevertheless, despite the maybe unfortunate name, this is not what the GAI-To-Do-List requires. It is only used for a rationality check ensuring that the addressee does not act in a way so as to make the opposite come true. For both cases in (60), this seems indeed to be part of what is intended, an addressee reacting to (60a) by doing things that are known to maybe slow down the process of recovery, is of course not acting in line with what the speaker would judge as rational behaviour. For the monologic usage of (60b) one would probably have to stipulate something along the lines of *I would want to put this on my addressee's To-Do-List*, and could then say something similar. Nevertheless, both sentences (take them to be of form  $\phi!$ ) seem to say a bit more than *Don't stay in the way of  $\phi$  coming/being true*, or even *Do as much as you can in order for  $\phi$  to be/come true*. Rather they seem to express a wish for or about the addressee that is in a way stronger than what that person himself could contribute to the issue in question coming true.

Likewise an absent wish like (61) is concerned more with vases that might already have been broken than with those that might still get broken in the future. But since the past cannot be changed any more, it could never contribute in a non-trivial way to the ordering induced. Again, the impact of (61) cannot be captured in terms of the rationality check.

In the cases of well-wishes or absent wishes, the approach does not capture the full meaning/impact of the imperative. But there are also cases of imperatives for which it is maybe entirely inappropriate to let them enter the rationality check, namely permissions (which do not have to be acted on in order for the addressee to count as rational), and concessions (which deal with properties that are even seen as manifestations of irrationality).

Consequently, the FIP raises its head again, although less violently than with other approaches we have seen so far. It seems that the speech act type assignment to imperatives in terms of introduction of restrictions on the rational behaviour of the addressee is still not general enough to account for what is to be observed with imperative tokens. In some cases, the purely type dependent context modification seems to write too many things into the To-Do-List.

On the other hand, the update function  $F$  also fails to write things into To-Do-Lists that should definitely be in there, at least if To-Do-Lists are to be used as

a rationality check. Just consider the following: assume Natalie asks me to take care of her apartment, her flowers and her cats while she is on vacation. After her issuing (62a), my situation is predicted to be as described in (62b).

- (62) a. N: Du mußt die Blumen gießen und die Katzen füttern.  
 N: you must the flowers water.IMPSG and the cats feed.INF.  
 Und bitte leer den Postkasten.  
 And please empty.IMPSG the mailbox  
 ‘You must water the flowers and feed the cats. And please empty the mailbox.’
- b.  $CG_{new} = CG_{old} \cup \{ \text{According to Natalie, Magda has to water the flowers, According to Natalie, Magda has to feed the cats} \}$ ,  $QS_{new} = QS_{old}$ ,  $TDL(\text{magda})_{new} = TDL(\text{magda})_{old} \cup \{ \lambda w \lambda x. \text{magda} = x \ \& \ \text{mailbox-empty}(x) \}$

So it seems that the Common Ground says that in order to fulfill my duties as a housekeeper (or, in order to comply with Natalie’s wishes, depending on how we want to read the necessity modal), I water the flowers and feed the cats. But I prove to be a rational agent depending on whether I strive to empty the mailbox or not. As far as I can see, this is not what we want. The distinction induced by the performatively used modals vs. the imperative does not seem to be of any interest for the further state of the conversation.

Maybe this looks like splitting hairs. Shouldn’t it be easy enough to allow for performatively used modals, explicit performatives and other suspects to modify the To-Do-List as well? But as soon as we allow for that, we lose the biunique correspondence between clause type (or, correspondingly, semantic type) and effect on the discourse.

Alternatively, the rationality ordering (and likewise any reference to obligations, etc.) could unify information as stored in the common ground and in the To-Do-Lists. But then, it is hard to see why one would want to keep them separate. The arguments for letting imperatives denote properties instead of propositions rely mainly on their apparent inability to relate to truth or falsity. But this is something they share with precisely those declaratives that should be taken into account when looking for potential changes in the rationality ordering (simply because they induce changes in the commitments of the addressee, just like imperatives). These are at least explicit performatives and performatively used modals. Given that these special types of declaratives behave so similarly to imperatives, and that the effects of both categories have to be taken into account when evaluating rationality or the status of the addressee’s commitments, it seems counterintuitive to let them do completely different jobs, and store the information in two different places.

What I will propose in the following will crucially rely on the similarity between performatively used modals and imperatives, while still paying attention to the fact that modals, but not imperatives, allow for purely descriptive (and thereby, at speech act level, assertive) usages as well.

Like GAI, I will rely on imperatives being associated with an ordering of the Common Ground as the set of worlds that are live options for the participants to the conversation. The main difference though is that GAI takes the ordering to be of pragmatic nature, while I will assume that it is truly part of the imperative semantics.

### 3.2.3 An alternative solution in terms of presuppositional *you should*

Let us briefly recollect what we have to account for. Imperatives cannot be associated with truth or falsity in any straightforward way. They are associated with a rather wide range of functions that cannot easily be reduced to a uniform pragmatic core. Last but not least, imperatives seem to contain some scope taking element in semantics.

In the following, I want to argue that for all these points, imperatives seem to behave a lot like modal verbs under what has been introduced in Section 3.1.2 as their *performative usage*.

It might be useful to briefly recapitulate what we have seen there. Modal verbs like *must/should* and *may* can be used to either describe the way the world is with respect to all kinds of possibilities and necessities (*descriptive usages*), or, to change the way the world is with respect to these (*performative usages*). The examples in (63) describe what the world is like with respect to what is permitted or commanded. The change on the context they evoke is thus typically that of an assertion.

- (63) a. You must do the shopping today (as far as I know).  
 b. Peter may come tomorrow. (The hostess said it was no problem.)

In contrast to that, (64) can easily be used to bring about an obligation for the addressee to call the speaker, or render it permissible for the addressee to come at 11, requiring by definition of the speech act types of commanding and permitting that that had not been the case before.

- (64) a. You must call me.  
 b. Okay, you may come at 11. (Are you content now?)

The effect on the discourse as induced by the cases in (64) is of course non-assertive, and in a way it seems very hard to decide if they are true or false. This is exactly as we know it from imperatives.

The hypothesis I want to put forth is therefore the following (which, for the moment, is a restatement of the *you should*-reduction, cf. Section 3).

- (65) **Imperative Semantics I:** Imperatives denote the same object as associated with a performative modal verb.

But as it stands, this only means returning to another problem, namely that of specifying the semantics for performative verbs. In section 3.1.2, we have already seen that there are two types of analyses. Given their obvious close link to descriptive usages, performative modal verbs are either treated assertively, that means assigning them the same semantics as for the descriptive cases, and telling a story in what context a description could turn out to be self-verifying. Alternatively, they can be identified directly with the change they evoke on the context (e.g. van Rooy 2000). In Section 3.1.2 I have already argued that despite *prima facie* appearance the performative treatment of performative modal verbs does not naturally extend to imperatives.

But even for the respective modals themselves the arguments in favour of a performative treatment are not so striking (cf. also Schulz 2003). In line with the general strategy to minimize ambiguity, it is of course desirable to semantically unify descriptive and performative modal verbs. One of the main arguments against a uniform semantics for descriptive and performative modal verbs consists in their seemingly different behaviour with respect to disjunction (cf. Kamp 1973). Deontic *may* under its performative reading gives rise to the so called free choice effect for disjunctions (cf. (66a)), while it does not under its descriptive reading (cf. (66b)).

- (66) a. You can ask Cécile or you can email to Patrick.  
       → You can ask Cécile. And you can email to Patrick.  
       b. You can ask Cécile or you can email to Patrick, I forgot which.  
       ↯ You can ask Cécile. And you can email to Patrick.

Nevertheless, this is neither unique to performative usages, nor does it pertain to all of them. Consider epistemic *might* in (67) for a free choice reading with a non-performative modal, and deontic *may* in Kamp's (1978) example (68) for lack of free choice with performative *may*.

- (67) The book might be on the table or I might have left it at home.  
       → It might be the case that the book is on the table, and it might be the case that I have left it at home.  
       (68) You may go to Shoal Creek, or you may go to Shingle Creek, but stay away from the dangerous one.  
       ↯ You may go to Shoal Creek, and you may go to Shingle Creek.

Likewise, I'm not convinced by the argument that, in contrast to descriptive modals, performative modals do not enter the recursive meaning component and should thus be treated differently. On the one hand, the putative impossibility of embedding performative elements is no longer undisputed (cf. Section 3.1.1). On the other hand, a similar effect is observable with declaratives, consider (69). While (69a) can serve to constrain the Common Ground, (69b) fails to have this effect due to its occurrence in an embedded position.

- (69) a. It is raining.  
 b. John doesn't believe that it is raining.

Nevertheless, they are usually taken to express the same proposition.

Given that the arguments against doing so prove to be rather weak, semantically unifying descriptive and performative usages of modal verbs seems absolutely desirable.

We have already seen in Section 3.1, that a direct encoding of the effect of such a performative verb as proposed by van Rooy (2000) does not carry over to imperatives, mostly due to QIP. Thus, a performative analysis of modal verbs does not carry over to imperatives. The rest of this book will be devoted to developing the claim that an assertoric treatment can.

There is one thing we have to keep in mind though: treating performative verbs as propositional operators is strongly motivated by their most obvious similarity to descriptive usages. For imperatives, descriptive usages seem unavailable though, making the proposed reduction initially a lot more implausible (cf. e.g. Merin 1991 for an explicit position along these lines). Furthermore, something has to be done in order to explain the inherent performativity of imperatives. Rosja Mastop remarks that imperatives can never be used to describe the world, and insists that it is a truism that this can never be explained when imperatives are assigned a propositional denotation (cf. Mastop (2005:)). Consequently, any satisfactory analysis for imperatives has to be non-propositional. I agree with everything but the consequence he draws: Of course, no proposition bears on its sleeve that it can't be used to describe the world. Nevertheless, it does not follow that the semantics of imperatives has to be non-propositional. It only follows, that the semantics of imperatives cannot be captured in terms of a proposition alone.

Therefore, we will argue that the properties a context has to have in order to allow for a performative interpretation of a modal verb, are part of the semantics of the imperative as presuppositions.

The core of my proposal can be phrased as follows:

- Performatively and descriptively used modal verbs correspond to the same semantic object, and yield propositions.
- Under certain contextual constellations, modalized declaratives evoke a non-assertoric effect, in particular, they serve to give a command or a permission. In particular, (i) the speaker has to count as an authority on the issue in question, (ii) the speaker has to be known to agree with the source of necessity/possibility, and (iii) the speaker must not be known to consider the proposition said to be necessary/possible an epistemic necessity (and likewise for the complement of the proposition).
- Imperatives (i) denote the same propositional object as sentences of the form *You must p.* or *You should p.*, that is, they are of type  $\langle s, t \rangle$ ,

and (ii) they come with an additional presuppositional meaning component that constrains them to usage in contexts in which a modalized declarative of the form *you must/should*  $\phi$  would achieve a non-assertoric, performative effect; that is, they cannot be felicitously interpreted in a context where the corresponding declarative would achieve a descriptive reading<sup>25</sup>

Furthermore, imperatives seem to sometimes pattern with necessity modals, and sometimes with possibility modals (our familiar problem of quantificational inhomogeneity, QIP). I will give credit to the prevalence of necessity usages in assuming that imperatives are like *must* in expressing necessity, but that under a complex interplay of various but rather well definable properties of the context, necessity statements can have the same effect as performatively used possibility statements (cf. Section 7). While it should thus be straightforward that the approach allows for a natural elaboration of SAH in response to PASTA, it is maybe less straightforward why this should provide an answer to PCTE. Having a look at the preconditions for performative usages of modal verbs, it should be obvious that the commands of the speaker are a natural candidate for meeting all of the requirements; the speaker is necessarily an authority on what he commands, he wants his commands to be complied with, and he does not normally command things he knows to happen anyway or things he takes to be completely impossible. Consequently, it is not surprising that necessity with respect to what the speaker commands (or also wishes) is a natural resolution for the semantics of imperatives in the absence of more specific factors. Therefore, it is only natural that COMMANDING and REQUESTING are felt to be the prototypical functions of imperatives.

In a way, this is a form of an assertoric treatment, although I'm not entirely happy with the terminology. Against what Bach and Harnish (1979) would assume for performatively used modals or explicit performatives, I think Gazdar (1981) might be right in the assertion not necessarily being computed as an assertion pragmatically when presented with a performative (I would assume that this does indeed happen with indirect speech acts, though). In terms of speech act types as descriptive categories of context transitions, it will meet the respective category of COMMAND, PERMISSION, WISH, etc. I would rather prefer a pre-speech act theoretic notion of adding a semantic object to the context of the conversation, resulting (if successful) in *CG* being adapted to make it true if the object denoted a proposition, and *CG* being partitioned if the object denoted an index-dependent proposition, thus causing an instable status of the context that requires (partial) resolution by answering the question. Of course, adding the proposition to *CG* already ensures some of the transitional characteristics of an Assertion. Having said so much, I will leave the issue aside for study in speech act theory.

In order to complete the picture of how a semantic object is used at the semantics-pragmatics interface, it will suffice to complete the picture of the latter with an update function *J*. *J* adds semantic objects to the common ground in the utterance

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<sup>25</sup>Modulo the possibility that presuppositions may trigger accommodation, cf. (70), and an application of that mechanism in 7 to explain permission readings.



context  $c$  under certain conditions about the interaction of the participants in a conversation.

- (70) A universal function  $J$  is defined for semantic objects  $p$  of type  $\langle st \rangle$  and  $q$  of type  $\langle s, st \rangle$ , and adds them to the context under minimal amendments, such that  $p$  is true of  $CG$  afterwards, and  $q$  partitions  $CG$ . This is governed by the following principles:
- a. Intersect/Partition  $p/q$  with  $CG$  if this does not give  $\emptyset/\{\emptyset\}$ .
  - b. Accommodate  $CG$  if intersection is impossible.

As it stands,  $J$  takes care of declaratives, imperatives, and interrogatives (which I take to denote objects of type  $\langle s, st \rangle$ , cf. Groenendijk and Stokhof 1984). If further clause types (e.g. exclamatives) correspond to further logical types, it has to be enriched (but cf. two recent approaches to exclamatives, Portner and Zanuttini 1999 and Roguska 2005, which both assign uniform logical types to interrogatives and exclamatives).

Leaving it deliberately vague, I add the following pragmatic principle.

- (71) A cooperative addressee will always act on the presumption that the context has changed from  $c$  to  $J(c)$  unless he has good reasons not to.

Unifying this with the observations about speech act types, we can add the following requirement on a theory of speech acts:

- (72) A theory of speech acts assigns a speech act type to each triple  $\langle c, c'_E, c'' \rangle$  such that  $J(c, c'_E) = c''$ , where  $c''_E$  is the linguistic object expressed in an intermediate context  $c'$ , which is maximally equivalent to  $c$  such that  $c_T < c'_T < c''_T$ .

$\mathcal{J}$  is distributive w.r.t. speech act conjunction:

- (73) For any  $\phi, \psi$  and  $c$ ,  $\mathcal{J}(\phi \wedge \psi)(c) = \mathcal{J}(\psi)[(J)(\phi)(c)]$

The properties of pre-, post- and intermediate context allow us to determine the type of speech act that has taken place (the postcontext is enough to read it off, but pre- and postcontext together give both boundaries of the change one wants to name).

Section 6 will be devoted to specifying the semantics for imperatives as far as equivalent to one sort of performative necessity modal and the additional meaning components that hinder imperatives to simply inform about standing obligations. Special care of permission readings is taken in 7.

Before doing that, I will give a couple of arguments in Section 3.3 that, after all, equating imperatives and declaratives is not only a nuisance due to the missing truth value of imperatives, but also makes a couple of surprisingly nice predictions.

### 3.3 Imperatives and Declaratives on a par after all

A good deal of the literature on imperatives departs from an understanding that imperatives and declaratives are fundamentally different, and that therefore, a treatment that assimilates them to each other has to be seen as an unfavourable stopgap.

In this section, I want to present a couple of phenomena that seem to contradict this common agreement, and therefore provide evidence for the analysis I'm proposing.

First of all, consider the question of type. It is largely taken as favourable that the major clause types of declaratives, interrogatives and imperatives should correspond to distinct semantic types respectively. A proposal along these lines is found in Hausser 1980, and the Georgetown Analysis for Imperatives (GAI) I have discussed in Section 3.2.2 constitutes a recent elaboration of that idea. Declaratives correspond to propositions  $\langle s, t \rangle$ , interrogatives correspond to sets of propositions  $\langle s, \langle st, t \rangle \rangle$  or index-dependent propositions  $\langle s, st \rangle$ , and imperatives correspond to properties  $\langle s, et \rangle$ .

Consider now the literature on interrogatives. For finding the type of semantic object the mainstream of model theoretic semantic literature seems to agree upon by now, what was crucial was the relation to answers (Hamblin 1958), or more specifically true answers (Karttunen 1977, Groenendijk and Stokhof 1984). Therefore, the type of interrogatives is dependent on the type of declaratives. But upon closer inspection, pairs of questions and answers as constituted by interrogatives and declaratives (cf. (74)), are paired by cases in which imperatives answer questions (cf. (75)).

- (74) a. Q: Is it raining?  
A: Yes, it is raining.
- b. Q: Who came to the party?  
A: Verena, Magda and Hong came to the party.
- (75) a. Q: What shall I do tonight?  
A: Go to the movies.  
A': You should go to the movies.
- b. Q: How do I get to Mannheim?  
A: Take the train.  
A': You must take the A train.

It is quite clear that (75) are not just instances of constituent answers (cf. (76)). This can be shown by cases involving overt subjects (77a), negation (77b), and of course all those languages where imperatives are marked more distinctly than in English, e.g. German as in (78).

- (76) A: What will you do?  
B: Call him, (what else).
- (77) a. Q: Who of us shall go to this party?

- A: YOU go to the reception.  
 A': YOU should go to the reception.
- b. Shall I go to the reception?  
 A: Don't go.  
 A': You should not.
- (78) a. Q: Was soll ich machen?  
       what shall I do.INF  
       'What shall I do?'
- b. A: Ruf deine Schwester an!  
       call.IMP your sister PRT  
       'Call your sister!'
- c. A': (Du solltest) deine Schwester anrufen.  
       (you should) your sister call.INF  
       '(You should) call your sister.'

At least for questions involving *shall/sollen*, it seems that the imperative answers are indeed semantically resolving (that is, they directly eliminate all but one cell of the partition), and should thus in a way correspond to the question in type (cf. Groenendijk and Stokhof 1984 for the notion of pragmatic and semantic resolution of questions). That is, if we want to acknowledge that the answers in (75a), (75b), (77b) and (78b) are no less related to the corresponding questions than their respective declarative counterparts given below, the uniform typing system faces a problem.<sup>26</sup> Either, we have to allow for two different types of questions (declarative resolvable and imperative resolvable ones), or we could take it as a point for a propositional analysis of imperatives. Note that different types of questions would be especially ad hoc since one and the same question in one and the same context can be answered by either an imperative or by a corresponding modalized declarative.

Note in addition that, in contrast to declaratives and imperatives, other interrogatives can never resolve questions. Rhetorical questions can of course pragmatically resolve questions, but they can never do so semantically, (79). Interrogatives that function as information questions can never be question resolving.

- (79) Q: Who came to the party?  
 A: Who could possibly have wanted to go there?

Closely linked to this semantic notion of directly resolving the partitioning induced by a question, we should also take into account the pragmatic notion of leading to a stable or instable state of the discourse context. Krifka (2001) remarks that assertions (as performed by uttering declaratives) lead to stable information states, while questions (as performed by uttering interrogatives) lead to an instable state that requires to be resolved (by answering the question). Imperatives are assumed

<sup>26</sup>Likewise, the possibility to resolve questions should be problematic for all those approaches that assume imperatives to correspond to alternative objects like e.g. action terms, cf. Segerberg (1990), Mastop (2005).

to likewise lead to an instable discourse context, but this time to one that has to be resolved by an action. But we should keep in mind that, just with declaratives, uttering an imperative can also maintain a stable discourse state (e.g. when used as a wish), or resolve an instable discourse state (e.g. when answering a question).

Third, it is interesting to note that imperatives pattern with declaratives and not with interrogatives in allowing for insincerety proper. It has often been argued that lying with an imperative would amount to commanding an action one does not want the addressee to do, e.g. relying on the knowledge that he would do the exact opposite of what he was told to do (cf. Hamblin 1987). But apart from such marginal cases, I would like to point out that, after all, imperatives do allow for much simpler cases of insincerety proper, namely for trying to make the addressee believe something that is known as incorrect to the speaker. Consider the exchange in (80).

- (80) A: How do I get to Harlem?  
 S: Take the B train.  
 S': To go to Harlem, it is best to take the B train.

By now we all know that going to Harlem requires taking the A-train. Let's assume that participant S does as well. Nevertheless, for whatever reason, he tells A that taking the B train is an appropriate (or maybe even the best, or the only) means to go to Harlem. I would assume that this is just as good a lie as the one performed with the declarative by S'. Therefore, S' 's utterance has to be seen as a straightforward case of a lie performed with an imperative. Such non-cooperative usages can easily be accounted for if imperatives can be used to give information how to achieve a goal. In contrast to these cases of imperatives and declaratives, I could not think of an equivalent insincere utterance of a question. At best, we could again construe a scenario where the speaker does not want the addressee to answer the question. But this is of course more a lie in the sense of Hamblin's (1987) scenario for improperly used imperatives, and not in the sense of the insincere information exchange exemplified by (80).

Last but not least, I would like to draw attention to a phenomenon that might at first glance look threatening to the individuation of imperatives I have proposed in the beginning, namely as sentence types. The main criterion for constituting a form type in a clause type system of a language is incompatibility with the formation of other clause types (cf. Sadock and Zwicky 1985). It has often been argued that imperative clause types (taken to be marked by the imperativized verb in many languages) are incompatible with question formation. A straight-forward argument for German would be that the imperative in (81a) cannot be paired by a *wh*-question as in (81b).

- (81) a. Ruf deine Schwester an!  
 call.IMP SG your sister to  
 'Call your sister!'

- b. \*Wen ruf an?  
 who call.IMP SG to

But under closer inspection and trying the data on 10 other speakers<sup>27</sup>, I see myself forced to argue that the grammaticality judgement for (81b) is misled by the attempt to use it as an information seeking question. In contrast to that, *wh*-questions with German imperativized verbs are fully acceptable as rhetorical questions. Consider the following contexts:

- (82) (speaking to a child who is carrying around a flower pot it should actually be able to put into the right place):

- a. Na komm, du weißt es doch. Wo stell den Blumentopf  
 PRT come.IMP, you know it PRT. Where put.IMP the flower-pot  
 hin?  
 to  
 ‘Come on, you know it. Where do you have to put the flower pot?’

- (83) (There are a couple of books around one could potentially read for the exam. The professor would of course be able to tell from the answers which book a student had studied. The authors are Mayer, Müller and Schmidt. Schmidt’s books contains a couple of mistakes, but he has just written an article together with the professor the addressee wants to take the exam with; Müller’s book is quite good, but a bit expensive. Mayer’s book is actually quite good, but the addressee’s professor is known to really hate him. After having elaborated on all these insights at lengths, the speaker asks the addressee:)

- a. Also was lies auf keinen Fall?  
 so what read.IMP in no case  
 ‘So whose book is it that you really shouldn’t read?’

All my informants straightforwardly answered that it was the book by Mayer that shouldn’t be read for the exam. No one minded the imperative, not even when asked about salient grammatical features.

Does this force us to conclude that German does not have imperatives? I would not say so. The lesson to learn is rather that imperativized verbs need not automatically and independently from all other factors determine the clause type to be *imperative*. Semantically, the imperative morphology contributes to expressing a modalized proposition that is not in itself incompatible with question formation (cf. Reis and Rosengren 1992 for independent syntactic arguments that the *vorfeld*-position in imperatives should not be assumed to be marked as [-wh]). In that, it behaves exactly alike to its modal verb counterpart *should*. Nevertheless, in addition to its propositional semantics, the imperative is assumed to trigger certain presuppositions. In Section 6.3.1 we will see that the authority presupposition gives a straight-forward explanation, why despite their similar propositional semantics, (84a) can be used as an information seeking question, while (84b) can not.

<sup>27</sup>Only one of them disagreed with my intuitions and did not accept the data.

- (84) a. Wo sollst Du den Blumentopf hinstellen?  
 where shall you the flower-pot put.INF  
 ‘Where shall you put the flower pot?’
- b. Wo stell den Blumentopf hin?  
 where put.IMPSG the flower-pot to?  
 roughly: ‘Come on, you know this: where is it that you should put the  
 flower pot?’

In Section 6.3.1 I will argue that uttering an imperatives triggers the presupposition that the speaker is an (epistemic) authority on the issue in question. Consequently, he cannot possibly lack information about the matter. Therefore, if the presuppositions induced by the imperativized verb are met for (84b), the speaker has perfect knowledge about where the addressee is to put the flower pot, and this also constitutes mutual joint belief. But this is of course the prototypical constellation for an interrogative to be used as a rhetorical question (cf. Truckenbrodt 2004). In contrast to that, the overt necessity modal *should* in (84a) lacks an authority presupposition. Consequently, it can easily be used in contexts where the speaker lacks knowledge about the desired positioning of the flower pot. But note that, if (84a) is used as an information seeking question, it requires that the source of the obligation is either different from the speaker, or that it does stem from the speaker, but that he has forgotten about it in the meantime. As soon as we try to interpret *should* with respect to the speaker’s interests and assume that he himself is perfectly aware of these, we are constrained to the same rhetorical interpretation as for (84b).

So far, I haven’t had the opportunity to test further languages for the possibility of forming rhetorical questions with imperativized verbs. Marina Stoyanova (p.c.) has pointed out to me that the same phenomenon seems to be available in Bulgarian. In contrast to questions formed with declarative verbs, the *wh*-phrases have to remain in situ in these cases. Whatever syntactic mechanism should be responsible for that restriction, I would assume that data along these lines could shed light on the question of how (if at all) clause types are marked in syntax.

## Chapter 4

# Conclusion

I have argued that the notion ‘imperative’ is best understood as a clause type in the sense of a form type with the prototypical function of commanding or requesting. A theory of sentence mood has to explain how this pairing is encoded (PCTE) and how individual tokens of the respective clause type are assigned their respective speech act types (PASTA). I have argued that the first question should be answered in semantics (MSHSM). A reference framework along the lines of Stalnaker (1978) has been introduced for the conception of the discourse. Two types of approaches to solving the problem of clause type encoding have been discussed: one type introduces pragmatic objects/effects on the discourse into the realm of semantic denotata, the other tries to make the effect on the discourse depend on a particular object in the ontology before enriching by pragmatic categories. I have argued that the first kind of approaches is not liberal enough to allow for the inhomogeneity of functions as observed with imperatives. Consequently, I have proposed that imperatives denote a modalized proposition, but additionally presuppose that the context looks exactly as in a case that would trigger a performative usage of the corresponding modalized declarative. Last but not least I have given a couple of arguments in favour of such a unification in logical type of imperatives and declaratives.





## Part II

# A Uniform Necessity Semantics



## Chapter 5

# Modality in Possible Worlds Semantics

When trying to execute the program of assimilating imperatives to modal verbs in the following, I will rely on a version of Kratzer (1981) that has developed into the standard approach in linguistic semantics. Its merits and faults are therefore quite well known. Apart from these opportunistic considerations, the framework promises to be particularly useful, because it is explicitly designed to explain the interaction of modal elements with context. Thinking of the wide variety of functions to be found with imperatives that seemed to have not much of a uniform semantic and hardly a uniform speech act theoretic core, this is certainly a feature that makes the framework highly attractive for usage in our enterprise. I will first give an introduction into the basic and the revised version of the framework, and then propose an application to imperatives.

### 5.1 Simple Modality

The basic idea of the framework goes back to Kratzer (1978). Modal elements like *müssen* 'must', *können* 'can', *notwendigerweise* 'necessarily' etc., display a wide range of meanings.

- (1) a. Cécile kann in Rüsselsheim sein.  
C. may in R. be.  
'Cécile may be in Rüsselsheim.'
- b. Melli kann Rad fahren.  
M. can bike ride  
'Melli can ride a bike.'

While the first sentence expresses the possibility that a friend of mine is in Rüsselsheim at the moment, the second ascribes another friend of mine a certain ability. We can now get rid of this apparent ambiguity of a modal verb like *können* by assuming that the meaning of modal elements depends on two parameters. One of

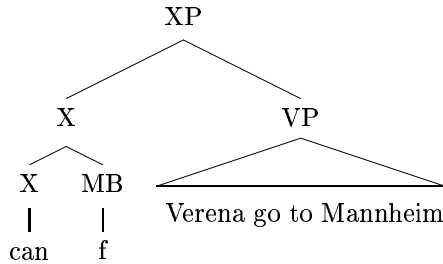
them is called *modal force* and is specified to either necessity or possibility in the lexical entry. The other parameter is called *modal base*. It yields the conversational background with respect to which the modal is interpreted.<sup>1</sup> Modal bases are functions that assign a current world all (relevant) propositions describing the respective background. Their intersection constitutes the set of worlds with respect to which necessity (entailment) and possibility (compatibility) are computed. Its value (e.g. *what the law says* for a deontic background, *what we know* for the epistemic background, etc.) is supplied by the utterance context. Technically, a modal base is a function from worlds into sets of propositions and hence of type  $\langle s, \langle st, t \rangle \rangle$ .

Modal verbs combine with a modal base and a proposition to give a proposition (they are of type  $\langle \langle s, \langle st, t \rangle \rangle, \langle st, st \rangle \rangle$ ). The entries for the English modal verbs *must* and *can* can then be given as in (2).<sup>2</sup>

- (2) a.  $\llbracket \text{must} \rrbracket^{c,s} = \lambda f \lambda p \lambda w. (\forall v \in \cap f(w)) [v \in p]$   
 b.  $\llbracket \text{can} \rrbracket^{c,s} = \lambda f \lambda p \lambda w. (\exists v \in \cap f(w)) [v \in p]$

Under very general assumptions as to the syntax of the construction (cf. von Stechow (2004)), we can apply this to a simple example where the modal base is interpreted as *with respect to the relevant circumstances*, cf. (3).<sup>3</sup>

- (3) a. Verena can go to Mannheim.  
 b.



- c.  $\llbracket \text{can}(f)(\text{Verena go to Mannheim}) \rrbracket^{c,s}(w) = 1$  iff  $\exists w' \in \cap f(w) : \text{Verena goes to Mannheim in } w'$ ,  
 whereby  $f (= s(f)) = \text{what the relevant circumstances are}$ , and e.g.  $f(w) = \{p, \neg p \rightarrow q\}$ ,  
 $p = \text{Verenas presentation is finished}$ ,  $q = \text{Verena stays in Frankfurt}$ .

I follow von Stechow (2004) in distinguishing the following conversational backgrounds:

- a. *epistemic*: what I know, what we know, what Ede knows, ...

<sup>1</sup>It does the work of the accessibility relation in modal logic (cf. Kripke (1963)).

<sup>2</sup>The modern standard interpretation (cf. e.g. von Fintel and Iatridou (2005c), von Stechow (2004)) deviates slightly from the original formulation. Kratzer (1978) treats the modal base as a parameter to the interpretation function. Here, it is treated as the first argument of the modal. For the moment, I will just assume that it is left free and thus interpreted by the assignment function  $s$ .

<sup>3</sup>To improve readability, the value the variable assignment functions  $s$  assigns to the free variables for conversational backgrounds or intervals will often simply be written as the italicized counterpart of the variable in the language. E.g.,  $\llbracket f \rrbracket^{c,s} = s(f) = f$ .

- b. **circumstantial**: the relevant facts, ...
- c. **dispositional**: Joost's dispositions, the program code of Emacs, ...
- d. **physical**: the laws of nature, ...
- e. **deontic**: what the law says, god's will, ...
- f. **doxastic**: what I believe, what people say, what Rick believes, ...
- g. **teleological**: our tasks, ...
- h. **buletic**: what I want, what Marina wants, ...
- i. **stereotypical**: the normal course of events, ...

Conversational backgrounds correspond to the accessibility relations of modal logic<sup>4</sup> and can consequently be distinguished according to the algebraic properties of relations (cf. van Benthem (1984a) for an extensive study on accessibility relations). A property that might turn out interesting for our purpose here is **reflexivity**. Modal bases that give rise to reflexive accessibility relations are called **realistic**.

- (4) A modal base  $f$  is realistic iff it holds that:  
 $(\forall w \in W)[w \in \cap f(w)]$ .

Of the given list, (a)-(d) are realistic, (e)-(i) are non-realistic. One may add the **totally realistic background** and the **empty conversational background** as a special case of a realistic and a non-realistic background respectively.

- j. **totally realistic background**: 'in view of what is the case'

A totally realistic background is a function  $f : W \rightarrow \mathcal{P}OW(\mathcal{P}OW(W))$ , such that  $\forall w \in W : \cap f(w) = \{w\}$

- k. **empty conversational background**:

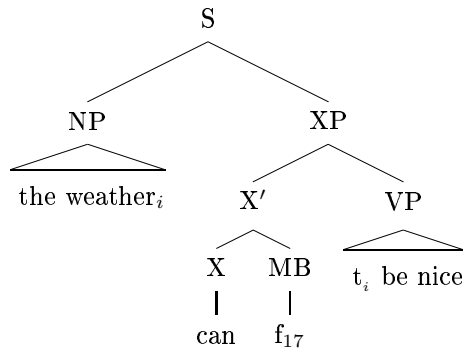
any function  $f : W \rightarrow \mathcal{P}OW(\mathcal{P}OW(W))$ , such that  $\forall w \in W : f(w) = \emptyset$ .

More recent treatments within that framework take into account a distinction between personal and impersonal modal bases (von Stechow (2004) for a recent elaboration). To a certain extent, these considerations go hand in hand with a syntactic distinction between so called **personal** and **impersonal** modals. The finding is that modals like *must* and *can* sometimes behave like raising constructions (cf. (5a)), and sometimes like control constructions (cf. (5b)).

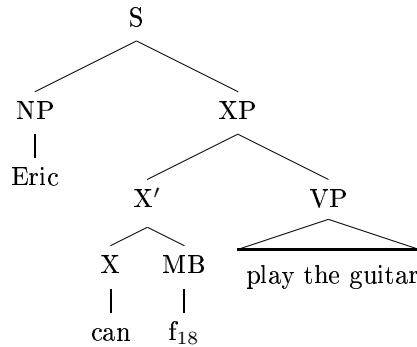
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<sup>4</sup>For any  $f$  (type  $\langle s, \langle st, t \rangle \rangle$ ),  $f : W \rightarrow \mathcal{P}OW(\mathcal{P}OW(W))$ , there is an accessibility relation  $R_f \subseteq W \times W$ , such that for any  $u, v \in W$ ,  $\langle u, v \rangle \in R_f$  iff  $v \in \cap f(u)$ , and vice versa. Conversational backgrounds are more fine-grained though, consequently, each accessibility relation can be described by infinitely many conversational backgrounds.

(5) a.



b.



German raising constructions are known to (marginally) allow for topicalisation of the VP together with the subject (cf. (6a)), control constructions do not though (cf. (6b)), (cf. Haider (1995)).

- (6) a. Ein Außenseiter gewonnen hat hier noch nie.  
 an outsider won.PARTICIPLE has here still never  
 'It has never been the case so far that an outsider would have won here.'
- b. \*Ein Außenseiter zu gewinnen verlangte hier noch nie.  
 an outsider to win.INF requested here still never  
 'It has never been the case so far that an outsider would have requested to win here.'

*können* 'can' can now be shown to pattern with (6a) on an epistemic reading, while patterning with (6b) on its dispositional reading.

- (7) a. Ein Außenseiter gewinnen kann hier wohl nicht.  
 an outsider win.INF can here PRT not  
 'It is impossible that an outsider wins here.'
- b. \*Eric Gitarre spielen kann nicht.  
 E. guitar play.INF can not

Likewise, quantifiers in the subject position of raising verbs allow for either wide or narrow scope constructions, whereas quantifiers in the subject position of control constructions only allow for wide scope construal.

- (8) a. A unicorn seems to be in the garden. &&  
 R1:  $\exists > SEEM$ ; R2:  $SEEM > \exists$
- b. A unicorn tries to be in the garden. 1

$$\exists > \text{TRY}; * \text{TRY} > \exists$$

Again, epistemically read modals pattern with raising verbs in allowing for wide or narrow scope construal of quantifiers in subject position, while dispositionally read modals do not allow for narrow scope construals and thus pattern with control verbs:<sup>5</sup>

- (9) a. A unicorn can be in the garden. &&  
       R1:  $\exists > SEEM$ ; R2:  $SEEM > \exists$   
 b. A unicorn can play the saxophone. 1  
        $\exists > \text{CAN}$ ; \* $\text{CAN} > \exists$

Maybe the difference is to be seen most clearly with cases that yield contradictory readings under wide scope construal for the quantifier. While the epistemic interpretation of the modal allows both for a contradictory wide scope construal and a sensible narrow scope construal, the dispositional interpretation of the modal only allows for a contradictory reading.

- (10) Keiner kann schwimmen und alle können schwimmen.  
 no-one can swim and everyone can swim  
 epistemic 1: 'In view of what we know, it is possible that no one swims and, in view of what we know, it is possible that all swim.'  
 epistemic 2: 'In view of what we know, for no one is it possible that he swims and in view of what we know, for everyone is it possible that he swims.'  
 dispositional: 'For no one is it possible that according to his dispositions he swims and for everyone is it possible that according to his dispositions he swims.'

So far, our semantics only accounts for the raising cases. In order to capture the control cases as well, we have to allow for lexical ambiguity of the modal verbs between proposition embedding variants (as we have been looking at so far), and property embedding variants. The entry for personal *can* could then look like (11).

- (11) (*preliminary*)  
 $\llbracket \text{can} \rrbracket^{c,s} = \lambda f \lambda P \lambda x \lambda w. \exists w' \in \cap f(w): w' \in P(x)$

For an example like (5b) we could then assume  $f = \textit{what Eric's abilities are}$ . But a look at the quantificational examples (e.g. (12a)) shows immediately that this still cannot be right. *nobody* does not only have to take wide scope with respect to the possibility modal. *nobody* also has to quantify into the modal base. Intuitively, the interpretation for (12a) should be something like (12b).

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<sup>5</sup>Epistemic vs. dispositional are the preferred readings for the given cases. Other possible values for the modal base could of course give rise to other judgements. I'm only talking about these two interpretations that are favored by the choice of lexical material and particles in the given cases.

- (12) a. Nobody can play the guitar.  
 b. For no  $x$ : there is a world  $w$  [in which  $x$  has the same abilities as in the actual world] and  $x$  plays the guitar in  $w$ .

Ede Zimmermann (p.c.) remarks that from (12a) it still does not follow conclusively that this kind of quantification into modal bases is needed. Instead of my rendering in (12b), we could still try to make do with setting  $f = \textit{what people's abilities are}$ , which would make (12a) come out as in (13).

- (13) For no  $x$ : there is a world  $w$  [in which people have the same abilities as in the actual world] and  $x$  plays the guitar in  $w$ .

Nevertheless, Ede Zimmermann argues that conclusive scenarios can be given. In an email<sup>6</sup> to Angelika Kratzer, he constructs the scenario described in (14b) for the sentence in (14a):

- (14) a. Genau zwei Kinder sollen gewinnen.  
 exactly two children shall win  
 'Exactly two children shall win.'  
 b. Assume a set of pairwise unrelated children all of whose parents are very ambitious with respect to their sons' and daughters' sportive success. Two of the children, namely Hans and Fritz, are good sprinters. Both Hans' and Fritz' parents insist that their son win the 100m-sprint. The other children are specialized in other disciplines, consequently their parents do not care so much about the 100m sprint.

He observes (in my view correctly), that (14a) has a reading under which it is true in the given scenario. For that, *sollen* is to be understood deontically with respect to the wish of some of the parents. But of course it cannot be the wish of all the parents (or not even only Fritz' and Hans' parents) together, because at least the wishes of Fritz' and Hans' parents are inconsistent (Fritz' parents want Fritz to win, and Hans' parents want Hans to win). Consequently, it comes out as best according to this joint (inconsistent) will that someone wins. But neither is there a certain individual that wins in all cases that conform to the group of parents' will, nor are there two of them. Consequently, for those cases we need binding of the conversational background (*what  $x$ 's parents' want*) by the quantifier.

At that point we should maybe pay attention to the fact that the argument was originally only designed to show that conversational backgrounds have to be accessible for quantification. While this is clearly strong enough to make Zimmermann's point that conversational backgrounds have to be accessible for quantification, I'm not entirely convinced if it shows for sure that we actually need to bind into modal bases. Maybe, an alternative solution to (14a) in the given scenario could do with existential quantification over modal bases of a particular (contextually salient) kind (here, *parental will*).

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<sup>6</sup>Dating from December 11<sup>th</sup>, 2003.



$$(15) \quad (!2 x)[\text{child}(x)][\exists f \exists y \exists z[\text{child}'(z) \& \text{parents}'(y, z) \& f = y \text{'s will} \& \Box(f) \text{win}'(x)]]$$

Of course, it could always be that for each of the  $x$ ,  $z = x$ , which would equal the reading Zimmermann is pointing out. It is very hard to argue in either direction if this should be treated as an independent reading relying on quantification into a modal base or not. Evidence in favor of indeed treating it as quantification into personal modal bases comes from the quantification into overt indicators of modal bases as in (16a). Furthermore, the readings in question seem indeed to be confined to personal modals. The epistemic possibility modal *können* does not allow for the quantificational base to vary with the subject. (16b) requires one modal base  $f$  such that there are exactly two children  $x$  such that  $x$  has won is compatible with the modal base  $f$ .<sup>7</sup>

- (16) a. Genau 2 Kinder sollen ihren Eltern zufolge gewinnen.  
 exactly two children shall their parents according-to win.INF  
 'Exactly two children shall win according to their parents.'
- b. Genau zwei Kinder können gewonnen haben.  
 exactly to children can won have  
 'Exactly two children may have won.'

I take these observations to provide support that the picture in von Stechow (2004) is indeed correct, and will thus assume that in addition to personal modals there are personal conversational backgrounds as well. Personal modals are then assumed to combine with personal conversational backgrounds. I follow again von Stechow (2004) and assume that the entries for  $must_{pers}$  and  $can_{pers}$  should really look like (17). The personal variant of the dispositional conversational background can be given as in (18).<sup>8</sup>

- (17) a.  $[[can_{pers}]^{c,s} = \lambda f \lambda P \lambda x \lambda w. (\exists w \in \cap f(w)(x))[w \in P(x)]$   
 b.  $[[must_{pers}]^{c,s} = \lambda f \lambda P \lambda x \lambda w. (\forall w \in \cap f(w)(x))[w \in P(x)]$

- (18)  $f_{dispo}$  is a function from a world  $w$  and individual  $x$  into a set of propositions that describe the inner make-up of the individual  $x$  in  $w$ . (Their intersection is the set of worlds in which  $x$  has the same dispositions and abilities as in  $w$ .)

I will assume that personal modals always occur with personal modal bases and impersonal modals always occur with impersonal modal bases.<sup>9</sup>

<sup>7</sup>To corroborate this point even further, one would have to show that only quantifiers in subject positions can bind into the modal base. Relevant examples are generally hard to construct and mostly involve intervening attitude predicates which blur the picture. Since this is not crucial to my topic, I will leave these questions for further research.

<sup>8</sup>I depart from von Stechow's (2004) formulations in sticking to Kratzer's conception of modal bases as functions from worlds (and individuals) to sets of propositions, instead of assuming that they directly map onto the set of worlds that are given by the intersection of these propositions.

<sup>9</sup>Note that this has nothing to do with wide vs. narrow scope construal of quantifiers that occur with modals that behave as raising verbs. In (i), the negative quantifier *keiner* 'no one' is most naturally interpreted as having wide scope, yet the modal base is constituted by the social

von Stechow (2004) proposes three further tests on control vs. raising constructions with modal verbs.

They differ with respect to **selection restrictions**. In raising constructions, selection restrictions only depend on the lower verb. In control constructions, both verbs impose selection restrictions. He uses the following unembedded examples to test for potential changes under embedding. The subjects in (19b) and (19d) obviously violate the lexical selection restrictions of the predicate (*admire/succeeds a prime number*).<sup>10</sup>

- (19) a. Fritz admires Leonardo.  
 b. \*This number admires Leonardo.  
 c. This number succeeds a prime number.  
 d. \*Leonardo succeeds a prime number.

Epistemically interpreted *must* proves to be a raising verb, the acceptability judgements do not differ from the unembedded cases.

- (20) a. Fritz must admire Leonardo.  
 b. \*This number must admire Leonardo.  
 c. This number must succeed a prime number.  
 d. \*Leonardo must succeed a prime number.

Dispositional *can* is a control verb. It is not sufficient for a subject to comply with the selection restrictions of the lower verb - those of the upper verb have to be met as well (*can* in the following has to be understood as 'is able to'). The crucial example is of course (21c): although the subject does meet the restrictions of the embedded predicate *succeed a prime number*, the sentence is unacceptable due to the fact that dispositional *can* imposes selection restrictions as well which are not met by the subject *this number*.

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laws in Germany and thus impersonal:

- (i) Den Sozialgesetzen zufolge muß in Deutschland wirklich keiner verhungern.  
 the social-law according-to must in Germany really no one  
 starve  
 $\neg\exists x[\Box(\textit{according to the social law}) [x \textit{starves}]]$   
 'For no x is it the case that in all worlds that are compatible with the social law x starves.'

Are there truly mixed combinations? Impersonal modals with personal modal bases seem to be unexpected. This would require that a case comes out as a raising construction syntactically, but that a subject quantifier would be forced to take wide scope in order to also quantify into the modal base; syntactically, this would amount to a parasitic gap construction and should therefore maybe not be excluded a priori. So far, I know of no data that would require to permit it.

A personal modal with an impersonal modal base could easily be formulated if there was evidence for it. But it does not seem to be needed, either.

<sup>10</sup>Fortunately, we do not have to say anything on the true nature of selection restrictions here. It is sufficient to observe the clear relative differences in acceptability. In the following, I depart from von Stechow's (2004) original example involving *be prime* because even irrespective of the subject it does not square well with dispositional modality.

- (21) a. Fritz can admire Leonardo.  
 b. \*This number can admire Leonardo.  
 c. \*This number can succeed a prime number.  
 d. \*Leonardo can succeed a prime number.

Another test consists in the behaviour of truth conditions under passivization. Raising verbs are insensitive to passivization of the main verb, but control verbs allow for it to cause a difference in truth value.

Again, epistemic *must* proves to be a raising construction, since it does not change the truth conditions under **passivization**. If *must* is interpreted as *in view of what we know*, (22a) and (22b) do not differ in truth conditions.

- (22) a. Fritz must admire Leonardo.  
 b. Leonardo must be admired by Fritz.

In contrast to that, a control verb like *want* does change the truth conditions. (23a) may well be true without (23b) being true as well.

- (23) a. Werther wants to marry Charlotte.  
 b. Charlotte wants to be married by Werther.

Likewise, the German volitive modal *wollen* passes the test as a control construction:

- (24) a. Werther will Charlotte heiraten.  
 W. wants C. marry.INF  
 'Werther wants to marry Charlotte.'  
 b. Charlotte will von Werther geheiratet werden.  
 C. wants by W. married get  
 'Charlotte wants to be married by Werther.'

We may thus conclude that VP-Topicalization, availability of de dicto subjects, invariance of truth conditions under passivization and selection restrictions allow us to distinguish raising vs. control constructions. The former correspond to impersonal modals that come with impersonal conversational backgrounds, the latter correspond to personal modals and correspond to personal conversational backgrounds. In 6.1.3 we will try to apply these distinctions to imperatives and will in the end conclude that despite *prima facie* appearance they are best treated as proposition embedding modal operators. The conversational backgrounds to be taken into account for imperatives will thus all be impersonal.

## 5.2 Graded Modality

Kratzer (1981) discusses three main problems that cannot be treated by the approach introduced as simple relative modality.<sup>11</sup> These are the problem of **inconsistent**

<sup>11</sup>Historically, this is a somewhat crude simplification. Kratzer's (1978) approach in terms of simple modality is enriched by a Lewisian system of spheres in order to allow for reasoning with

backgrounds, the problem of graded necessity/possibility and practical inferences with conflicting goals. I will first present the problems and then introduce the refined framework developed in Kratzer (1981) to take care of them.<sup>12</sup>

A major problem arises for the semantics for modal verbs that is given in (2) whenever conversational backgrounds contain **inconsistent information**.

A famous example deals with New Zealand law texts. The law in Auckland has it that deer is responsible for any damage it causes, whereas in Wellington it is not. Nevertheless, murder is a crime in both places. Intuitively, (25a) is false, and (25b) is most likely considered true.

- (25) a. In view of what the law prescribes in New Zealand, it must be the case that murder is not a crime.  
 b. In view of what the law prescribes in New Zealand, it can be the case that deer is responsible for damage it has caused.

Our meaning rules predict the opposite, though. Assume that  $w$  is the world of the scenario described above, and the modal base is interpreted as  $f_1$ :

- (26)  $f_1(w) = \{\text{Murder is a crime } (= p), \text{ Deer is responsible for damage it causes. } (= q), \text{ Deer is not responsible for damage it causes. } (= \neg q)\}$

$\cap f_1(w)$  is empty. Therefore, *must*  $\phi$  is true for any  $\phi$ , and *can*  $\phi$  is false for any  $\phi$ ; consequently, (25a) is trivially true (cf. (27a)), (25b) trivially false (cf. (27b)):

- (27) a.  $\llbracket (25a) \rrbracket^{c,s} = \llbracket \text{must} \rrbracket^{c,s}(w)(f_1)(\neg p) = 1$  iff  $(\forall w' \in W)[w' \in \emptyset \rightarrow w' \in \neg p]$   
 b.  $\llbracket (25b) \rrbracket^{c,s} = \llbracket \text{can} \rrbracket^{c,s}(w)(f_1)(q) = 1$  iff  $(\exists w' \in W)[w' \in \emptyset \ \& \ w' \in q]$

Another famous problem arises in modelling of **practical inference**<sup>13</sup>; the following is the classical example from Kratzer (1981). Her translation of a practical inference argument into the current framework is given in (28).

- (28) In  $w$ , all I want is to become mayor.  
 In  $w$ , the relevant circumstances are such that I will become mayor only if I go to the pub regularly.  
 Therefore: Considering the relevant circumstances and what I want, it is necessary in  $w$  that I go to the pub regularly.

In analysing the conclusion, we have to allow modals to be evaluated with respect to two backgrounds, namely the *buletic what I want* ( $f_1(w) = \{\text{I become mayor}\}$ )

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inconsistent propositions. But it is only in the newer version that the contextual parameter as constituted by the conversational background is subdivided into a consistent (often realistic) and a potentially inconsistent part, which allows to unify the problems concerning inconsistency and conflicts and also express graduality.

<sup>12</sup>The approach draws on ideas developed in Lewis (1973) and van Fraassen (1973). A final, condensed version is to be found in Kratzer (1991).

<sup>13</sup>The term is coined by von Wright (1963) and describes inferences the conclusion of which results in action (for a rational agent).

and the circumstantial *given the relevant circumstances* ( $f_2(w) = \{\text{I go to the pub regularly or I don't become mayor.}\}$ ). It is not problematic though to form the union  $f_1(w) \cup f_2(w) = \{\text{I become mayor; I go to the pub regularly or I don't become mayor}\}$ . From  $\cap(f_1(w) \cup f_2(w))$  it follows that I go to the pub regularly, therefore, *It is necessary that I go to the pub regularly* comes out true in  $w$  with respect to this joint background. The argument in (28) is thus correctly predicted to be valid.

Let us now look at a slightly different scenario  $w'$ , which differs from  $w$  minimally by letting the buletic ordering source  $f_1$  contain that *I don't go to the pub regularly*. In addition, that is  $f_1(w') = f_1(w) \cup \{\text{I don't go to the pub regularly.}\}$  (We are now describing the case of someone who rejects a necessary means to fulfill one of his desires.). Intuitively we would want to distinguish the inferences in (29). But now,  $\cap(f_1(w') \cup f_2(w')) = \emptyset$ . And therefore, given the meaning rules in (2), all the necessity statements come out true, and all the possibility statements come out false.

- (29) Considering the relevant circumstances and what I want,
- a. I must kill someone.
  - b. I must go to the pub regularly.
  - c. It is necessary that I don't go to the pub regularly.
  - d. I can go to the pub regularly.
  - e. It is possible that I don't go to the pub regularly.

Intuitively, this is not what we want. The refined analysis that will be presented in the next section predicts (43d) and (43e) to be true, the rest coming out as false.

A third class of problems consists in distinguishing different **grades of possibility/necessity**.

As it stands, the approach would predict that the following sentences are both evaluated as compatible with e.g. an epistemic background. The complement proposition thus has to be compatible with a set of worlds that are identical to the real world in all properties that are known. This fails to capture that the alternative in (30a) is presented as more far fetched than the one in (30b):

- (30) a. There is a slight possibility that Hong's presentation will finish in time.  
 b. We are maybe going to see a film after the seminar.

In order to evaluate how good a possibility actually is, in addition to the epistemic modal base, a second conversational background is taken into account as an **ordering source**. This ordering source counts as an **ideal**. Instead of evaluating the modal indiscriminately with respect to all the worlds in the modal base, the worlds in the modal base are now distinguished according to how close they come to the ideal. For our example in (30), such an ideal would be constituted by the propositions that describe the stereotypical properties of the Frankfurt linguistics department,  $s(g) = \{\text{Hong overruns, After a seminar we have a pizza or go to the movies}\}$ . 'Closeness to the ideal' is understood as 'making as many propositions of

the ideal true as possible'. The worlds in our epistemic modal base can then be ordered according to how close they are to the ideal.

First, we have to define an ordering relation on the set of possible worlds as in (31):

$$(31) \quad \text{ordering relation } \leq_{g(w)} : \\ \forall v, z \in W : v \leq_{g(w)} z \text{ iff} \\ \{p : p \in g(w) \ \& \ z \in p\} \subseteq \{p : p \in g(w) \ \& \ v \in p\}$$

Various grades of (absolute and relative) possibility/necessity in a world  $w$  with respect to an a modal base  $f$  and an ordering source  $g$  are distinguished in Kratzer (1981) and (a lot more) in Kratzer (1991). In the following, I will only use the notions of **human necessity**, **human possibility**, **slight possibility** and **comparative possibility** as defined in Kratzer (1981).<sup>14</sup>

In order to somewhat simplify the notations, I define the set of worlds in the modal base  $\cap f(w)$  that are closest according to the ordering source  $g(w)$ . For doing so, I adopt Lewis's (1973) **Limit Assumption**, which says basically that for any world  $w$  in the modal base, a world  $v$  can be found in the modal base such that  $v \leq_{g(w)} w$  and all worlds that are closer or equally close to  $v$  are optimal with respect to the ideal (that is, there are no infinite approximations to the ideal). For the task we are concerned with we can safely confine ourselves to cases were the *Limit Assumption* can be guaranteed to hold.<sup>15</sup>

$$(32) \quad \text{The Limit Assumption (cf. Lewis (1973:19ff))} \\ \forall f, g, w : \cap f(w) \neq \emptyset \rightarrow O(f, g, w) \neq \emptyset.$$

$$(33) \quad O(f, g, w) = \{v \in \cap f(w) \mid \forall z \in \cap f(w) : \text{if } z \leq_{g(w)} v \text{ then } v \leq_{g(w)} z\}$$

- (34) a. A proposition  $p$  is a **human necessity** in a world  $w$  with respect to a modal base  $f$  and an ordering source  $g$  iff  $\forall w' \in O(f, g, w) : p(w')$ .
- b. A proposition  $p$  is a **human possibility** in a world  $w$  with respect to a modal base  $f$  and an ordering source  $g$  iff  $\neg p$  is not a necessity in  $w$  with respect to  $f$  and  $g$ .
- c. A proposition  $p$  is a **slight possibility** in a world  $w$  with respect to a modal base  $f$  and an ordering source  $g$  iff
- (i)  $p$  is compatible with  $f(w)$  ( $\cap(p \cup f(w)) \neq \emptyset$ )

<sup>14</sup>The definition of *slight possibility* differs crucially as it is defined in Kratzer (1981) and Kratzer (1991). For reasons unclear to me, the definition in Kratzer (1991) is more complicated, but it makes less intuitive predictions. Since slight possibility won't be crucial to our investigations at any point, I will follow my intuition and von Stechow (2004), who also resorts to the definition given in Kratzer (1981).

<sup>15</sup>That means, we are not going to look at instances like (ia). Whatever solution is to be given for Lewis's (1973) (ic) or (ib) will carry over to these cases:

- (i) a. Assimilate the value of constant  $c$  to  $\pi$ .
- b. You must assimilate the value of constant  $c$  to  $\pi$ .
- c. If this line was longer than it actually is, ...

- (ii)
- $\neg p$
- is a human necessity with respect to
- $f$
- and
- $g$
- .

*must* and *may* are assumed to respectively express *human necessity* and *human possibility* as just defined. The semantics of *must* and *may* relativized to the worlds in the modal base  $f$  that are optimal with respect to an ordering source  $g$  can then be given as in (35).

$$(35) \quad \begin{array}{l} \text{a. } \llbracket \text{must} \rrbracket^{c,s} = \lambda f \lambda g \lambda p \lambda w. \forall v \in O(f, g, w): v \in p \\ \text{b. } \llbracket \text{can} \rrbracket^{c,s} = \lambda f \lambda g \lambda p \lambda w. \exists v \in O(f, g, w): v \in p \end{array}$$

The examples in (30) (repeated as (36a)), and (30b) (repeated as (38a)) can now be analyzed as a case of slight possibility and a case of human possibility. Their respective truth conditions are given in (36b) and (38b):

$$(36) \quad \begin{array}{l} \text{a. } \text{There is a slight possibility that Hong's presentation will finish in time.} \\ \text{b. } \llbracket (36a) \rrbracket^{c,s} = \lambda w. \text{slight-poss}'(f)(g)(\text{finish-in-time}'(\iota x(\text{hp}'(x)))) = \\ \quad \exists w' \in \bigcap (f(w) \cup \lambda w. \text{finish-in-time}'(\iota x(\text{hp}'(x))(w))) \ \& \ O(f, g, w) \subseteq \lambda w. \neg \text{finish-} \\ \quad \text{in-time}'(\iota x(\text{hp}'(x))(w)), \\ \quad f = \text{what the relevant facts are, } f(w) = \{\text{Hong is presenting at the} \\ \quad \text{colloquium tonight, ...}\}, g = \text{the stereotypical properties of the Frank-} \\ \quad \text{furt linguistics department, } g(w) = \{\text{Hong overruns, After a seminar} \\ \quad \text{we have a pizza or go to the movies}\} \end{array}$$

This is easy to verify in a minimal model; the considerations in the given scenario distinguish nine types of worlds that can be exemplified by  $w_0$  to  $w_8$  in (37).<sup>16</sup> Worlds of type  $w_0$  are not in the modal base, because Hong is not presenting in them tonight. Consequently, for the realis modalities we are confining ourselves to, such worlds are not taken into account, the truth values of the propositions in the ordering source are therefore irrelevant.

world	hp	fit	p	m
$w_0$	0	x	x	x
$w_1$	1	1	1	1
$w_2$	1	1	1	0
$w_3$	1	1	0	1
$w_4$	1	0	1	1
$w_5$	1	1	0	0
$w_6$	1	0	1	0
$w_7$	1	0	0	1
$w_8$	1	0	0	0

To simplify things, assume for the moment that disjunction is interpreted inclusively; then,  $w_4$ ,  $w_6$  and  $w_7$ -type worlds make all propositions in  $g(w)$  true (Hong

<sup>16</sup>*hp*, *fit* and *pm* stand for the propositions *Hong is presenting at the colloquium tonight*, *that Hong's presentation finishes in time* and *After the seminar we have a pizza or go to the movies* respectively.

does not finish in time, but we have pizza and/or go to the movies), consequently,  $O(f, g, w) = \{w_4, w_6, w_7\} \subseteq (\neg fit)$ . By the definitions of  $O$  and  $\leq_g w$ , and (34a), *Hong's presentation doesn't finish in time* is a human necessity. Nevertheless, *Hong finishes in time* is compatible with the modal base ( $\bigcap(f(w) \cap fit) = \{w_1, w_2, w_3, w_5\} \neq \emptyset$ ). By definition of (34c), (36a) comes out true in the given scenario.

For example (38a) assume that the adverb *maybe* is interpreted like the modal verb *may* as expressing human possibility (tense information is ignored).

- (38) a. We are maybe going to see a film after the seminar.  
 b.  $\llbracket \text{maybe}(f)(g) [x^{1,pl} \text{ see a film after the seminar}] \rrbracket^{c,s} = \text{maybe}'(f)(g)(\text{see-film-after-seminar}'(u))$ , where  
 $s(x) = u =$  the salient group including  $c_S$ ;  
 $f =$  *what the relevant facts are*,  $f(w) = \{\text{Hong is presenting at the colloquium tonight, ...}\}$ ,  
 $g =$  *the stereotypical properties of the Frankfurt linguistics department*,  
 $g(w) = \{\text{Hong overruns, After a seminar we have a pizza or go to the movies}\}$

Looking at the minimal model again, we see that indeed  $m$  is a human possibility in  $w$  with respect to  $f$  and  $g$ ,  $O(f, g, w) = \{w_4, w_6, w_7\} \cap m \neq \emptyset$ .

As desired, the refined framework also allows us to make the correct prediction with respect to New Zealand's laws, cf. (39), and the mayor-problem, cf. (41).

Given that taking together all laws holding in all of New Zealand, we end up with an inconsistency with respect to the responsibilities of deer, this can not describe facts (which cannot be inconsistent), but can only order facts (whatever they are). Consequently, *the laws in New Zealand* is taken as an ordering source  $g$ , which in the described scenario  $w$  was  $g(w) = \{\text{Deer is responsible for the damage it causes (dr), Deer is not responsible for the damage it causes } (\neg dr), \text{ Murder is a crime (mc)}\}$ .  $f(w)$  is taken to be empty (thus, we order all the worlds in  $W$  according to New Zealand's laws. The propositions in (25), (repeated in (39a) and (39b)) are now translated as follows:

- (39) a. In view of what the law prescribes in New Zealand, it must be the case that murder is not a crime.  
 $\forall w' \in O(f, g, w) : \neg mc(w')$   
 b. In view of what the law prescribes in New Zealand, it can be the case that deer is responsible for the damage it has caused.  
 $\exists w' \in O(f, g, w) : dr(w')$

The propositions are best checked in a minimal model. The ordering source  $g(w)$  distinguishes the following four types of worlds:



world	mc	dr
w <sub>0</sub>	1	1
w <sub>1</sub>	1	0
w <sub>2</sub>	0	1
w <sub>3</sub>	0	0

Given that both  $dr$  and  $\neg dr$  are elements of the ordering source, the worlds closest to  $g(w)$  (according to  $\leq_{g(w)}$ ), are simply those that make  $mc$  true. Consequently,  $O(f, g, w) = \{w_0, w_1\}$ <sup>17</sup>. It is then easy to verify that (39a) comes out as false and (39b) comes out as true, which is as it should be.

The second problem involved inconsistent ordering sources. The scenario from (28) is reassumed in (41).<sup>18</sup>

(41) facts: In  $w$ , the relevant circumstances are such that I will become mayor only if I go to the pub regularly.

wishes: In  $w$ , I want to become mayor, In  $w$ , I don't want to go to the pub regularly.

Treating the facts about the village as the modal base  $f(w) = \{p \vee \neg m\}$ , and the speaker's wishes as an ordering source  $g(w) = \{\neg p, m\}$ , and looking at the minimal model in (42),  $O(f, g, w)$  comes out as  $\{w_0, w_3\}$ . ( $w_1$  is not in  $\cap f(w)$ , and  $w_2$  is not optimal because both  $w_0$  and  $w_3$  are strictly better.)

world	m	p
w <sub>0</sub>	1	1
w <sub>1</sub>	1	0
w <sub>2</sub>	0	1
w <sub>3</sub>	0	0

The necessities and possibilities in (29) (repeated here as (43)) are now assigned the following interpretations and truth values in the given scenario  $w$  with  $f, g$  as above (the respective (counter-)examples are indicated).

- (43) Considering the relevant circumstances and what I want,
- a. I must kill someone. 0<sup>19</sup>  
 $(\forall w' \in O(f, g, w))[(\exists y)[\text{kill}'(y)(c_S)(w')]]$
  - b. I must go to the pub regularly. 0 (take  $w_3$ )  
 $(\forall w' \in O(f, g, w))[p(c_S)(w')]$
  - c. It is necessary that I don't go to the pub regularly. 0 (take  $w_0$ )

<sup>17</sup>This is, because starting out from a world  $w'$  in  $\{w_0, w_1\}$  it is impossible to reach another world  $w''$  that would make the same and at least one more propositions of the ordering source true.

<sup>18</sup> $m$  abbreviates *that I become mayor*, and  $p$  *that I go to the pub regularly*.

<sup>19</sup>Neither modal base nor ordering source distinguish between *The speaker kills someone*. being true or not. Consequently, all types of worlds allow for both possibilities. Therefore, e.g.  $w_0$ -type worlds do.

- $(\forall w' \in O(f, g, w))[\neg p(c_S)(w')]$   
 d. I can go to the pub regularly. 1 (take  $w_0$ )  
 $(\exists w' \in O(f, g, w))[p(c_S)(w')]$   
 e. It is possible that I don't go to the pub regularly. 1 (take  $w_3$ )  
 $(\exists w' \in O(f, g, w))[\neg p(c_S)(w')]$

Some cases are still instances of simple necessity/possibility. This can either be guaranteed by mapping the ordering source to the empty conversational background which gives the trivial ordering that equals  $\emptyset$  (no world in the modal base calculated at  $w$  is  $g(w)$ -better than any other world in the modal base). Alternatively, the definitions in (2) could be kept in the lexicon rendering modals ambiguous between simple and graded modality. For the sake of explicitness, I resort to the first option.

We are now ready to apply the framework to imperatives.

## Chapter 6

# Imperatives as Graded Modals

While the framework of graded modality is standardly applied to all kinds of modal elements in natural languages, as far as I know, it has not been applied to imperatives. This is what I will try to do in the following, and I hope to show that it provides a natural way to account for both (i) the interpretational variety we find with imperatives (FIP), and (ii) the interaction with information about the world that likewise has to be taken into account when interpreting an imperative.

I want to propose that imperatives contain a modal operator that is interpreted as necessity with respect to a modal base  $f$  and an ordering source  $g$  (cf. (1)). The wide variety of functions/readings is then to be explained in terms of choices for  $f$  and  $g$ .  $O(f, g, w)$  and  $\leq_{g(w)}$  are defined as in (33) and (31) respectively in the previous chapter; they are repeated in (2) for convenience:

- (1)  $\llbracket \text{OP}_{imp} \rrbracket^{c,s} = \lambda f \lambda g \lambda p \lambda w. (\forall w' \in O(f, g, w)) [p(w')]$
- (2) a.  $O(f, g, w) = \{v \in \cap f(w) \mid \forall z \in \cap f(w): \text{if } z \leq_{g(w)} v \text{ then } v \leq_{g(w)} z\}$   
b.  $\forall v, z \in W : v \leq_{g(w)} z \text{ iff}$   
 $\{p : p \in g(w) \ \& \ z \in p\} \subseteq \{p : p \in g(w) \ \& \ v \in p\}$

An imperative  $\phi!$  is thus interpreted as a function that maps a world  $w$  to true iff the worlds in  $\cap f(w)$  that verify as much of  $g(w)$  as possible (the  $g(w)$ -best worlds) are  $\phi$ -worlds.

In the following section I will comment briefly on how this can be related to syntax in a compositional way (relying mainly on Wrátil 2004). After that, I will show how modal base and ordering source allow us to derive the observed interpretations. I will then argue that the semantics has to be enriched by pragmatic presuppositions (authority, epistemic uncertainty and ordering source affirmation) that prevent overgeneration and explain for the non-descriptive effect of the propositional (and thus inherently truth-conditional!) semantic object.

## 6.1 Considerations on the Syntax-Semantics Interface

In the syntactic literature it is quite generally assumed that imperatives contain a (sentence mood) operator that is responsible for the relevant interpretation of the embedded proposition (cf. e.g. Rivero and Terzi 1995, Han 1998, Platzack and Rosengren 1997).<sup>1</sup>

Basing on assumptions of iconicity, it has frequently been argued that the cross-linguistic observation that imperatives are morphologically meagre corresponds to (i) a (compositionally) simple object on the semantic side (e.g. a property, Hausser 1980; or an action, Mastop 2005), and (ii) that this is based upon a meagre syntactic structure (lacking functional projections like AgrSP (Platzack and Rosengren 1997), or TP and MoodP (Wratil (2004:108))). The lack of overt tense, person or mood marking as exhibited by a bare verb stem as used e.g. in English or German is due to the absence of the respective functional projections. So, what is implicitly assumed is a principle that says (roughly) ‘no oppositions - no marking’.<sup>2</sup>

Given these ubiquitous assumptions, the semantics I am assuming here might seem unexpectedly rich and therefore even highly implausible. In this section, I will slightly refine (1) such as to constitute an object that can be built up compositionally by concatenating tense (PRESENT), modality ( $\square$ ), person and number marking (2SG/2PL), and aspectuality (PFV). I think there are four good reasons why this is not nearly as implausible as it might look at first glance.

First, it is well-known at least since Rivero and Terzi (1995) that cross-linguistically, imperatives are best divided into two classes - *class I imperatives* being as morphologically meagre as we know them from a lot of Indo-European languages, *class II imperatives* allowing for person, number, tense and aspect marking just like any other verb form. Additionally, we might observe that the boundary is maybe not even that sharp. Slavic languages, for example, do not allow for tense marking, but distinguish perfective vs. imperfective aspect as with any other finite verbal forms (cf. Polish, (3)). Even English allows for progressive imperatives (cf. (4)) (cf. Davies 1986).

- (3) a. Napisz list!  
       write.IMP.PFV letter  
       ‘Write a letter!’  
    b. Pisz list!  
       write.IMP.IMPFV letter  
       ‘Be engaged in letter writing!’
- (4) Be waiting at the gate when I come by.

<sup>1</sup>Wratil (2004) argues convincingly that there is no real evidence for the presence of such an operator in the vast majority of non-Indoeuropean languages though.

<sup>2</sup>For assumptions that imperatives are not anchored in temporal or logical space at all, cf. e.g. Huntley (1984), Han (1998). Cf. Mastop (2005) for convincing criticism.

Furthermore, also the diachronic development of imperative forms provides evidence of stages that retain morphosyntactically marked oppositions (Wratil (2004:108)).

Second, I would like to argue that imperatives differ crucially from forms that are truly characterized by a very general semantic contribution. The most obvious candidate to compare imperatives to in that respect is the infinitive, which seems to provide no restrictions on the reference of the entities that saturate its argument slots (that is, realis or irrealis of the world argument, temporal location of the time argument, as well as person or number of further arguments). Consequently, infinitives are mostly assumed to have the same denotation as the bare verb stem, that is, for example, for the German infinitive *schlafen* ‘sleep’ (marked by the ending *-en*),  $\llbracket \text{schlafen} \rrbracket^{c,s} = \llbracket \text{schlaf-} \rrbracket^{c,s}$ . While imperatives can only rarely be embedded and are restricted both in temporal reference and in person reference, infinitives (i) occur in a wide variety of grammatical contexts (e.g. (5)), and (ii) allow for a wide range of interpretations (triggered by intonation, non-linguistic context, etc.) when used as (underspecified and maybe elliptic) forms in communication (cf. (6)). They can even be used as a substitute for imperatives.<sup>3</sup> The reverse is not possible though; the environments in which infinitives can occur form a proper superset of the environments in which imperatives can be used.

- (5) a. Ich werde nicht schlafen.  
I will not sleep.INF  
b. Er versprach zu schlafen.  
he promised to sleep.INF
- (6) Aufgeben.  
give-up.INF  
'Give up.' (as an answer to any kind of question like 'what shall I do?'/ 'what will he do?'/ 'what do you consider'/. . .)
- (7) Aufstehen!  
stand-up.INF  
'Stand up!'

Consequently, imperatives cannot be as general as infinitives are. Yet, the latter show overt marking in a lot of languages.

Third, some of the restrictions that are observed (e.g. reference to the second person singular) that cannot be overridden by context, and modifications (e.g. in the temporal realm) show that some semantic representation is needed for these aspects of reference. They cannot just fall out automatically from some vague conception of ‘directive meaning’. For instance, the interval for which the imperative is issued has to be accessible in the structure if we want to account for temporal quantification (cf. (8)).

- (8) a. Kiss her before every meeting.

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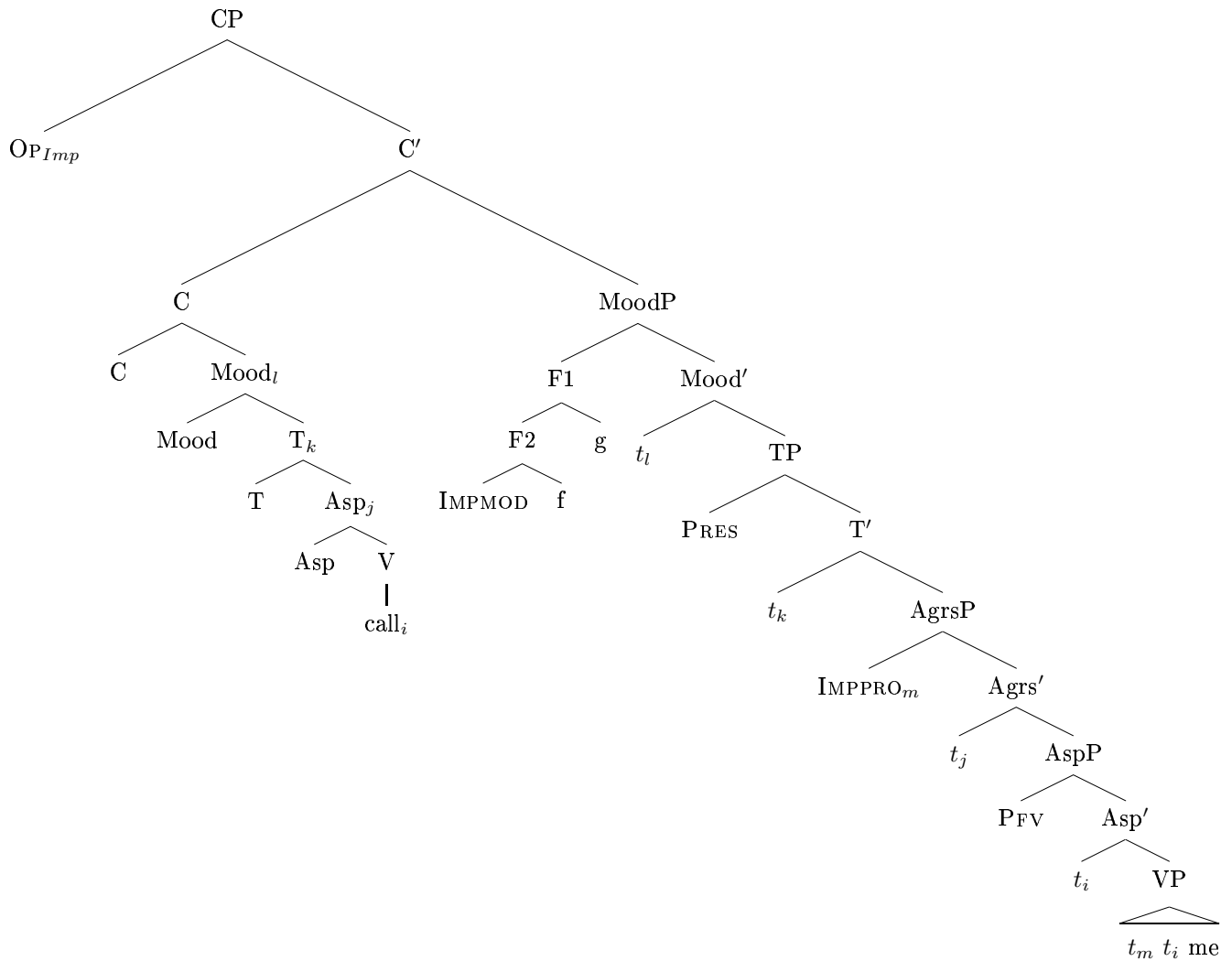
<sup>3</sup>As is well-known, in some languages this is obligatorily the case when it comes to negating imperatives; e.g. Italian. Cf. Han (1998) for extensive discussion.

- b. Never show up alone!

Fourth, the semantic value I assign to the imperative combines precisely those features that seem to constitute the unmarked option in general (maybe with the exception of aspectuality, which is often retained as an opposition in imperatives as well). Present is known cross-linguistically often not to be marked overtly; likewise, we know from the literature on conditionals (cf. Kratzer 1991), and recently also disjunctions (cf. Geurts *ta*) that missing modal elements are always interpreted as necessity (cf. also Portner 1997, Matthewson, Rullman, and Davis 2005 for further empirical arguments). Furthermore, bare stems are used especially for singular imperatives, whereas plural is often morphologically marked. And again, singular is usually taken to be the unmarked option (but cf. Sauerland 2003 for arguments in favor of plural being the unmarked option). The observation that imperatives contain precisely the unmarked members of each of the oppositions they encode opens up several possibilities as to how this should fall out from the underlying syntactic structure. One idea would be to spell out a default mechanism operating on the syntax-semantics interface. I will, however, stick to more traditional assumptions and assume that the features, variables and relations introduced by an imperative are directly represented in the syntactic structure. The tree for a simple English imperative as in (9a) might then look like (9b).

- (9) a. Call me!  
 b.  $[_{CP} [_{C} OP_{Imp}] [_{TP} PRES [T] [_{MoodP} IMPMOD [_{Agr.SP} IMPPRO^{2sg_i} [_{AspP} PFV [_{VP} t_i call me]]]]]]]$

(10)



I assume a minimalist framework relying on interpretable and uninterpretable features (cf. von Stechow (2003)). The morphological imperative in (9a) thus comes with a feature bundle  $\{+pfv, +2p', +sg/+pl, +impmod, +pres, +imp\}$ <sup>4</sup>, the single members of which are checked respectively against AspP, AgrsP, MoodP, TP and CP, triggering overt movement to AgrsP in English, and to CP for the German equivalent.

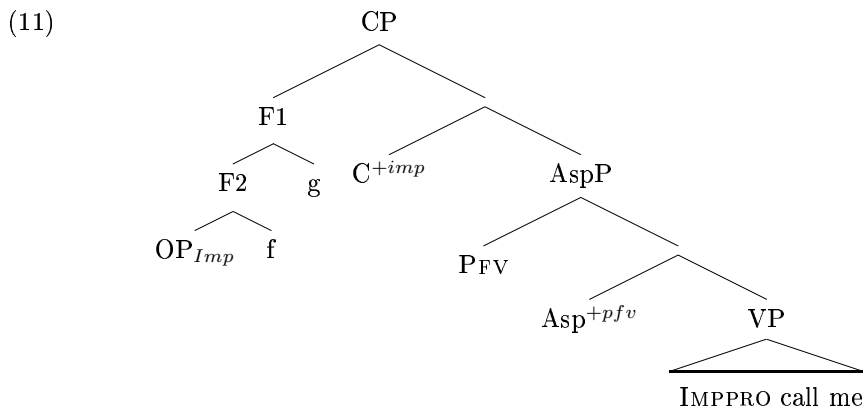
We might notice that it is precisely the three features linked to the highest positions CP, TP and MoodP that are invariantly determined for the German imperative. For German, it is therefore completely unproblematic to follow Wrátil (2004) in assuming that TP is lacking and that CP and MoodP are fused into a sentence mood specific projection, hosting an imperative operator.<sup>5</sup> We could then

<sup>4</sup>Cf. Section 6.1.2 for a precise characterization of  $+2p'$ , which is related but not identical to the ordinary second person feature.

<sup>5</sup>But note that this is only the case if one assumes that the morphosyntactic category 'imperative' is strictly constrained to the clause type 'imperative'. Facing the data presented in Section 3.3, repeated here as (i), this is most likely an undesirable simplification.

Imperativized verbs can occur in interrogatives, but given to the authority condition, these

assume the simpler tree in (11), and assume the interpretation of *+imp* to really correspond to  $\{+imp, +pres, +impmod\}$ .<sup>6</sup>



While this would likewise be adequate for English and any other language that does not allow tense distinctions in the imperative, I cannot agree with Wratil (2004) that TP is universally absent in imperatives. I think that interesting arguments have been put forth that Dutch does indeed allow for a distinction of present vs. past tense in imperatives (Mastop 2005, Boogaart and Trnavac 2004; cf. Section

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are confined to rhetorical usages only. Nevertheless, rhetorical questions are usually treated as interrogatives and therefore contain question marking, which would most likely be incompatible with an imperative operator.

- (i) Wen ruf auf keinen Fall an?  
 who call.IMP<sub>SG</sub> in no case <sub>PLT</sub>  
 'Who is it that you shouldn't call no matter what?' (\* /only rhetorically)

Note that this squares well with Reis and Rosengren's (1992) observation that the preverbal position in imperatives is not marked as [-wh] and therefore allows for extraction data as in (ii):

- (ii) Wen<sub>i</sub> sag mir [hat Maria gestern t<sub>i</sub> getroffen?]  
 who tell.IMP me has Maria yesterday t<sub>i</sub> met  
 'Tell me who Maria met yesterday.'

Under the conception of the syntax-semantics interface I have been proposing here, it does not matter how syntax chooses to encode particular features of other sentence types. For the moment, what matters is only the denotation, not whether we got it from interpreting an operator or from composing independent properties. For the imperative clause type, the contribution of *IMP<sub>MOD</sub>* is sufficient, the sentence initial positioning is not interpreted independently. This certainly has to be explained in a larger consideration of sentence mood marking in German (cf. e.g. Lohnstein 2000).

For our present purposes it is sufficient to say that without any damage to the rest of the story, we could always resort to splitting up the contribution of *OP<sub>Imp</sub>* as in (10), which would provide a structure that allows for formation of interrogatives and could thus carry over to imperative verb forms occurring in rhetorical questions. Something has to be said though why imperatives can only occur in V2-embeddings, that is, why they always undergo V-C movement. For ease of exposition, I will use the condensed assumption of *OP<sub>Imp</sub>* to cover these questions.

<sup>6</sup>I deviate from Wratil's (2004) analysis in ignoring SplitCP, and introducing a projection AspP above VP. AspP is needed to link the lexical content of the VP to the temporal domain opened up by the imperative which will be treated in the tense-aspect system developed by von Stechow (cf. e.g. von Stechow 2002b).



6.1.1).

We can now proceed to the question of how these features should be interpreted. For the sake of transparency, each of them will first be treated in its own right, walking through the tree in a bottom-up fashion. Most of the assumptions follow the system of tense and aspect semantics as developed by Arnim von Stechow in various papers (cf. e.g. von Stechow 2002b).<sup>7</sup>

I will skip the imperative subject for the moment (cf. the discussion in 6.1.2), and come to the modal part of the imperative's semantics, and how it interacts with tense and aspect. For the moment, the imperative subject will be assumed to be a (covert) second person pronoun and thus denote the addressee.

### 6.1.1 Tense, aspect, and their relation to modality

Before taking a closer look at the temporal and aspectual properties of imperatives, it has to be said that an extensive study of these issues is far beyond the scope of this thesis. Nevertheless, a sensible understanding of modality in natural language cannot be granted without a look at the temporal properties. This is particularly accurate for the modal element brought in by the clause type of imperatives. Future orientation has often been assumed to constitute a distinctive characteristics of imperatives even. Aspect (understood as aspectual relations, following von Stechow), is crucial in bringing together temporal and lexical information.

I assume that VPs contain positions for all their arguments and denote intensional properties of events (in the case of **achievements**, **accomplishments** and **activities**) or times (**states**)<sup>8</sup>. I abstract away from the case of states in the following (but cf. Chapter 11). These properties of events are allocated w.r.t. an interval by an aspectualizer, which is a relation in intension between times and properties of events. The aspectual feature on the head of AspP has to be checked against the corresponding aspectual relation located in its specifier. Von Stechow distinguishes **Perfective** (PFV) and **Imperfective** (IPFV) aspectual relations to relate properties of events to intervals. Their semantics is given in (12).<sup>9</sup>

- (12) a.  $\llbracket \text{PFV} \rrbracket^{c,s} = \lambda P \lambda t \lambda w. \exists e [\tau(e) \subseteq t \ \& \ P(e)(w)]$   
 b.  $\llbracket \text{IPFV} \rrbracket^{c,s} = \lambda P \lambda t \lambda w. \exists e [\tau(e) \supseteq t \ \& \ P(e)(w)]$

For most languages, in imperatives we find PFV as a default. For languages that also

<sup>7</sup>I deviate from his original system by extensionalizing with respect to the world argument as well.

<sup>8</sup>The terminology follows Vendler (1957) who assumes that **accomplishments** and **achievements** contain a cumulation point but differ in that the former includes preparatory phases whereas the latter is punctual (*build a house/die*); **activities** do not contain a cumulation point but are not completely homogenous either (e.g. *run*). **States** are completely homogenous *be 2m tall*.

<sup>9</sup>Von Stechow assumes that temporal properties as denoted by statives are linked to the reference time by a special aspectual relation of interval inclusion. I will resort to a simpler system and assume that AspP may be lacking (or be empty) if the VP denotation constitutes an appropriate argument to the next functor. For example, I will assume that IMPMOD can combine directly with a stative VP.

overtly mark imperfective imperatives, they are used with negation (cf. Segerberg (1996) for discussion of aspect and negation in Polish), or require salience for a temporal instant within the interval they are predicated of. But such restrictions are not unique to imperatives, but seem to be in line with more general possibilities of interpreting imperfective aspectual forms.

Due to the presence of an aspectual relation, at least when the level of AspP is reached, the denotation equals a property of times. E.g., in case of a perfective imperative *Leave!*, the property of intervals to contain an event of the addressee leaving (cf. (13)).

$$(13) \quad \llbracket [_{AspP} \text{PFV} [_{VP} \text{you leave} ] ] \rrbracket^{c,s} = \llbracket \text{PFV} \rrbracket^{c,s} (\llbracket \text{you leave} \rrbracket^{c,s}) = \\ \llbracket \text{PFV} \rrbracket^{c,s} (\lambda e \lambda w. \text{leave}'(c_A)(e)(w)) = \lambda t \lambda w. \exists e [\tau(e) \subseteq t \ \& \ \text{leave}'(c_A)(e)(w)]$$

The specifier of Mood<sup>[*impmood*]</sup> contains the relation IMPMOD that is interpreted roughly like the modal *must*. That is, it will come out roughly equivalent to the graded variant of the modal verb's semantics as we have seen it in (35a), Section 5.2 (repeated here as (14)).

$$(14) \quad \llbracket \text{must} \rrbracket^{c,s} = \lambda f \lambda g \lambda p \lambda w. (\forall v \in O(f, g, w)) [v \in p]$$

As it stands, after having applied to modal base  $f$  and ordering source  $g$ , the modal is still inapplicable to the denotation of AspP, because it combines with a proposition, whereas AspP denotes a relation between times and worlds. That is, at this point we have to consider the issue of temporal information we have carefully shunned so far. Taking a closer look at imperatives and tense, it becomes obvious that two different parameters have to be distinguished sharply. On the one hand, imperatives are issued at some interval  $t_1$ : they express (or rather: instantiate) necessity at some interval  $t_1$ . Since I will not be concerned with embedding for the moment, I will simply call this the **evaluation time**. On the other hand, they oblige/recommend/desire/... the addressee to have a certain property at a more or less well-defined interval  $t_2$ , which I will call the **event frame**.

With respect to these two aspects of temporality, it might be useful to compare imperatives to modal verbs again. The first issue corresponds clearly to what is expressed as temporal information on the modal verb itself. (15a) expresses the necessity for Verena to leave with respect to the permissibility sphere at  $c_T$ , whereas (15b) expresses the same necessity with respect to the permissibility sphere at a contextually given interval before the utterance time  $c_T$ .

- (15) a. Verena has to leave.  
b. Verena had to leave.

The distinction depends on the temporal information on the modal verb, and this is usually assumed to be encoded in TP. The morphological information on the verb in T is checked against a temporal variable in SpecTP that carries the same feature. On the temporal variable, it is interpreted as a presupposition on the

variable assignment.<sup>10</sup>

Imperatives talk about the permissibility sphere (or any other type of modal accessibility) at the time of the context, not about its prior or later states. Consequently, as in corresponding declaratives (cf. (15a)), the verb carries the feature *pres*, and SpecTP has to host a variable with the presupposition *pres*. Simplifying a bit, we can assume that such a variable is required to be identical to the utterance time  $c_T$ .<sup>11</sup>

$$(16) \quad \llbracket t^{pres} \rrbracket^{c,s} = c_T$$

As expected, imperatives parallel performatively used modal verbs: they, too, depend crucially on present tense morphology ((15a) can be used performatively, while (15b) can only be used descriptively).

Now, the semantics of the necessity modal has to be made dependent on a further parameter, namely the moment at which the permissibility sphere is to be calculated. Thus, the notion of optimal worlds  $O$  (cf. (33)) has to be changed to a four place function, depending on a modal base, an ordering source, and a time and a world of evaluation (cf. (17)). This allows to specify the semantics of *must* as in (18).

$$(17) \quad O(f, g, t, w) = \{v \in \cap f(t, w) \mid \forall z \in \cap f(t, w): \text{if } z \leq_{g(t,w)} v \text{ then } v \leq_{g(t,w)} z\}$$

$$(18) \quad \llbracket \text{must} \rrbracket^{c,s} = \lambda f \lambda g \lambda p \lambda t \lambda w. \forall v \in O(f, g, t, w) : v \in p$$

After the modal has applied to the modal base, the ordering source and its propositional complement, it applies to the temporal variable in TP that has to carry the temporal feature corresponding to the tense morphology of the modal verb. This last step expresses the time dependence of the modal accessibility relation (describing e.g. the permissibility sphere).

But still, we have not explained the technical details of how AspP and the modal element get combined, and, on the explanatory side, we have not explained the notion of *event frame*, which is supposed to narrow down the temporal possibilities of when to comply with the imperative.

Usually, imperatives have to be acted on in the future; this is a crucial part of the analyses in e.g. Mastop (2005) or Portner (1997). In our ontology it would be natural to express this via assimilation to modals again. Condoravdi (2002) expresses the observation that eventive<sup>12</sup> complements of modals are always inter-

<sup>10</sup>This is entirely in the spirit of a deictic theory of tense as proposed by Partee (1973), and elaborated by Heim (1994). In order to capture relative or semantically vacuous tense in attitude reports and other intensional contexts, feature deletion has to be allowed under binding of (temporal) variables, cf. von Stechow (2003).

<sup>11</sup>This is actually a simplification of the more adequate view that present restricts the interpretation of the variable to intervals that include the utterance time:

(i)  $\llbracket t_{16}^{pres} \rrbracket^{c,s}$  is defined only if  $s(t_{16}) \supseteq c_T$ . If defined,  $\llbracket t_{16}^{pres} \rrbracket^{c,s} = s(t_{16})$ .

<sup>12</sup>In a classical Vendlerian understanding. It is to be distinguished from Mastop's (2005) use of

puted as occurring in the future by saying that the modal expands its evaluation time forward, opening up an interval that extends potentially unrestrictedly into the future. Interpreting the modal element in the imperative analogously yields (19):

$$(19) \quad (\textit{preliminary}) \\ \llbracket \text{IMPMOD} \rrbracket^{c,s} = \lambda f \lambda g \lambda P \lambda t \lambda w. (\forall w' \in O(f, g, t, w)) [P([t, \_])(w')]$$

The complement the imperative has to apply to is now of the right type, namely,  $P$  is a function from intervals into propositions.  $[t, \_)$  denotes the interval that starts at  $t$  and extends unboundedly into the future. Applying this to a perfectly aspectualized VP, this makes quite good predictions for plain imperatives as in (20a).

$$(20) \quad \begin{array}{l} \text{a. Call Melli!} \\ \text{b. } \llbracket (20a) \rrbracket^{c,s} = \llbracket [t^{pres} \llbracket \llbracket \text{IMPMOD } f \text{ g} \rrbracket \text{ PFV } [_{VP} \text{IMPPRO call Melli}]] \rrbracket \rrbracket^{c,s} = \\ \quad (\llbracket \text{IMPMOD} \rrbracket^{c,s}(f)(g)(\llbracket \text{PFV} \rrbracket^{c,s}(\lambda e \lambda w. \text{call-melli}'(c_A)(e)(w))))(c_T) = \\ \quad ([\lambda P \lambda t \lambda w. \forall w' \in O(f, g, t, w): P([t, \_])(w')] \\ \quad \quad (\lambda t \lambda w. \exists e[\tau(e) \subseteq t \ \& \ \text{call-melli}'(c_A)(e)(w)]))(c_T) = \\ \quad (\lambda t \lambda w. \forall w' \in O(f, g, t, w): \\ \quad \quad (\lambda t \lambda w. \exists e[\tau(e) \subseteq t \ \& \ \text{call-melli}'(c_A)(e)(w)])([t, \_])(w'))(c_T) = \\ \quad \lambda w. \forall w' \in O(f, g, c_T, w) : \exists e[\tau(e) \subseteq [c_T, \_] \ \& \ \text{call-melli}'(c_A)(e)(w')]] \end{array}$$

That seems fairly satisfactory, and we might happily leave it to pragmatics why not just any event of the addressee's calling Melli in the future might be a good candidate to comply with the obligation expressed (maybe only calls located within the nearer future would do). But other examples should make it clear that such a view is too optimistic to determine when exactly the imperative should be complied with. Some sorts of temporal restrictions can indeed be integrated easily enough by intersection of the interval opened up by the modal with the temporal adverbial (cf. (21a)). But others show that a larger interval has to be taken into account than what is given by the forward expanding modal (cf. (21b)), and yet others show that, even in the absence of an overt restrictor, a notion of intended reference has to be visible in order to get the interaction with negation right (cf. (21c)).

- (21)    a. Call Melli tomorrow!  
           b. Don't call Cécile more than three times while she is in Greece.  
           c. Don't turn off the stove!

In order to analyse (21a), we might interpret *tomorrow* as a temporal modifier as in (22a) (cf. von Stechow 1991). Let us assume that it is attached to AspP and is interpreted via predicate modification (that is, intersection). IMPMOD is then applied to the temporal property in (22b).

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the term.

- (22) a.  $\llbracket \text{tomorrow} \rrbracket^{c,s} = \lambda t \lambda w [t \subseteq t' \ \& \ t' = \text{the-day-before}'(c_T)(w)]$   
 b.  $\lambda t \lambda w [\exists e [\tau(e) \subseteq t \ \& \ \text{call-melli}'(c_A)(e)(w)] \ \& \ t \subseteq t' \ \& \ t' = \text{the-day-before}'(c_T)(w)]$

It is easy to see that treating the temporal clause in (21b) analogously makes a wrong prediction. Assume that (21b) is issued at a time  $t'$  such that Cécile has already been in Greece for a week at  $t'$  and is to stay there for one more week. Now, crucially, the total amount of calls you give her should be computed for the entire time, not just for the week starting from  $t'$ . That is, if you have already called her twice, you may only call her once more. And, if you have already called her more than 3 times, it would be natural to reject the imperative as something you can not possibly comply with anyway.

The semantics in (19) predicts (23c), which only takes into account the week starting from  $t'$ .<sup>13</sup>

- (23) a.  $\llbracket \text{more than three times} \rrbracket^{c,s} = \lambda P \lambda t \lambda w. | \{e : P(e)(w) \ \& \ \tau(e) \subseteq t\} | > 3$   
 b.  $\llbracket \text{while Cecile is in Greece} \rrbracket^{c,s} = \lambda t \lambda w. t \subseteq \text{MAX}(\lambda t' [\text{cecile-in-greece}'(t')(w)])$   
 c.  $\llbracket \llbracket \text{OP}_{Imp} \ f \ g \rrbracket [\text{not} \llbracket \text{more than three times} \llbracket \text{IMPPRO call Cecile} \llbracket \text{while she is in Greece} \rrbracket \rrbracket \rrbracket]^{c,s} =$   
 $\lambda w. (\forall w' \in O(f, g, c_T, w)) [\lambda t \lambda w. [\neg | \{e : \text{call-cecile}'(c_A)(e)(w) \ \& \ \tau(e) \subseteq t \ \& \ \tau(e) \subseteq \text{MAX}(\lambda t' [\text{cecile-in-greece}'(t')(w)])\} | > 3] (c_T, \_)(w')] =$   
 $\lambda w. (\forall w' \in O(f, g, c_T, w)) [\neg | \{e : \text{call-cecile}'(c_A)(e)(w') \ \& \ \tau(e) \subseteq [c_T, \_)] \ \& \ \tau(e) \subseteq \text{MAX}(\lambda t' [\text{cecile-in-greece}'(t')(w')]\} | > 3]$

But this counts only events within that part of Cecile's contextually salient stay in Greece that follows the utterance time. Intuively, this is not what we want.<sup>14</sup>

Usually, it seems to be correct that adverbials that refer to intervals that properly include the utterance time are restricted to either the past or the future part by the temporal information on the verb. Consider (24) and related examples discussed in von Stechow (1995).

- (24) Malte war heute dreimal hier.  
 Malte was today three-times here  
 'Today, Malte has been here three times.'

Here, the quantification is clearly restricted to that part of the utterance day that precedes the utterance time. This can only be due to the past morphology on the verb. While intuitions are less clear with future reference, the sentences in (25) still

<sup>13</sup>The temporal adverbial clause *while she is in Greece* is interpreted via predicate modification as a temporal restriction on the events taken into account. I think this is the most favorable prediction we can get from the ingredients. Interpreting *while she is in Greece* in a higher position would result in requiring that the entire future lies within Cecile's stay in Greece. Clearly, an undesirable result for us.

<sup>14</sup>I think the problem might extend to the general treatment of modals in Condoravdi (2002), but I won't go into a discussion of that issue here. There is also a new paper by Arnim von Stechow which I could not take into consideration anymore (von Stechow 2005).

invite readings where the future information restricts the quantification to the part that follows the utterance time.

- (25) a. Volker wird heute dreimal anrufen.  
 Volker will today three-times call  
 ‘Volker will call three times today.’
- b. Melli wird mich dreimal anrufen, während ich hier in der Küche  
 Melli will me three-times call, while I here in the kitchen  
 bin.  
 am  
 ‘Melli will call me three times, while I am here in the kitchen.’

I can hardly say (25a) to mean that he will have called three times at the end of the day. Likewise, I have a strong preference to conceive of all three calls in (25b) as being in the future. In contrast to that, for the imperative case in (21b), the preference to understand the calls as being located in the entire interval is very strong. If we were to interpret the temporal adverbial clause *while she is in Greece* via intersection with the future interval opened up by the modal element in (19) in analogy to the interpretation of *tomorrow*, we would predict erroneously that all relevant calls have to be located in that part of her stay that follows the utterance time.

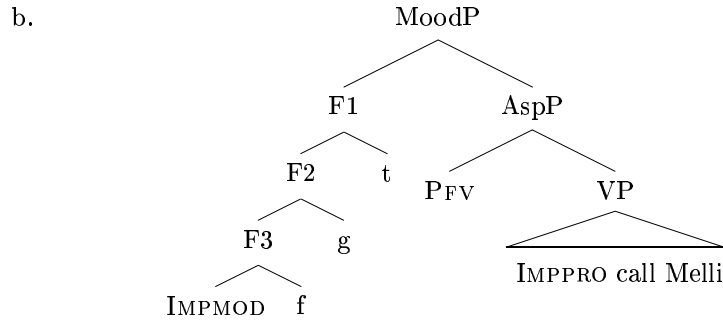
A further problem with the semantics in (19) is constituted by (21c). Naively applying the semantics in (19), we predict (21c) to mean the same as (26b), which is of course incorrect. Rather, we would have to introduce a covert restriction to do the framesetting in analogy to (21a).

- (26) a.  $\llbracket(21c)\rrbracket^{c,s} = \lambda w.\forall w' \in O(f, g, c_T, w) : \neg\exists e[\text{turn-off-stove}'(c_A)(e)(w') \ \& \ \tau(e) \subseteq [t, \_]]$
- b. Never turn off the stove.

Taking together the requirement of covert framesetting and event frames that lie partly before the utterance time, I want to propose that IMPMOD takes an additional temporal argument which denotes the event frame, that is, the time within which the event is to take place. In order to capture the fact that this normally has a future orientation, I assume that it may not lie entirely before the utterance time (that is, it may not come with the presupposition *past*).<sup>15</sup> The refined semantics for IMPMOD is given in (27a), the corresponding tree for MoodP in a simple imperative as (20a) is given in (27b).

- (27) a.  $\llbracket\text{IMPMOD}\rrbracket^{c,s} = \lambda f\lambda g\lambda t'\lambda P\lambda t\lambda w.O(f, g, t, w) : P(t')(w)$ , defined only if not  $t' < t$  (the event frame  $t'$  does not strictly precede the evaluation time  $t$ )

<sup>15</sup>This is of course highly reminiscent of Mastop’s (2005) restriction that imperatives may change the schedule only at or after reference time (modulo the treatment of quantification involving partly past intervals, which in general cannot be expressed straightforwardly in his framework of partial update semantics).



In addition, I will explain in 6.3 that IMPMOD (or the imperative operator in the condensed analysis, cf. (29b)) introduces the **Authority Condition**, the **Epistemic Uncertainty Condition (EUC)** and the presupposition of **Ordering Source Affirmation (OSA)**.<sup>16</sup>

*+imp* syntactically ensures that the imperative moves to CP; consequently, so far, it is only needed for syntactic reasons. Of course it would be desirable to assign a semantics to this feature, or to V-C-movement itself, at best uniformly across clause types.<sup>17</sup> For the moment, I do not want to speculate which part of what I burdened on IMPMOD should better go into the interpretation of *+imp*. Maybe some/all of the presuppositions should. As long as we have not sorted out the relation to question marking, I prefer to remain agnostic and leave it all on IMPMOD.

It is easy to see that the sequential application of the elements **PRESENT** and **IMPMOD** is equivalent to the semantics of  $OP_{Imp}$  (cf. (1), repeated in (28a)) when refined in order to take into account the twofold temporal dimension (cf. (28b)), and for syntactic reasons, we also have to add the semantically vacuous feature *+imp* that triggers fronting of the finite verb and blocks appearance of a complementizer:<sup>18</sup>

$$(28) \quad \begin{array}{l} \text{a. } \llbracket OP_{Impold} \rrbracket^{c,s} = \lambda f \lambda g \lambda p \lambda w. (\forall w' \in O(f, g, w)) [p(w')] \\ \text{b. } \textit{(final version of the truthfunctional meaning component)} \\ \quad \llbracket OP_{Imp} \rrbracket^{c,s} = \lambda f \lambda g \lambda t' \lambda P \lambda w. (\forall w' \in O(f, g, c_T, w)) [P(t')(w')] \end{array}$$

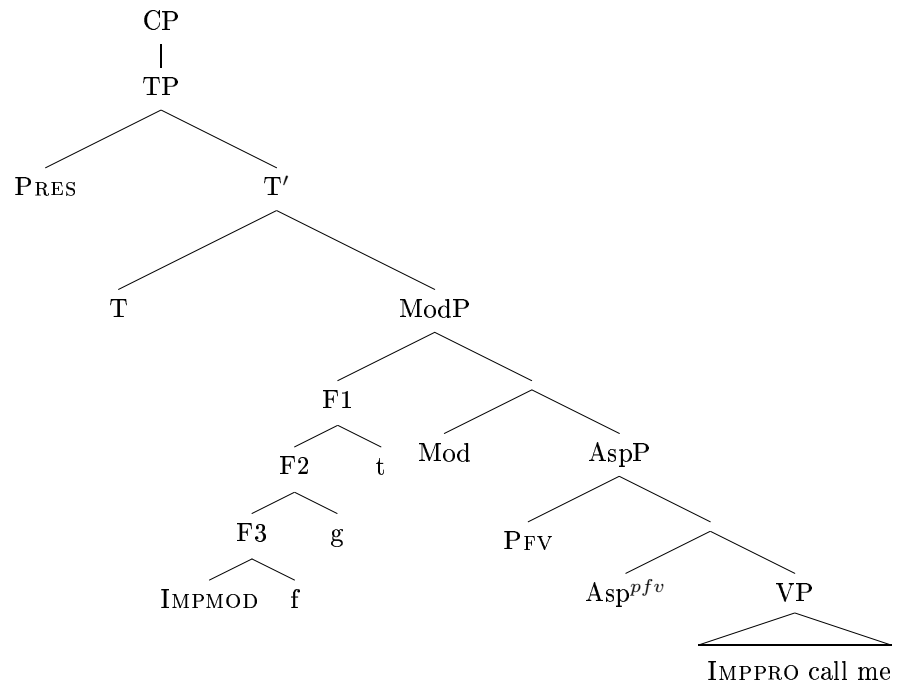
For convenience, I will in the following resort to Wratil's (2004) assumption that a complex CP(MoodP) hosts  $OP_{Imp}$  and takes AspP as its complement (cf. (29b), which contributes exactly the same semantics as the more fine-grained (29a)).

<sup>16</sup>Remember, that on the more fine-grained analysis, *+imp* does not yield any truth-conditional contribution (at best, it serves to introduce one or both of these presuppositions). It is of course needed to get the syntactic peculiarities of imperatives right, as for example the V-to-C-movement, cf. Wratil (2004).

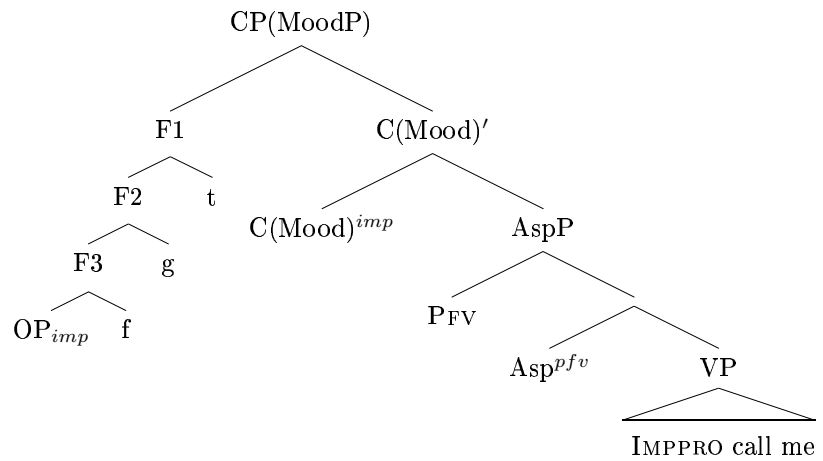
<sup>17</sup>Cf. Truckenbrodt (2005b) for a proposal in this spirit.

<sup>18</sup>In the refined version (28b) developed in this chapter, the interpretation of the imperative operator does not combine with a proposition any more, but rather with a temporal property.

(29) a.



b.



The fact that the additional temporal parameter introduced for the event frame is not restricted to the interval starting with the utterance time  $c_T$  allows for a much



better approximation to a solution for (21b).<sup>19,20</sup>

- (30) a.  $\llbracket \text{more than three times} \rrbracket^{c,s} = \lambda P \lambda t \lambda w. |\{e : P(e)(w) \& \tau(e) \subseteq t\}| > 3$   
 b.  $\llbracket \text{while Cecile is in Greece} \rrbracket^{c,s} = \lambda t \lambda w. t = \text{MAX}(\lambda t' [\text{cecile-in-greece}'(t')(w)])$   
 c.  $\llbracket \llbracket \llbracket \text{OP}_{Imp} \text{ f g t} \rrbracket \llbracket \text{while Cecile is in Greece} \rrbracket \llbracket \text{not [more than three times [IMPPRO call Cecile]]} \rrbracket \rrbracket \rrbracket^{c,s} =$   
 $\lambda w. \forall w' \in O(f, g, c_T, w): [t = \text{MAX}(\lambda t' [\text{cecile-in-greece}'(t')(w')]) \&$   
 $\neg |\{e : \text{call-cecile}'(c_A)(e)(w') \& \tau(e) \subseteq t\}| > 3]$

According to (30c) we count all events that lie within Cecile's entire stay in Greece, instead of confining our attention only to those following the utterance time. This is as desired.

At that point it seems appropriate to say something on the question of tensed imperatives.

Most languages lack temporal distinctions with imperatives. Consequently, their imperatives can be treated as in (29b), allowing for alternations between PFV and IPFV aspectual relations. But recently, a couple of languages have been claimed to allow for distinctions in tense after all. I want to point out though that they fall into two fundamentally different categories with respect to the tensing they exhibit.

On the one hand, for Dutch, it has been claimed that it allows for true pluperfect or past imperatives (cf. Proeme 1991, Wolf 2003, Mastop 2005). Mastop argues that they are to be seen as true imperatives because they *share the same verb form (verb first, implicit second person subject) and have a closely related use*. (Mastop (2005:71)).

- (31) Had je mond maar gehouden!  
 had your mouth PRT hold.PP  
 'You should have kept your mouth shut!'
- (32) Reed dan ook niet zo hard. Je wist toch dat the politie  
 drive.PAST PRT PRT not so fast. You know.PAST PRT that the police  
 aan het conroleren was!  
 on the check.INF was

<sup>19</sup>Note that it is now crucial that the temporal restriction *while Cecile is in Greece* gets interpreted outside of negation (otherwise, the truth conditions get too weak). An alternative way to achieve that would be to interpret it as a presupposition on the event frame argument of the imperative operator. Ultimately, I would prefer that. But the problem is of course not genuine to imperative semantics. It arises likewise for cases like (i).

(i) Cecile didn't call Ede more than three times while he was in Dublin.

With respect to the modalized case, note that Cecile's stay in Greece is relativized to the respective worlds. But I think this is as it should be. The interval of her stay in the actual world does not have to be known exactly (maybe it has not even been fixed), and if it differs in a world  $w'$ , for  $w'$ , we would be concerned with the interval she spends in Greece according to what is going on in  $w'$ . I take it to be a pragmatic effect that artificial shortening of Cecile's stay is not normally considered a good way of complying with the imperative. The semantics does not exclude it.

<sup>20</sup>Again, the temporal predicates in (30c) get interpreted via predicate modification; *while* can now be taken to denote the entire interval instead of a subset.

‘You shouldn’t have driven that fast. You knew the police was surveilling.’

Drawing on the interaction with various particles, he argues that these forms give an advice or point out an obligation as holding at the time where the choice was to be made, not at the utterance time. Therefore, he classifies them as truly performative (cf. Mastop (2005:74)).<sup>21</sup> I agree with Mastop (2005) that they share a lot with imperatives indeed, but nevertheless I would not classify them as imperatives in the sense of the clause type individuated here. They clearly exhibit a grammatical property (namely past tense marking) that restricts them to never fulfill the prototypical function of requesting or commanding that was taken to be distinctive for the imperative clause type. The speech act type corresponding to commanding something for the past, is more that of a REPROACH that what was clearly to be known as advisable has not been complied with. I would want to say that they constitute an individual clause type of e.g. reproachatives. Nevertheless, it is easy enough to capture the fact that reproachatives have a tight semantic relation to imperatives, by letting them encode IMPMOD, too. They only differ in that TP is marked for *past*, and consequently, the necessity is evaluated with respect to a past evaluation time.<sup>22</sup> This is indeed very similar to Mastop’s (2005) analysis. Translating his analysis into my framework would result in having TP marked as *+past* and consequently requiring the temporal variable *t* in SpecTP to be evaluated as located in the past with respect to the utterance time  $c_T$ . The restriction on the deictic event frame *t'* to be evaluated as not entirely preceding this past time of evaluation *t* comes out correctly automatically thanks to the fact that it was defined only as relatively non-past (that is, with respect to the evaluation time for the necessity modal, not with respect to the utterance time  $c_T$ ).

Other cases of tense in imperatives do not induce a different evaluation time, but rather involve grammaticalized restrictions on the event frame. This seems to be the case in Cheyenne (cf. Mithun 1999, Mastop 2005) and maybe Maidu<sup>23</sup> (cf. Shipley 1964, Mastop 2005). Wratil (2004) reports similar effects for Tubatulabal<sup>24</sup> and Takelma<sup>25</sup>.

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<sup>21</sup>Wratil (2004) mentions a similar usage of irrealis marked imperatives in Tsakhur (a (Lezgi-Samur) Dagestan language spoken in Azerbaijan):

(i) ali-w-s-i sa dawar  
buy-IMP-IRR a lamb  
‘You should buy a lamb!’

<sup>22</sup>Of course, we could say alternatively that Dutch has a complex clause type that covers both imperatives and reproachatives, and that these two subtypes are distinguished only by the tense information. Given that, as far as semantics is concerned, clause type systems fulfill a purely heuristic purpose, I consider these issues a matter of taste.

<sup>23</sup>A cover term for three closely related North American Indian language spoken in California.

<sup>24</sup>A North American Indian language spoken in Southern California.

<sup>25</sup>A North American Indian language that was spoken in Southwestern Oregon, but is now extinct.

- (33) a. meseestse  
eat.IMP1  
Eat! *Cheyenne*
- b. mesheo?o  
eat.IMP2  
Eat (later on)! *Cheyenne*

In contrast to past evaluation times as observed for Dutch, this does not change the prototypical function of the respective clauses, consequently, it is entirely unproblematic to call them imperatives. If various restrictions on the event frame are grammaticalized in a language, we can capture this by saying that the language has more than one relation IMPMOD that can co-occur with the clause type distinctive feature *imp*.<sup>26</sup>

Future imperatives in analogy to the Dutch past imperatives that would truly shift the evaluation frame to the future have not been reported so far.

### 6.1.2 The imperative subject

The stunning fact that imperatives can occur without overt subjects both in pro-drop and in non-pro-drop languages has given rise to a lot of speculations about the possible absence of a subject in imperatives (cf. Platzack and Rosengren 1997 for syntactic arguments, Mastop 2005 for arguments in favor of its absence at least in semantics).

As I have already argued in Section 3.2.1 this high amount of underspecification seems too liberal. It does not account for the fact that (i) in the absence of an overt subject, second person reference is obligatory, and that (ii) truly indeterminate forms (e.g. infinitives) behave differently with respect to contextual resolution (cf. discussion above). Furthermore, syntactic facts as (iii) second person agreement features on reflexives<sup>27</sup>, and (iv) alternation with overt (contrastively stressed) pronouns cannot be accounted for satisfactorily.

Therefore, I will follow Potsdam (1998a) and Wratil (2004) in assuming that imperatives invariably contain a subject, but that many (though not all) languages<sup>28</sup> also have a covert pronoun special to imperatives. Wratil (2004) argues convincingly that from a syntactic point of view, it has to be different both from *PRO* (which could never alternate with overt pronouns) and *pro* (which, if available at all, would be expected to occur e.g. with indicatives as well), and calls it IMPPRO. Syntactically, IMPPRO is restricted to the subject position of imperatives. For the semantics it is only relevant that it is a covert variant of the second person pronoun and comes in a singular and a plural variant.

<sup>26</sup>Closer investigation of German perfect imperatives suggests that under one reading they might indeed come with past event frames, cf. (130c) in 6.2.3.

<sup>27</sup>But see syntactic complications with quantificational subjects, cf. the discussion of examples like (41).

<sup>28</sup>Vs. Zhang (1990) and Mauck and Zanuttini (ta) who claim universality of covert imperative subjects. A counter-example is provided by Icelandic where imperativized verbs always co-occur with overt subjects.

- (34) a.  $[\text{IMPPRO}]^{c,s} = s(\text{IMPPRO})$  iff  $s(\text{IMPPRO})$  is defined and  $s(\text{IMPPRO}) = c_A$ .  
 b.  $[\text{IMPPRO}^{+pl}]^{c,s} = s(\text{IMPPRO})$  iff  $s(\text{IMPPRO})$  is defined and  $s(\text{IMPPRO}) = c_A$ , and  $c_A$  is a complex individual.

In order to exclude cases like (35), we might want to resort to a purely syntactic solution and postulate second person agreement features on the verb.

- (35) a. \*Gib Hans mir einen Kugelschreiber.  
       give.IMP Hans me.DAT a ballpen  
 b. \*Geh es nach Hause.  
       go.IMP it to home

But in some languages (well-documented for German and English, but cf. Mauck, Pak, Portner, and Zanuttini 2005 for a cross-linguistic perspective), second person subjects alternate with quantificational subjects that are marked as third person (cf. (36)). Consequently, they can also bind third person possessive pronouns or third person reflexives, cf. (37).

- (36) a. Everyone take out a pencil! Potsdam (1998a:(6a))  
 b. Someone get me an aspirin! Potsdam (1998a:(6d))  
 c. Nobody move!  
 (37) a. Someone give me his credit card!  
 b. Everyone wash himself!

In English, definites (38a) and *wh*-relative clauses (38b) can also appear as imperative subjects.<sup>29</sup>

- (38) a. The man with the list come here! Potsdam (1998a:205)  
 b. Whoever helped me set up the computer please shut it down again!

Provided that a name refers to an item in a list of alternatives, proper names are acceptable as well (cf. Potsdam (1998a:205)).

- (39) a. #Mary stand by the door!  
 b. Mary stand by the door, John scatter the files, and I'll watch the front!

German does not allow for this entire range of subject realizations. We find overt and covert elements referring to the second person (40a), and quantificational subjects (41), but neither proper names (42a) nor definites (43a) or *wh*-relative clauses (43b):

<sup>29</sup>The assumption that, syntactically, these are all subjects (as opposed to vocatives, for example), is argued for convincingly at various places, most carefully in Potsdam (1998a). It should immediately become obvious from the occurrence of negative quantifiers as in (36c).

- (40) a. Mach die Tür zu!  
make.IMPSG the door closed  
'Shut the door!'
- b. Mach du die Tür zu!  
make.IMPSG you the door closed  
'You shut the door!'
- (41) a. Schreib mal jeder seinen Namen auf einen Zettel!  
write.IMP PRT everyone his name on a sheet  
'Everyone write his name on a sheet!'
- b. Bring mir mal wer ein Aspirin!  
bring.IMPSG me.DAT QPRT someone an aspirin  
'Someone bring me an aspirin!'
- (42) a. \*Maria mach die Tür zu!  
Maria make.IMPSG the door closed  
*ok as vocative; set off by intonation*
- b. \*Maria mach die Tür zu, Hans schließ das Fenster,  
Maria make.IMPSG the door closed, Hans close.IMPSG the window,  
und ich hole die Post.  
and I fetch.1PSGPRESIND the mail
- (43) a. \*Derjenige mit der Liste komm her!  
the-one with the list come.IMPSG here
- b. \*Wer auch immer die Liste hat komm her!  
whoever the list has come.IMPSG here

For third person subjects in imperatives as e.g. in (36) it has often been claimed that the domain of the quantificational element or the alternative set from which a definite expression is drawn has to be constituted by the set of addressees (e.g. Davies 1986 for English, Platzack and Rosengren 1997 for German). (41a) and (41b) can be transformed into (44a) and (44b) respectively without change in meaning:

- (44) a. Schreib mal jeder *von euch* seinen Namen auf einen  
write.IMPSG QPRT everyone of you his name on a  
Zettel!  
sheet  
'Everyone of you put his name on a sheet.'
- b. Bring mir mal wer *von euch* ein Aspirin!  
bring.IMPSG me.DAT QPRT someone of you an Aspirin  
'Someone of you bring me an Aspirin.'

But is this part of the grammar of imperatives or just a logical consequence of these imperatives being used in some sort of directive speech act? Schmerling (1982) shows convincingly that this is really a grammatical property of the imperative. Other clause types can be used for similar directive purposes, nevertheless, even on

such occasions, they lack the requirement that the quantifier runs over the set of addressees:

- (45) a. Somebody fix this typewriter!  
 b. This typewriter is to be fixed.  
 c. Somebody has to fix this typewriter!

All three sentences in (45) can be used to get my office mates to take care that the typewriter gets fixed somehow. But the imperative in (45a) crucially differs from the declaratives in (45b) and (45c). Both (45b) and (45c) can be complied with by calling an agency to send someone to fix the typewriter. In that case, no-one of my officemates does the work himself. This is not an option to comply with (45a). Here, it has to be one of the addressees that takes care of the machine. Consequently, the restriction that the subject of an imperative belong to the set of addressees (as observed e.g. in (44)) is not a by-product of the usage made of an imperative, but has to be encoded in its grammar.

The resulting hypothesis that imperative subjects always stand in the subset relation to the set of addressees is known as *Downing's characterization* (cf. Downing 1969).

(46) *Downing's Characterization of Imperative Noun Phrases*

The subject of an imperative must stand in a subset relation to the addressee.

Potsdam (1998a) claims that (46) does not hold for English. The examples he adduces to falsify the generalization fall into three classes.

First, he observes cases where imperative subjects constitute supersets of the set of persons spoken to.

- (47) Come at 8! *intended: the hearer and her husband*

But this is a general feature of second person (and thus 'addressee referring') pronouns; it occurs in other clause types as well. (48) provides the example of a question.

- (48) Why didn't you come to the party yesterday?  
*intended: the hearer and her husband*

Consequently, I will assume that (one of) the hearer(s) together with a set of absent people he is understood to form a group with in the given context, can constitute the plural addressee of an utterance. On such a view, data as in (47) does not provide counter-evidence to Downing's characterization.

The second class of data adduced by Potsdam (1998a) does indeed contradict (46). In some cases, an addressee referring expression is conjoined with a DP involving a set that has an empty intersection with the former. Therefore, the subject in its entirety consists of the addressee and other persons that are not

conceived of as part of the addressee. This differs clearly from cases as in (47) and (48). In (49), the second person pronoun is taken to refer to the person that is indeed present and thus constitutes the addressee. In the cases discussed before, the second person pronoun referred to the group.

- (49) a. You and your men be on guard for anything suspicious.  
Potsdam (1998a:207)
- b. You and them make a deal! I'm out of this.  
Potsdam (1998a:207)

Apart from the fact that the status of the examples has been doubted (cf. below), these are precisely cases resulting in agreement conflicts resolved by hanging topic constructions (or, marginally, second person inflection) in German declarative clauses. Whatever process is used for the somewhat marginal second person inflection in these cases could be claimed to save Downing's characterization even in the face of data like (49).

- (50) Du und deine Männer { \*waren/?? wart/, ihr wart }  
you and your men { were.3PL/were.2PL/, you.2PL were.2PL }  
gestern zu spät.  
yesterday too late.  
'You and your men were too late yesterday.'

A clear conflict with (46) results where there is no overlap between subject and addressee:<sup>30</sup>

- (51) a. Those children of yours keep out of my garden, or I'll set the dog on them!  
Potsdam (1998a:208)
- b. You get the paper and pencil and the catalogue, and George write down, and I'll do the work! Go call him, will you, and tell him we need him and what he's supposed to do.  
Potsdam (1998a:208)

Potsdam concludes that imperative subjects underly no restriction whatsoever. This

<sup>30</sup>Although Potsdam (1998a) does not address the issue, confusion with remains of the English subjunctive can be safely excluded due to examples as in (iii). While the subjunctive is negated with *not*, cf. (i), imperatives require *don't*, cf. (ii).

- (i) a. Who suggested that he not act so silly? Potsdam (1998b)  
b. John asks that we not cut down his bean stock just yet. Potsdam (1998b)

- (ii) Don't give me that cheap talk!

Potsdam's (1998a) third person imperatives clearly pattern with other imperatives and can therefore not be dismissed as subjunctives.

- (iii) Don't you and {them, him, her} fight again!

Note that the obliatory accusative marking on the second (non-second person) conjunct of the imperative subject in (iii) poses yet another unsolved (but unrelated) problem, cf. Potsdam (1998a:288).

does not seem to hold for a wider range of varieties of English, though. Grammaticality judgments for examples like (49), (iii), and (51) vary considerably across speakers. Mauck and Zanuttini (ta) find these examples completely ungrammatical and stress that the variety of English they have been investigating strictly sticks to Downing's characterization. In the following, I will adopt their position.<sup>31</sup> For German, Downing's characterization holds unproblematically. Any attempt to construct examples in analogy to Potsdam's (1998a), such that the subject not be a subset of the addressee, results in ungrammaticality.<sup>32</sup>

- (52) \*Diese Kinder von dir bleibt mir aus dem Garten!  
 these children of you stay.IMP2PL me.DAT out of.the garden

Now, for a language that yields to Downing's (1969) characterization, it seems straightforward to assume that the subject of imperatives is realized as an overt second person pronoun, as the covert IMPPRO introduced above, or as a partitive consisting of a quantificational element with IMPPRO as its domain argument:

- (53) Mach {du, IMPPRO, einer von.IMP} die Tür zu!  
 make.IMP {you, IMPPRO, one of.IMP} the door close  
 'You/One of you close the door!'

---

<sup>31</sup> Another class of examples which is problematic for upholding Downing's characterization for English comes from echo-questions. Mastop (2005) argues that the possibility of exchanges like (i) should be taken as evidence against any person restriction on imperatives.

- (i) A: Don't kill yourself!  
 B: Don't kill myself???

This certainly constitutes an interesting problem, which, first of all, may be a peculiarity of English (e.g., the exchange in (i) cannot be translated to German with an imperative in the rhetorical question). Nevertheless, even in English an imperative addressed to a third party or an imperative containing an overt subject cannot be echoed straightforwardly ((ii)), both entirely unexpected if there is no restriction on imperative subjects at all:

- (ii) a. A (to B): Don't kill yourself!  
 C: #Don't kill herself???
- b. A: Don't YOU kill yourself about it!  
 B: #B: Don't I kill myself about it???

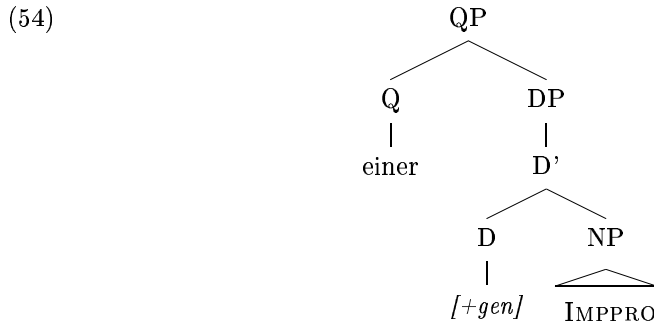
Consequently, I think that the burden of explaining (i) should be put on the theory of echo-questions. I do not think that they constitute crucial counter-examples against Downing's characterization.

<sup>32</sup> Cases as in (i) seem to constitute counterexamples. But I think that here the putative subject is some sort of hanging topic. There is an intonational break and furthermore, the overt subject pronoun is very likely to be inserted in order to indicate a shift in context from the hearer alone to the hearer plus others as constituting the addressee.

- (i) a. Du und deine Leute, passt (ihr) auf, wer vorbeigeht!  
 you and your people, watch-out (you) to, who passes.by  
 'You and your people, watch out who passes by.'
- b. ???Du und sie, schließt (ihr) einen Vertrag!  
 you and they, make (you) a deal  
 'You and them make a deal!'



I will therefore assume that in German (and similarly restricted languages) all non-second person imperative subjects are derived from the corresponding partitives. Thereby, the covert pronoun IMPPRO occurs as the domain argument. The corresponding structure is given in (54).



This restriction on the person marking of the subject has to be determined by the imperativized verb. But there is no straightforward way of expressing this in syntax or semantics.

Assume we wanted the imperativized verb to come with a disjunctive feature  $[+\subseteq_{adr}]$  that could be checked either against  $[+2p]$  (as carried by second person pronouns or IMPPRO), or quantifiers the domain of which was constituted by an element carrying such a feature (as in (54)). While the former is of course completely unproblematic, it is not clear how the latter could be seen from outside. Normally, the domain argument of a quantifier does not project its person features upward. In other clause types, the person features of the verb can clearly not be determined by the domain argument of a partitive noun phrase. Whatever links the imperativized verb to second person in the imperative clause (55a) despite its obvious third person subject, fails to do so in (55b). Here, the verb has to agree with its quantificational subject, which is clearly marked as third person singular.<sup>33</sup>

- (55) a. Gib mir irgendwer ein dickes Buch rüber.  
 give.IMP me.DAT someone a fat book over  
 'Someone hand me over a fat book!'
- b. Irgendwer von euch {hat, \*hast, \*habt} mir ein  
 Someone of you {has.3PSG, \*have.2SG, \*have.2PL me.DAT a  
 dickes Buch rübergegeben.  
 fat book over-handed  
 'Someone of you has handed me over a fat book.'

The extraordinary visibility of the domain argument cannot be explained in terms of particular behaviour of IMPPRO either. The covert imperative pronoun can always be replaced by an overt second person plural genitive phrase (*of you/von euch*),

<sup>33</sup>Schlenker's (2003) principle of **Maximize Presupposition** seems to predict exactly such an agreement pattern. Due to the overt domain restriction of the partitive, the quantifier only runs over elements that are hearers and others, but not speakers. Consequently, I would assume that contrary to facts, second person marking should always be available on the bound variable in accordance with Maximize Presupposition.

giving rise to the same visibility effect.

An additional complication for a feature-based account stems from the fact that at least in English, quantificational imperative subjects may bind both second and third person pronouns (cf. Potsdam (1998a:240)):

- (56) a. One of the boys test {yourself/himself} while I wait.  
 b. Nobody forget {your/his} lunch for the picnic tomorrow.

Finally, Mauck and Zanuttini (ta) propose to literally bind the domain argument of the imperative subject by a higher addressee-related projection. The proposal sounds highly interesting and will be discussed in more detail in the following section. Unfortunately, as it stands, it does not seem to yield the intended binding relations.

Given the difficulties on the syntactic side, one might want to resort to a semantic solution. But Downing's characterization cannot easily be encoded as a semantic restriction either. While second person subjects and contrastively focussed proper names or definites can be taken to form subsets of the set of addressees (as long as there is a plural addressee), this intuition cannot be made to carry over to quantificational subjects. Assuming the standard interpretation of generalized quantifiers, *nobody*, *everyone*, and *someone* are interpreted as in (57) (P, Q of type  $\langle e, \langle s, t \rangle \rangle$ ).

- (57) a.  $[\text{nobody}]^{c,s} = \lambda P \lambda Q \lambda w. \neg (\exists x) [P(x)(w) \ \& \ Q(x)(w)]$   
 b.  $[\text{everyone}]^{c,s} = \lambda P \lambda Q \lambda w. (\forall x) [P(x)(w) \ \rightarrow \ Q(x)(w)]$   
 c.  $[\text{someone}]^{c,s} = \lambda P \lambda Q \lambda w. (\exists x) [P(x)(w) \ \& \ Q(x)(w)]$

Assume that the quantificational element is applied to the property of being one of the addressees in  $c$  ( $\lambda x \lambda w. x \in c_A$ ). Then, *nobody of you* denotes the set of properties none of the addressees in  $c$  has, *everyone of you* denotes the set of properties everyone of the addressees in  $c$  has, and *someone of you* denotes the set of properties at least one of the addressees in  $c$  has. But these sets are of course not subsets of  $c_A$  (neither are the three-place functions corresponding to the quantificational element alone).<sup>34</sup>

An inelegant but technically viable attempt to account for quantificational subjects restricted to the domain constituted by the addressees would be to stick to the purely syntactic solution of letting the imperative require  $[+2p]$  and postulate homophonous doubles of the lexical entries for the quantificational elements *nobody*, *everyone* and *someone*. These entries would have to be restricted to a second person domain (thus carry a presupposition as to their first argument being  $[+2p]$  and carry themselves both 2p and 3p features (in order to account both for the optional

<sup>34</sup>Even if one was willing to identify the crucial set linked to a quantifier to the set of elements that count as a proof for the quantifier being true, this would fail in the case of *nobody*. Intuitively, the proof set for *nobody* is constituted by the empty set, which is of course a subset of the set of addressees in any context. Nevertheless, this fails to distinguish between *nobody* ranging over the domain of addressees vs. *nobody* ranging over any other domain. Therefore, such a constructivist approach to quantifiers cannot capture the restriction either.

3p pronoun binding and the satisfaction of the subject agreement requirement of the verb). For German, the proposal would cover the data, without in itself accounting for the quantifiers' inability to bind second person pronouns though. For English *wh*-relatives, definites descriptions and proper names, resorting to lexical doubling is completely unfeasible.

### Linking imperative subjects to vocatives

Mauck and Zanuttini (ta) propose to account for the restriction observed on imperative subjects by relating them to vocatives. Of course, it is well-known that imperative subjects cannot themselves be vocatives (cf. above). But Mauck and Zanuttini (ta) observe a special link between imperatives and vocatives, in that imperatives are the only clause type that requires the vocative to *correspond to the subject* (p. 15). They assume that vocatives are situated in the left periphery of the clause, in the specifier of what they call the AddresseePhrase.

When spelling out the proposal, the relation between imperative subject and vocative boils down (roughly) to the imperative subject entering a binding relation with the head of the phrase hosting the vocative. Contrary to what is suggested, it is important not to tighten the relationship, as the observed correspondence is an imperfect one.

Imperative subjects pattern with second person pronouns in being able to refer to the addressee of the context of utterance together with further people this addressee is known to form a group with. Consequently, I can utter both (58a) and (58b) when speaking only to Ede and express that the entire family Zimmermann (that is, Caroline, Ede, Alain, and Tom) shall/will come at 8. In contrast to that, as exemplified in (58c), the vocative may only correspond to the person I am actually talking to.

- (58) a. Kommt um 8!  
           come.IMP.PL at 8  
           'Come<sub>pl</sub> at 8!'
- b. Ich habe gehört, ihr kommt um 8.  
           I have heard you.PL come.2PPL at 8  
           'I've heard that you<sub>pl</sub> will come at 8.'
- c. Ede/#Zimmermanns, es beginnt um 8.  
           Ede/Zimmermann.PL, it starts at 8.  
           'Ede/#Zimmermanns, it starts at 8.'

So, imperative subjects show the same link to vocatives as second person pronouns do. But they do not exactly correspond to vocatives, the connection proved purely epiphenomenal. Vocatives do not tell us anything about imperatives which is not already stated by Downing's characterization.

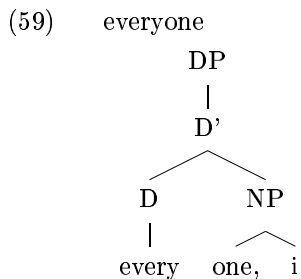
What Mauck and Zanuttini have shown independently of imperatives, is that there is evidence of a position in the left periphery that can be argued to host second person features and could thus in principle be exploited for binding of the

imperative subject or its domain.

Unfortunately, the details of the mechanism itself are not spelt out in full detail, but from what is said, it does not become clear at all how binding should be established not with the subject itself, but rather with the domain of the subject.

Mauck and Zanuttini (ta) follow the Georgetown Analysis for Imperatives (cf. Section ??) in assuming that thanks to a particular syntactic mechanism, imperatives come to express addressee related properties. In order to derive this, the subject is abstracted over to obtain a property. This step is achieved by a particular modal element present in the imperative. Moreover, the head of this modal phrase moves to the head of the AddresseePhrase, and thus establishes a binding relation with the features on the Addressee head (putatively, second person), and, crucially, the vocative.

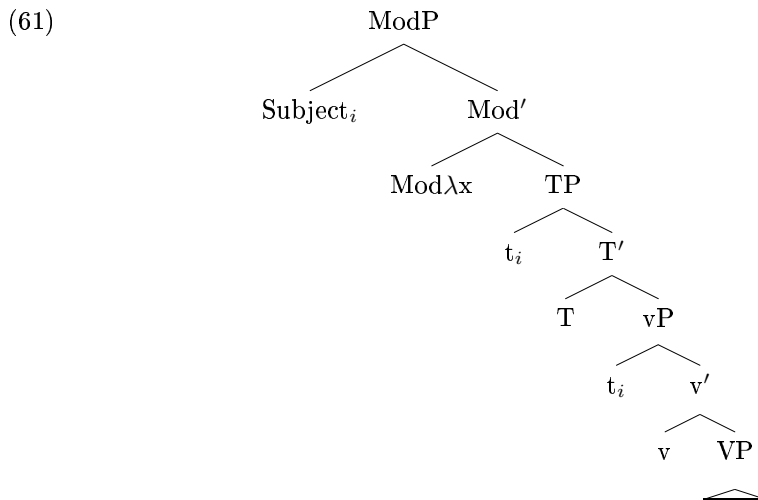
In order to make sense of the acclaimed domain binding relation, they assume that the subject DP comes with a domain argument that can be bound by the Addressee Phrase. This relies on the assumption that DPs always come with a domain argument as familiar from quantificational elements, yielding a structure which is said to (roughly) follow Stanley and Szabó (2000) and can be depicted as in (59):



Let us just focus on the case of quantificational imperative subjects as in (60a), the desired interpretation for which is given in (60b).

- (60) a. Everyone sit down!  
 b.  $(\lambda x : x \in \text{addr}(c))[[\forall y : \text{person}'(y) \ \& \ y \in x][\text{sit}'(y)]]$

Mauck and Zanuttini (ta) assume that imperatives contain a ModP which serves to turn the proposition expressed at TP level into a property. It does this by (i) *like a raising verb* (p. 16) attracting the subject the subject (in our case *everyone of  $x_i$* ) to its specifier position and simultaneously binding its trace (p.16). The structure is claimed to look like (61).



I do not understand why at this point ModP should denote a property (p. 17); I would expect the subject denotation to apply to the denotation of ModP - but maybe Mod can be interpreted to prohibit this somehow. In any case, the structure is merged with the Addressee head, and Mod (containing the  $\lambda$ -binder binding the subject trace) is raised across the subject to incorporate into Addressee.<sup>35</sup> Together, the complex phrasal head is claimed to bind both the subject and its domain argument. Even if I do not understand the details of the analysis, it would seem to me that in order to derive (60b), at no step would we want to bind the subject (that is, the quantificational element). What should get bound (and thereby set to the set of addressees) is just the domain argument of the quantifier. I do not understand how this is achieved through the movement procedure explained, nor, what could be an interpretation of Adr-Mod that would give the desired result.

Of course, it would be easy enough to think of the vocative (or the Adr head itself) rendering the set of addressees a salient antecedent for the (free) domain argument of the subject. But Mauck and Zanuttini (ta) rightfully claim that it is important for them that Adr-Mod head literally binds the domain argument. The usual account in terms of a contextual interpretation of the domain argument cannot account for the fact that neither (i) (quantificational) subjects of other clause types (even in the presence of a vocative), nor (ii) quantifiers in non-subject positions in imperatives are subject to second person restrictions.

But even if the domain binding mechanism can indeed be spelt out satisfactorily in the syntax, I do not think that it would enable us to give a straightforward account for the pronominal agreement patterns as argued by Mauck and Zanuttini (ta). According to them, possessive pronouns bound by the quantificational element can show either third or second person features in English because they can agree either with the vocative (more cautiously, the Addressee-head itself), or with the quantificational third person element in subject position.

The crucial data from Potsdam (1998a) is given in (62). Potsdam argues that

<sup>35</sup>I would expect this to give rise to a weak cross-over effect.

these cases constitute an option in semantic or syntactic binding.<sup>36</sup>

- (62) a. Everyone raise his hand!  
 b. Everyone raise your hand!

According to Potsdam, the binder either transmits its syntactic or its semantic features. He does not really explain how (non-lexical) semantic features can get visible for syntax. Moreover, it is not entirely clear why this is restricted to imperative clauses, as evidenced by the ungrammaticality of other examples involving other clause types.

- (63) Everyone (of you) raised his/\*your hand.

Mauck and Zanuttini (ta) propose that pronominal elements can be anaphoric either to the second person features in the head of AddresseeP, or to the quantificational subject bearing third person features.

If that is the case, I do not see why (even in the presence of an overt vocative) the option involving AddresseeP should be restricted to imperatives. Moreover, it fails to predict the most salient reading for the second person variants. Under its preferred reading, (62b) does not ask the group of addressees to raise (collectively or subsequently), the hand they jointly own (by having it created in an arts class or chopped off in some torturing ceremony, for example). Consequently, even when bearing the person features corresponding to the domain restriction of the quantifier, they still have to be bound by the quantifier in order to get the reading of covariation on which everyone of the addressees is to raise his or her hand. Binding by the domain argument predicts only the marked reading of joint possession. The difference is particularly obvious in German which lacks ‘semantic agreement’. Third person singular pronouns are bound by the quantifier and co-vary with the subject, whereas pronouns of second person plural refer to the addressee. Given that the addressee has to be plural in order for the quantification to be felicitous, the second person singular pronoun in (64c) cannot remain free (there simply is no atomic addressee individual). But given that the quantifier can only bind third person pronouns, binding is not an option. Consequently, (64c) is ungrammatical.

- (64) a. Gib mir mal wer seine Telephonnummer.  
 give.IMP to-me PRT someone his phone-number  
 ‘Someone give me his phone number’!  
 b. Gib mir mal wer eure Telephonnummer.  
 give.IMP to-me PRT someone your.PL phone-number  
 ‘Someone give me your phone number’!  
 c. \*Gib mir mal wer deine Telephonnummer!  
 give.IMP to-me PRT someone your.SG phone-number

To sum up, using second person features present in a high projection in the left periphery (AddresseeP) the presence of which has been motivated independently as

<sup>36</sup>The phenomenon is reminiscent of of number marking in (especially British) English.

hosting vocatives seems extremely promising to account for the second person restriction on the domain of imperative subjects. Unfortunately, the technical details (binding of the domain of a quantifier) are all but trivial and remain yet to be spelt out. Moreover, we cannot really thrive on it for the explanation of the pronominal agreement patterns.

### **A quantifier theoretic solution to the second person restriction on imperative subjects**

In the following, I will develop a solution that relies on algebraic properties of quantifiers and allows us to assign semantic content to the syntactic feature needed to constrain imperative subjects. Moreover, my account allows for a surprisingly simple explanation of the differences between imperative subjects available in English and in German, raising hope that it could be exploited to account for further possibilities that might come up cross-linguistically.

Let me quickly restate the problem:

- imperatives without an overt subject are understood as having the addressee as a subject (without further appeal to properties of the context)
- overt subjects are (i) second person pronouns, or (ii) quantificational expressions with a second person domain, or (iii) referential expressions that are nevertheless part of the second person<sup>37</sup>

Somehow, we would want to say that the subject has to be second person or that the domain of the quantificational subject is the set corresponding to the plural addressee. So, for the quantificational cases, it seems that we need to look at a property embedded within the subject, that is, to adopt a non-compositional solution. Remember that we cannot generally assume that the entire QP bears the person feature of the domain argument, otherwise one would predict declaratives like (55b) (repeated here as (65)) to allow for second person marking of the verb.

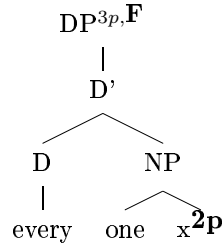
- (65) Irgendwer von euch {hat, \*hast, \*habt} mir ein Buch  
 someone of you {have.3PSG, \*have.2PSG, \*have.2PPL} me a book  
 rübergeben.  
 over-handed  
 ‘Someone of you has handed me over a book.’

The situation presents itself as follows. The partitive quantificational structure contains the desired second person feature at a level where it cannot be seen from the outside. Due to the restriction to be found in declaratives (cf. (65)), we cannot simply stipulate that 2P percolates up to the DP layer in order to set  $F = 2P$ .

- (66) everyone *of you*

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<sup>37</sup>This (or at least (i) in combination with (ii) or (iii)) corresponds to a cross-linguistically wide spread pattern (cf. Mauck 2005). For English, see also the discussion above.



In the following I will rely on results from work in quantifier theory to assign a value to  $\mathbf{F}$  in a compositional way that expresses the second person restriction on the domain yet without overwriting the syntactic status of third person.

Assume that our quantifier has the structure  $DX$ ,  $D$  the quantificational determiner, e.g. *every*,  $X$  its first argument. Johnsen (1987) proves the following proposition (his *proposition 2*):<sup>38</sup>

- (67) For each automorphism invariant determiner  $D$ , and each  $X \in \mathcal{POW}(U)$ , if  $D(X)$  is not degenerate, then  $X = \text{SL}(L_{D(X)})$ .

This means that under certain conditions, we can extract from the entire quantifier its domain (the precise nature of the function  $\text{SL}$  will be clarified below). First, let us see whether our quantifiers  $D(X)$  meet the requirements.

- (68)  $D(X)$  is degenerate iff  $D(X) = \mathcal{POW}(U)$  or  $D(X) = \emptyset$ .

Certainly, the set of addressees is a proper subset of  $U$  ( $c_S$  is in  $U$ , but is never among the addressees), but crucially, when interpreting an imperative, the set of addressees cannot be empty either. (For  $X = \emptyset$ , e.g. *every X/no X* would degenerate to  $\mathcal{POW}(X)$ , and *some X* to  $\emptyset$ .)<sup>39</sup>

The second property we have to check is automorphism invariance, which basically says that the quantificational determiner  $D$  only cares about the set relations and cardinalities mentioned and is insensitive to structure preserving permutations of the universe.<sup>40</sup>

- (69) A determiner  $D$  is **automorphism invariant**, if, whenever  $X, Y \in \mathcal{POW}(U)$  and  $\phi$  an automorphism on  $\mathcal{POW}(U)$ ,  
 $Y \in D(X) \leftrightarrow \phi(Y) \in D(\phi(X))$ .

<sup>38</sup>Independently, Lerner and Zimmermann (1983) show that this reconstruction of the quantifier domain out of the denotation of the quantifier is possible for each of the common determiners occurring in natural language.

<sup>39</sup>Even the cases of absent wishes or past wishes that have often been claimed to crucially depend on there being no addressee (e.g. cf. Mastop 2005), are (if interpretable) clearly not degenerate.

- (i) Please, don't have had an accident with your mother's car.

Both the imperative subject and other (overt) second person pronouns clearly refer to a specific individual the speaker is imagining as an addressee in a fictitious discourse. Apart from that, as I have argued above, they can likewise be used in a concrete interaction with that same individual.

<sup>40</sup>A function  $\phi$  is an **automorphism** on a structure  $\langle A, \subseteq \rangle$ , iff (i)  $\phi$  is bijective function from  $\langle A, \subseteq \rangle$  to  $\langle A, \subseteq \rangle$ , and (ii)  $\forall X, Y \in A : \phi(X) \subseteq \phi(Y) = \phi(X \subseteq Y)$ .



The quantificational determiners to be found in imperatives (*everyone, someone, nobody, whoever, the*) are all automorphism invariant (cf. Keenan 1983, van Benthem 1984b).

The construction SL used in (67) relies on Barwise and Cooper's (1981) notion of a quantifier  $Q$  living on a set  $X$ .

$$(70) \quad Q \text{ lives on } X \text{ iff} \\ \text{for any } X, Y \in Q \leftrightarrow Y \cap X \in Q.$$

With each quantifier  $Q$  is associated a set  $L_Q$  defined to be the collection of sets  $Q$  lives on:

$$(71) \quad L_Q = \{X \mid Q \text{ lives on } X\}.$$

Johnsen (1987) shows that  $L_Q$  is a filter<sup>41</sup>, and that consequently, there is a smallest element in  $L_Q$ , which is obtained by intersecting the members of  $L_Q$ . It is denoted by  $SL(Q)$ .

$$(72) \quad SL(Q) = \bigcap L_Q.$$

Taking this together with (67) and the observed restriction that the domain of imperative subject quantifiers always has to be second person, what is obtainable at the top nodes of all quantifiers  $Q$  possible as third person subjects in imperatives, is that the quantifier lives on the set of addressees. Abstracting away from a proper treatment of the plural,<sup>42</sup> I write  $C_A$  for the set containing the addressee(s) (in the case of a single addressee,  $C_A = \{c_A\}$ ). Consequently, for imperative subjects  $Q$  it is required that  $SL(Q) = C_A$ . We can now define a feature  $[+L_{c_A}]$ <sup>43</sup> as the value of F, and assume that this is what the imperativized verb has to check against.

$$(73) \quad \text{A DP bears } [+L_{c_A}] \text{ iff } SL(\llbracket DP \rrbracket^{c,s}) = C_A.$$

Now, we still have to bring this together with those cases in which the imperative subject is individuated referentially as equal to the addressee (cf. (74a)) or one of the addressees (cf. (74b)). And we have not checked free relatives (*whoever*) and definite descriptions (cf. (77)). Let us start out with the referential cases.

- (74) a. {You<sup>2p</sup>, IMPPRO<sup>2p</sup>} open the door.  
b. John open the door and Mary carry the piano.

<sup>41</sup>A filter is a non-empty subset  $F$  of a lattice  $\langle L, \cap, \cup \rangle$  such that (i) if  $X \in F, Y \in L$  and  $X \subseteq Y$ , then  $Y \in F$ , and (ii) if  $X, Y \in F$ , then  $(X \cap Y) \in F$ .

<sup>42</sup>Cf. Schwarzschild (1996); von Stechow (2004) for an overview. Plural individuals must somehow be turned into sets of atoms of the correct type to constitute appropriate domains for quantifiers. If  $C_A$  is the singleton set  $\{c_A\}$ , it does not constitute an appropriate value for the quantifier domain. But this is just as with any other NP (e.g. *every gnu* is generally taken to presuppose that there are at least two gnus).

<sup>43</sup>The abbreviation stands for *lives on the addressee*, any resemblance to other syntactic properties being purely coincidental.

Note first that these cases are quite different. Despite being among the addressees, syntactically, John and Mary still behave as third person subjects (as evidenced by the pronouns in (75a)). Consequently, we cannot assume that the context gets shifted to subcontexts (in the sense of Zimmermann 1991, Kupffer 2003) in (75a). In contrast to that, shifting to a subcontext is what we would have to assume for the case of a contrastive use of the second person pronoun in (75b), which can serve to indicate that one means the person one is now pointing at instead of the rest of what maybe constituted a plural addressee before. Owing to the fact that it refers to the addressee of the new context, it also binds second person reflexives, which is impossible for the proper nouns *John* and *Mary* in (75a).

- (75) a. John help himself, and Mary help Paul.  
 b. Nearly all of you can wait for the tutor to help them, but YOU help yourself!

A straightforward solution is therefore to resort to a Montagovian treatment of NPs as uniformly denoting quantifiers. Since proper names can only appear when they are part of the addressee, and *you* denotes the addressee(s), it is immediately obvious that both quantifiers live on the set corresponding to the addressee(s) when occurring as the subject of an imperative.<sup>44</sup>

- (76) a.  $\llbracket x^{2p} \rrbracket^{c,s}$  is defined if  $s(x) = c_A$ . If defined,  $\llbracket x^{2p} \rrbracket^{c,s} = \lambda P.P(c_A)$   
 b.  $\llbracket \text{john} \rrbracket^{c,s} = \lambda P.P(j)$

Again, (67), applies to the two quantifiers as rendered in (76). For (76a), the intersection of all properties the addressee has is of course still the addressee. But for (76b), we get  $SL(\text{john}) = \{j\}$ . John is of course not the (plural) addressee in the context, but only one of the addressees,  $\{j\} \subset C_A$ . Consequently, the requirement has to be loosened to allow for proper subsets of the addressee as the smallest set the quantifier lives on.

Consider the examples with free relatives and definite descriptions (cf. (77)).

- (77) a. Whoever helped me set up the computer please shut it down again.  
 b. The man with the projector put it down immediately.

The quantificational determiners *whoever* and *the* typically occur with a domain that is smaller than the set of addressees. Therefore, in these cases application of *SL* yields a subset of  $C_A$ , too. (For (77a) the set of those among the addressees that helped set up the computer, and for (77b) the set of those among the addressees who is carrying the projector).

Taking a step back this yields a natural explanation of the contrast observed

<sup>44</sup>Strictly speaking, proper names  $N$  are equivalent to  $DN$ , where  $D$  can be any quantificational (conservative) determiner (e.g. *every*, *some*). For instance,  $\llbracket [\text{John}]_N \rrbracket^{c,s} = \lambda x.[x = j]$ ,  $\llbracket [(\text{every}) \text{John}]_{DP} \rrbracket^{c,s} = \lambda Q.\forall x[x = j \rightarrow Q(x)]$ . But this is equivalent to  $\lambda Q.Q(j)$ . As shown in Lerner and Zimmermann (1983), proper names constitute immediate evidence that (in contrast to the domain argument, cf. (67)), the determiner cannot be reconstructed from the quantifier.

between English and German.  $L_{c_A}$  has to be interpreted slightly differently in these two languages. While English  $L_{c_A}^e$  requires the quantifier to live on a subset of the addressee, German  $L_{c_A}^g$  requires the quantifier to live on the set given by  $c_A$ , thereby excluding proper names, free relatives and definite descriptions, while still allowing for overt second person pronouns and quantificational elements like *everyone, someone, nobody*.

- (78) The  $L_{c_A}$ -feature refined for English and German:
- a. English: A DP bears  $L_{c_A}^e$  iff  $SL(\llbracket DP \rrbracket^{c,s}) \subseteq C_A$ .
  - b. German: A DP bears  $L_{c_A}^g$  iff  $SL(\llbracket DP \rrbracket^{c,s}) = C_A$ .

I also consider the treatment promising with respect to the agreement patterns observed with such second person restricted quantificational elements in imperatives versus in other contexts. Of course,  $L_{c_A}$  is available on any NP of the form  $[Q \text{ of } you]$ , nevertheless, it enters a grammatical process only in imperatives, and it is only in imperatives that we find phenomena of semantic agreement (cf. (56), (62); vs. (63)). It is tempting to speculate that the agreement operation required by the morphology of the imperativized verb makes the domain property visible for semantic agreement.

For cases as in (56) (repeated here as (79)), we have to say that the pronouns bound by the quantified noun phrase agree with their binder in number but allow for agreement in person with the domain feature  $L_{c_A}$ .

- (79) a. One of the boys test {yourself/himself} while I wait.  
 b. Nobody forget {your/his} lunch for the picnic tomorrow.

In earlier versions of this work, I have assumed that colloquial variants of Austrian German (ACG) show an interesting effect in that imperativized verbs agree with the domain argument of quantificational elements not only in person, but also in number. Plural imperatives without overt subjects look like (80), (81) displays quantificational subjects.

- (80) Gebts ihm eine Chance!  
 give.IMP.2PL him a chance  
 (addressing more than one person): 'Give him a chance!' ACG
- (81) a. Gehts mir da bloß niemand in das Zimmer!  
 go.IMP.2PL me.DAT there PRT nobody into the room  
 'Nobody (of you) enter that room!' ACG
- b. Gebts mir mal wer einen Schraubenzieher!  
 give.IMP.2PL me.DAT PRT someone a screwdriver  
 'Someone (of you) give me a screwdriver!' ACG
- c. Waschts euch mal jeder die Füße!  
 wash.IMP.2PL yourself PRT everyone the feet  
 'Everyone of you wash his/her feet!' ACG

I am indebted to Hubert Truckenbrodt (p.c.) for pointing out to me that in this

variant the elements should better be analyzed as floating quantifiers: In contrast to the Standard German examples, they can co-occur with overt second person plural pronouns in the nominative (especially, but not necessarily, for contrast or emphasis).

- (82) Waschts ihr euch mal jeder die Füße!  
 wash.IMP.2PL you yourself PRT everyone the feet  
 ‘Everyone of you wash his/her feet!’ ACG

Pronominal elements bound by the quantificational subject still show third person agreement though.<sup>45</sup> For reasons entirely unclear to me at the moment, in those cases, the overt subject pronoun cannot be inserted with any of the agreement variants.

- (83) ?Gebts (\*ihr) mir mal wer<sub>i</sub> seine<sub>i</sub>/\*deine/\*eure<sub>i</sub>  
 give.IMP.2PL (\*you) me.DAT PRT someone his/your.SG/your.PL  
 Telephonnummer!  
 phone number  
 ‘Someone give me his phone number.’

The details of the construction’s syntactic make-up remain to be investigated further. Moreover, also the strong preference to insert a particle like *mal* with quantificational imperative subjects both in Standard German and in the Austrian varieties deserves more attention.<sup>46</sup>

As to the possibility of semantic agreement, that is, the visibility of semantic properties to syntactic agreement processes, we have to acknowledge that this does not occur only for person features of semantic pronouns. At a closer look, it arises for  $L_{c_A}$  itself, too. Assuming that imperativized verbs are finite forms carrying a (partly language specific) variant of  $L_{c_A}$  as its person feature, runs into the problem that  $L_{c_A}$  is a (non-lexical) semantic property (a property of the quantifier denotation). Therefore, it is not entirely clear how it can be visible to syntactic agreement processes.

I can think of two solutions to this puzzle. On the one hand, we could treat  $L_{c_A}$  as a presupposition introduced by the imperative morphology. Of course, due to the Montagovian view of letting the subject take the verb phrase as an argument, we have the wrong functor-argument structure for letting the verb impose requirements on its subject. But mediation of a functional head carrying the presupposition provides a natural solution. We simply assume a functional projection (most likely AgrSP) that is marked as  $[+L_{c_A}]$  by the imperativized verb, and is interpreted in terms of functional application if the subject meets  $L_{c_A}$ , and leads to presupposition failure otherwise. The crucial structural assumptions are sketched in (84) to (86), the interpretational requirement is spelt out in (87).

<sup>45</sup>Again (cf. (64c), second person singular (*deine* ‘yours’) is ungrammatical irrespective of binding properties, because it cannot be bound by the quantifier, and because there is no singular addressee so as to interpret it freely.

<sup>46</sup>I am indebted to Anita Mittwoch (p.c.) for pointing this out to me.

(84)  $[_{CP} OP_{Imp}[_{C'} [_C verb.IMP] [_{AgrSP} DP [_{AgrS'} AgrS^{L_{c_A}} [_{VP} t_i t_j ]]]]]]$

(85)  $[[AgrS'] ]^{c,s} = [[VP ]^{c,s}$

(86) 
$$\begin{array}{c} AgrSP^{L_{c_A}} \\ \wedge \\ DP \quad AgrS' \\ \wedge \end{array}$$

(87)  $[[86] ]^{c,s}$  is defined only if  $SL([Subject ]^{c,s}) = C_A$ .

If defined,  $[[86] ]^{c,s} = [Subject ([VP ]^{c,s})$ .

Although a variant of this is surely a viable technical solution, I have a preference for reconsidering visibility of (non-lexical) semantic properties at the syntax-semantics interface in general.

One case in question are of course the agreement patterns observed with pronouns in English imperatives (repeated in (88)) and, as mentioned in passing, number agreement, available in English but not in German (cf. (89)).

(88) Everyone raise his/your hand!

(89) a. There was/were lots of people.

b. Da waren/\*war viele Leute.  
there be.PAST.3PPL/\*be.PAST.3PSG many people  
'There were lots of people.'

c. Every boy did his/<sup>2</sup>their homework.

The distinction between mass and count nouns is another domain showing interesting effects in that respect. I am indebted to Manfred Bierwisch (p.c.) for pointing out the example in (90) with entirely unexpected plural marking on the copula.

(90) Das sind 20 Blatt.  
this.SG are.PL 20 sheet.SG  
'That is 20 sheet.'

It is also still under dispute how the shift from individual noun to mass noun in (91a) by what Pelletier (1975) has called the *Universal Grinder* renders acceptable the empty determiner unavailable for singular individual nouns.

(91) a. There was dog all over the road.

b. There was  $[_{DP} \emptyset_{Det} UG(dog)]$  all over the road.

For the moment, I content myself with the possibility to encode  $L_{c_A}$ -agreement via an intervening functional projection. But I consider the potential visibility of non-lexical semantic properties at the interface to syntax a highly interesting question for future research on how natural language grammar is organized.

### Conclusion

In this section, I have defended the claim that imperative subjects are restricted to constitute a (sub)set of the addressee. I have shown that we are left with a puzzle as to how to encode this as a restriction introduced by the imperativized verb.

I hope to have shown that, relying on the algebraic properties of quantifier domains, we arrive at a sensible way to encode the restriction in terms of the feature called  $L_{c_A}$ . Moreover, the account allows for a natural parametrization between the constraints to be found in English vs. in German.

Last but not least, no matter how we choose to make  $L_{c_A}$  itself visible at the interface, letting  $L_{c_A}$  enter an agreement process pertaining only to imperatives, provides a natural starting point for explaining why the features of the domain argument are visible to other syntactic processes in imperatives, but not in other clause types. This is needed in order to explain the optional agreement patterns observed with pronominal elements in English.

### 6.1.3 Do we need personal modality?

Having argued that imperatives are similar to modal verbs, we are also forced to investigate whether they behave like raising verbs (combining with a proposition) or rather like control verbs (combining with a property). Unfortunately, the classical tests as introduced in Section 5.1 are not readily applicable to imperatives.

German VP-topicalization together with the subject certainly requires an overt subject first of all. German imperatives do allow for subjects, so in principle the construction should be possible. Nevertheless, (92a) is quite unacceptable. According to the test this should be evidence in favor of personal modality. But overt subjects in imperatives usually get contrastive stress. Looking at the respective variant of (6) with contrastive stress on the subject (92b), we have to notice that it heavily degrades in grammaticality as well. It is only acceptable as correction focus (which is not a possible interpretation for (92a), since no underlying construction without stress on the subject pronoun *du* ‘you’ is available).

- (92) a. \*DU auf die Party komm auf keinen Fall.  
 you to the party come.IMP in no case  
 ‘YOU shouldn’t come to the party in any case.’
- b. \*/%Ein AUSSenseiter gewinnen dürfte hier nie.  
 an outsider won.PART could here never  
 ‘It seems that it should never be the case that an OUTSIDER wins here.’

Hence, VP-topicalization does not provide good evidence in either direction.

Selection restrictions are hard to apply, because the subject is in the second person. This requires some sort of animacy which bleeds any potential selection restrictions of the imperative modality.

- (93) a. Admire Leonardo, Fritz!

- b. #Admire Leonardo, prime number!
- c. ?? /<sup>ok</sup>Be a prime number (, next number)!
- d. #Be a prime number, Fritz!

The crucial example is of course (93c). Here, the addressee (and hence, the subject) is the next number which clearly meets the selection restrictions of the lexical verb (*be a prime number*). Therefore, if IMPMOD was to combine with a proposition, we would not expect this to be any more deviant than (93a). It seems to be slightly marked though, and therefore, we might assume that imperatives come with an agency restriction on their subject. In order to encode that, we would have to resort to personal modality. On closer inspection though, what is really strange about (93c), is the vocative. Leaving out the vocative, it becomes a lot easier to imagine it used as the urgent wish, muttered to oneself,<sup>47</sup> of a person who has just made a bet that the next number in roulette will be prime. What I want to claim at this point is that apparent selection restrictions with imperatives in reality depend on restrictions as to what constitutes a good addressee. Whatever is granted that status, is automatically also granted the status of a possible subject of an imperative. Therefore, it seems impossible to independently test for the selection restrictions of the imperative operator. Again, we do not have evidence in either direction.

Testing for truth-conditional invariance under passivization seems to be a completely hopeless enterprise. First, even for those willing to believe in truth conditions of imperatives (like me), the intuitions are easily blurred by pragmatic notions of what would count as fulfilling an imperative. Second, imperatives are well known to be hard to passivize in a lot of languages if not universally.<sup>48</sup> Trying to be as

<sup>47</sup>Note that this muttering to him/herself is crucial because of a principle to always take the most salient addressee. Obviously, as soon as there are people around, it could become extremely misleading to address inanimate objects.

<sup>48</sup>This is actually one of the puzzles with imperatives I will have little or nothing to say about. Data from German suggests that this might again be a reflex of passivized predicates being incompatible with command usages. Curses (cf. (ia)) and reference to hypothetical experiences (cf. (ib)) are fine again:

- (i) a. Werd von einem Haifisch gebissen!  
get.IMP<sub>SG</sub> by a shark bitten  
(roughly: 'Get bitten by a shark (you damn idiot)!')
- b. Werd DU mal von einem Haifisch gebissen!  
get.IMP<sub>SG</sub> you P<sub>RR</sub> by a shark bitten  
(roughly: 'Get bitten by a shark yourself (before talking like that).')

Obviously, passivized imperatives do not allow for the subject (now the patients) to be in control of the event. At the same time, COMMANDING seems to require precisely that. Consequently, a paraphrase by *lass dich...* 'let yourself' has to be chosen. It could not be substituted for the cases in (i) without changing their meaning though.

- (ii) Lass dich von einem Haifisch beißen!  
let.IMP<sub>SG</sub> you.ACC by a shark bite  
(roughly: 'Make it the case that a shark bites you.')

I take these observations as further corroboration of my claim that the imperative clause type

attentive to the first worry as possible, we might still be able to overcome the second with a slight modification of the passivization test. Instead of passivization, we can try for lexical converses (e.g. *follow/precede*, *sell/buy*, *give/receive*). As with passivization, raising verbs, and thus epistemically interpreted modals as in (94) are truth conditionally invariant under substitution of descriptions in terms of converses. Control verbs and personally deontic verbs<sup>49</sup> as in (95) are not.

- (94) a. Werther must be giving a letter to Charlotte right now.  
 b. Charlotte must be receiving a letter from Werther right now.
- (95) a. Werther is obliged to give a letter to Charlotte.  
 b. Charlotte is obliged to receive a letter from Werther.

This relates immediately to a footnote in Cresswell (1973:231,fn 191) who remarks that an appropriate semantics for *command* should be able to account for the lack of entailment relations between (96a) and (96b):

- (96) a. John orders Bill to follow Arabella.  
 b. John orders Arabella to precede Bill.

Given that the examples in (96) constitute natural reports of imperatives uttered by John, we might expect imperatives to show the same asymmetry under change of perspective. And this seems to be born out indeed, providing a first argument in favor of personal modality. Uttering (97a) to Werther does not require the speaker to be inclined to issue (97b) to Charlotte, or, more dramatically, a speaker who was issuing both (97a) to Werther and (97c) to Charlotte might be called cruel, but not necessarily inconsistent.

- (97) a. Give a letter to Charlotte!  
 b. Receive a letter from Werther!  
 c. Don't receive a letter from Werther!

Another scenario in favor of a treatment in terms of personal necessity is that one could consistently explain the rules of a game saying (98), addressing with the first conjunct Team A ( $you_a$ ), and with the second conjunct Team B ( $you_b$ ) (cf. Zimmermann (1991) and Kupffer (2003) for respectively fine-grained theories of context).

- (98)  $You_a$ , score as many goals as possible, and,  $you_b$ , don't let them score goals!

does not depend on agency. A felicitous use as a COMMAND does though. This (pragmatically) confines passivized imperatives (like those involving individual level predicates, cf. 6.1.1 and 11) to more marginal usages of imperatives.

<sup>49</sup>Ignoring the syntactic makeup, I assume that *be obliged to* is interpreted as personal necessity with a personal deontic modal base (abstracting away from how to treat the event frame):

- (i)  $\llbracket \text{be obliged to} \rrbracket^{c,s} = \lambda x \lambda f \lambda g \lambda P \lambda t \lambda w. (\forall w' \in O(f(x), g, t, w)) [P(x)(w')]$ ,  $f$  of type  $\langle e, \langle s, \langle \langle s, t \rangle, t \rangle \rangle \rangle$ ,  $g$  the empty ordering source,  $P$  of type  $\langle e, \langle s, t \rangle \rangle$ .



Does that mean that despite the absence of syntactic evidence for personal modals we need personal modal bases and thus also have to assume personal modals so as to have the right types to combine?

If the scenarios described for (97) are indeed acceptable, one would have to resort to two different modal bases that both take into account wishes of the speaker. But this does not necessarily call for a personal modal base. Since no quantification is involved, we could well use *what I want Werther to do* for (97a) and *what I want Charlotte to do* for (97b). Since the wishes of a speaker need not be consistent, this might well give us the desired result.<sup>50</sup>

We cannot resort so easily to this kind of solution for the game example. By definition, rules of games are better kept consistent (otherwise, a game is not well-defined) and they are necessarily objective. Therefore, it cannot be the case that they oblige one person to do  $p$  and another person to do  $\neg p$ . But in one sense that is precisely what they do after all: asymmetrical games as the one we are dealing with here, involve different roles (e.g., attackers and defenders; Mr. X and the detectives). Winning the game means different things for them respectively. Therefore, a teleological modal base (goal: winning the game) differs depending on the role someone is supposed to play. So, again, the modal base is relativized to the respective addressee, and always takes into account only the subset of the rules that is relevant for the respective addressee's winning - but this indeed depends on the role he plays within the game. (For imperatives with teleological modal bases see Section 6.2.4, but cf. the literature on anankastic conditionals mentioned there for the problems in analysing teleological modality.)

So far, we have only shown that neither VP topicalization nor selection restrictions could be tested properly due to interfering independent factors. Invariant truth conditions under asymmetric predicates (as a variant of the classical passivization test) first seemed to provide evidence for personal modal bases (and thus personal modals), but the asymmetries also prove to be soluble with appropriate impersonal modal bases. In the following, I will try to argue that the cases with quantifiers in subject position of imperatives provide positive evidence in favor of imperatives taking propositional arguments.

As we have seen in 6.1.2, some languages marginally allow for quantified subjects in addition to the usual overt or covert second person pronouns. Consider (99), an instance of a quantified subject imperative in German.

- (99) Geh mir bloß keiner in das Zimmer!  
 go.IMP me.DAT PRT no.one into the room  
 'Nobody enter the room!'

Examples like (99) only allow for narrow scope of the negative existential (cf.

<sup>50</sup>Expressing so bluntly contradictory wishes might get one in trouble with the authority pre-supposition elaborated in Section 6.3.1. But this would of course only come into play if the two utterances were part of one and the same larger context, so that each of the addressees was aware of the other speech act respectively. Maybe that is just as it should be, since openly uttering such two contradictory imperatives might indeed be pragmatically infelicitous.

(100a)), a wide scope reading with respect to the necessity operator is completely excluded (cf. (100b)).

- (100) a.  $\Box^{f,g} \neg \exists x$ : go-into-the-room(x)  
 b.  $\neg \exists x$ :  $\Box^{f,g}$  go-into-the-room(x)

Maybe this is not so telling as it seemed at first glance. In Section 6.1.2, I have argued that in these cases the quantifier has to come with a domain restriction to the group of addressees. Consequently, we could still assume that the modal operator combined with IMPPRO and the property of being a group G so that no one of G enters the room.

Nevertheless, from the syntactic point of view, the quantificational element *keiner* ‘no-one’ looks exactly like a floating quantifier. Therefore, it counts as a classical argument for a lower subject position (cf. Sportiche 1988; Potsdam 2001 for an application to English imperatives). (99) is indeed entirely synonymous to (101). Therefore, syntactically, imperatives differ from personal modals in clearly having to combine with structures that contain subjects (clauses, that is).

- (101) Geh mir bloß keiner von euch in das Zimmer!  
 go.IMP me.DAT PRT no one of you.PL into the room  
 ‘Nobody (of you) enter the room!’

What is now puzzling is the fact that we do not find a wide scope construal for the entire subject phrase, in the sense of (102).

- (102)  $\neg(\exists x \in c_H^*)[\Box \text{ go-into-the-room}(x)]$   
 ‘for no one of you is it the case that (s)he has to go into the room’

Either this is a case of a more general instance of lacking wide scope readings for especially negative quantifiers in imperatives, or it has to do with the person marking on the domain argument rather than on the quantifier itself.<sup>51</sup>

Lack of wide scope readings can also easily be shown for indefinite subjects. Deontic modal verbs allow for anaphoric reference to an indefinite subject term (cf. (103a)), imperatives do not though, showing that it can only have a narrow scope construal (cf. (103b)).

- (103) a. Einer<sub>i</sub> von euch muß mir mal bitte 3 Euro geben. Derjenige<sub>i</sub>  
 one of you must me PRT please 3 Euro give. The-one  
 schuldet mir ohnehin noch 20.  
 owes me in-any-case still 20  
 One of you has to give me 3 Euros, please. That person owes me 20.  
 b. Gib mir mal einer<sub>i</sub> von euch 3 Euro, bitte.  
 give.IMP me.DAT PRT one of you 3 Euro, please.  
 #Derjenige<sub>i</sub>...  
 That-person<sub>i</sub>...

<sup>51</sup>For the scope of quantificational elements in subject positions of imperatives, cf. also Schmerling (1982) (discussed extensively by Mastop 2005).

‘One of you give me 3 Euros, please.’

Whatever might be responsible for these scopal restrictions (cf. Section 9.1.1 for discussion and comparison to performative modals), we can conclude that, syntactically, imperatives combine with clauses. Parallel to the behaviour of impersonal modals, there is no need for combining them with personal ordering sources. Consequently, I will treat them as impersonal modality that combines with impersonal conversational backgrounds.

## 6.2 Deriving the Interpretations

In this section, I will show how necessity with respect to a particular modal base and a particular ordering source can explain the variety of functions listed in Section 1.3.

We will see that various types of obligations (cf. (104)), wishes (cf. (105)), warnings (cf. (106)), and advice (cf. (107)) yield straightforwardly to an analysis in terms of graded modality. Prohibitions (cf. (104e)) come out as special cases of commands or requests that something not be the case and, to a large extent, are likewise unproblematic.

- |       |    |                                                                                                                 |                                     |
|-------|----|-----------------------------------------------------------------------------------------------------------------|-------------------------------------|
| (104) | a. | Get up!                                                                                                         | COMMAND, <i>single occasion</i>     |
|       | b. | Be nice to your grandmother!                                                                                    | COMMAND, <i>long term</i>           |
|       | c. | Stay away from cigarettes!                                                                                      | COMMAND, <i>long term</i>           |
|       | d. | Üb immer Treu und Redlichkeit!<br>exert.IMP always faithfulness and honesty<br>‘Be always faithful and honest!’ | <i>proverbs</i>                     |
|       | e. | Don’t budge an inch!                                                                                            | PROHIBITION, <i>single occasion</i> |
| (105) | a. | Have fun!                                                                                                       | WISH                                |
|       | b. | Please, don’t have broken another vase!                                                                         | WISH, <i>past</i>                   |
| (106) |    | Run (... there’s an avalanche approaching)!                                                                     | WARNING                             |
| (107) | a. | A: How do I make lasagne?<br>B: Cut onions, boil tomatoes...                                                    | INSTRUCTION                         |
|       | b. | A: How do I get to Rüsselsheim tonight?<br>B: Take the S8, it’s more regular than the S9.                       | ADVICE                              |

Given that permissions are usually associated with possibility, it is not surprising that our necessity semantics does not readily cover them. Nevertheless, I think that there are good reasons not to assume a genuine ambiguity between necessity and possibility (cf. Platzack and Rosengren 1997 for a proposal involving such an ambiguity). In Section 7, I will propose a pragmatic analysis for these cases.

- |       |  |                               |            |
|-------|--|-------------------------------|------------|
| (108) |  | Take some more (if you want)! | PERMISSION |
|-------|--|-------------------------------|------------|

Likewise, it is not obvious how the proposed semantics for the imperative should

contribute to the conditional readings observed for conjunctions and disjunctions with mixed sentence types.

- (109) a. Get out of here or I'll kill you! *conditional disjunction* (IoD)  
 b. Come in and you'll feel better. *conditional conjunction* (IaD)

In Section 13.1.2, I will show how the imperative semantics proposed here together with a non-classical treatment of disjunction gives the right results for the conditional disjunction cases. In Section 12.3.2, an analysis for conditional conjunctions will be proposed that integrates the ordinary semantic contribution of the imperative into this particular construction. I will discuss the strongpoints and weakpoints of my proposal and compare it to alternative ways of dealing with the problem.

### 6.2.1 Commands and requests

Commands and request seem to constitute the default usage of imperatives. Let us first look at the example of a simple command:

- (110) Get up! *COMMAND, single occasion*

These cases could in principle be analysed as simple necessity with respect to *what the speaker commands*. The ordering source would then be left empty ( $s(g) = e$ ).

- (111) (*preliminary*)  
 $[[[OP_{Imp} f g t] [IMPPRO \text{ get up}]]]^{c,s} = 1$  iff  
 $(\forall w \in O(f, g, c_T, c_W))[(\exists e)[\tau(e) \subseteq t \ \& \ \text{get-up}'_w(c_A)(e)]]$ , defined only if  
 $\neg(t < c_T)$ ;  
 $f = \{\text{what the speaker commands at } c_W\}$  and  $g =$   
 (that is, if defined, (110) is true iff all worlds in  $W$  that are compatible with what the speaker commands at  $c_W$  make it true that the  $c_A$  gets up within event frame  $t$ )

This might indeed be the correct analysis for imperatives that occur in purely authoritative environments as for example military orders (but note that at least in German they are often replaced by infinitives or participles in such cases). But most command-like imperatives serve to guide the addressee's actions taking into account the particular situation the addressee is in. Therefore, they pay attention to what are to be taken possible actions for the addressee, and hence, more generally, what counts as a possible future at a given moment in a conversation. I will therefore assume that the speaker's commands are taken as the ordering source, while the modal base is constituted by what speaker and hearer jointly take to be possible future courses of events. We will thus introduce a new conversational background of *mutual joint belief*. But this is (nearly) equivalent to the Stalnakerian Common Ground.

It is important to see that this background departs crucially from the backgrounds we have seen so far in requiring not a world, but an utterance situation to be computed from.<sup>52</sup> This difference needs to be considered in more detail when it comes to the possibilities of embedding imperatives (cf. Section 9).

Assume that  $cg_F$  is a function from contexts  $c$  into sets of propositions  $S$ , such that  $\bigcap S = CG(c)$ . The revised semantics for the simple command case looks as follows:

$$(112) \quad ((111) \text{ refined}) \\ \llbracket \llbracket OP_{Imp} \text{ f g t} \rrbracket \rrbracket \text{ IMPPRO get up} \rrbracket \rrbracket^{c,s} = 1 \text{ iff} \\ (\forall w \in O(cg_F(c), g, c_T, c_W))[(\exists e)[\tau(e) \subseteq t \ \& \ \text{get-up}'(c_A)(e)(w)]], \text{ defined} \\ \text{only if } \neg(t < c_T); g = \{\text{what the speaker commands at } c_W\} \\ \text{(if defined, (110) is true iff all worlds in CG that make true as much as} \\ \text{possible of what the speaker commands at } c_W \text{ and } c_T \text{ make it true that} \\ c_A \text{ gets up within the intended event frame } t)$$

This says that among the worlds that we jointly hold possible,<sup>53</sup> the ones that conform best with what I want you to do all make true that you get up within the interval I have in mind (the event frame  $t$ ). Leaving aside for the moment all natural worries about this coming out as truth conditions, it seems to be a favorable prediction.

I also take it to be an advantage over the simpler formulation in (111) that potential inconsistency in what the speaker commands (or in what he wants the hearer to do) does not render the imperative vacuous. Exactly as in the example with the laws in New Zealand (cf. (25)), ordering sources may be inconsistent without trivializing necessity and possibility.

The semantics for the imperative operator can thus be refined to (113). For the moment, the value of the modal base argument is simply ignored. The modal base is constituted by the Common Ground of the context of evaluation.

$$(113) \quad \llbracket OP_{Imp} \rrbracket^{c,s} = \lambda f \lambda g \lambda t \lambda P \lambda w. (\forall w' \in O(cg_F(c), g, c_T, w))[P(t)(w')], \text{ defined}$$

<sup>52</sup>Stalnaker himself would still model this in terms of possible worlds which he takes to be fine-grained enough to evaluate deictic and anaphoric elements even, cf. Stalnaker (1978) and, more recently, Stalnaker (1998).

<sup>53</sup>Maybe this is too coarse. In many cases it seems that the participants to the conversation do not only constrain themselves to the set of worlds they hold possible, but rather confine the attention to the much smaller set of worlds that are taken to follow the ‘normal course of events’. What exactly has to count as the normal course of events seems to vary from situation to situation. It might well be that deviation of the course of events from these normalcy assumptions renders an imperative obsolete. But again, it is to be decided from one case to the next how much deviation is needed in order for that to happen. Indeed it seems quite normal that after a completely unforeseen incident one might ask oneself if one is still obliged to obey a command given before the incident. Alternatively, we could adopt **epistemological contextualism** and assume that different levels of knowledge require different criteria for truth, the highest level corresponding to the sceptic (cf. Lewis 1996).

Crucially, the question is how many worlds should be excluded by the modal base. It is not a question of how these worlds are ordered according to their respective plausibilities.

if  $g$  is not empty and  $\neg(t < c_T)$ .

In Section 3.2.1, I have argued that commands that are to be complied with not at a single moment in the future, but provide a restriction on the entire future course of events instead, prove problematic for approaches that crucially rely on action terms, as for example Mastop (2005). Relying on quantification over worlds and thus permitting quantification over times/events therein, the necessity approach I am proposing here naturally extends to these cases.

(114) Kiss her before every meeting.

(115) Stay away from cigarettes.

### 6.2.2 Prohibitions

Prohibitions (or negated imperatives) have often been treated separately from commands, especially by approaches that rely on additive processes of information growth (e.g. Rohrbaugh 1997).

Relying on necessity within possible worlds semantics, prohibitions semantically come out as necessity of negative propositions.

- (116) a. Don't go there!  
 b.  $\llbracket(116a)\rrbracket^{c,s} = \lambda w.(\forall w' \in O(cg_F(c), g, c_T, w))[\neg(\exists e)[\tau(e) \subseteq t \ \& \ \text{go-there}'(c_A)(e)(w')]]$ , defined only if  $\neg(t < c_T)$ .  $g = \textit{what the speaker commands}$ .

Despite being straightforward, this might seem undesirable at first glance, given that cross-linguistically, negation with imperatives is well known to be subject to various restrictions and incompatibilities (cf. van der Auwera 2005 for a recent overview). Some languages employ special morphosyntactic devices to mark negation in imperatives, as English *don't* or the negative auxiliaries to be found in Latin (cf. (117a)). Other languages employ different markers for negation in imperatives than they do in other clause types (cf. Old Greek (118b), Korean (119) (data taken from Sells 2003, his (18b,17b,19b)<sup>54</sup>). Yet another group uses suppletive forms like subjunctives, infinitives, participles or other nominalizations instead of the imperativized verb in combination with negation (e.g. (120b)).

- (117) a. Don't go there!  
 b. Noli me tangere!  
 NEG AUX me.ACC touch  
 'Don't touch me!' *Latin*
- (118) a. ou legeis  
 NEG PRT1 speak.INDACT2SG  
 'You don't speak.' *Old Greek*  
 b. me mega lege!  
 NEG PRT2 big speak.PRESIMP2SG

<sup>54</sup>IRNEG for *irrealis negation*, NMLZ for *nominalizer*, PROC for *processive*, cf. Martin (1992).

- ‘Don’t boast!’ *Old Greek (Plato, Phaedo 95b)*
- (119) a. *ka-ci anh-nun-ta*  
 go-COMP NEG-PROC-DECL  
 ‘(Someone) doesn’t go.’
- b. *ka-ci mal-ala*  
 go-COMP IRNEG-IMP  
 ‘Don’t go!’
- c. \**ka-ci anh-ala*  
 go-COMP NEG-IMP
- Korean*
- (120) a. *Va a casa!*  
 go.IMP2SG to home  
 ‘Go home!’
- b. *Non andare a casa!*  
 not go.INF to home  
 ‘Don’t go home!’
- Italian*

Should this be taken as evidence for a general semantic incompatibility of imperativization and negation? I do not think so.

First, a lot of languages allow negation and imperatives to interact naturally (e.g. German (121b), Russian (122)). And yet negation or imperatives are not known to have different semantic or pragmatic properties in these languages than in those that would not allow for negation and imperativized verbs to co-occur.

- (121) a. *Fahr nach Paris!*  
 go.IMP2SG to Paris  
 ‘Go to Paris!’
- b. *Fahr nicht nach Paris!*  
 go.IMP2SG NEG to Paris  
 ‘Don’t go to Paris!’
- (122) *Na urokach ne boltajte!*  
 at lecture NEG speak.IMPPL  
 ‘Don’t speak during the lecture.’
- Russian*

Second, even in languages that seem to employ lexically different elements to express negation in declaratives vs. in imperatives, at a closer look, these elements are not confined to imperative vs. non-imperative environments, but can depend on a lot of other factors. In Korean, for example, negation by *an* (NEG) vs. *mal* (IRNEG) seems to depend rather on the nature of the conversational background employed in a modalized sentence. If a deontic modal base (or rather, a preference related modal base)<sup>55</sup> is involved, we find *mal*, if not, we find *an*. This holds likewise for declaratives, interrogatives and, interestingly enough, also for imperatives (cf. Section 12).<sup>56</sup>

<sup>55</sup>Cf. Pak, Portner, and Zanuttini (2004) for suggestions towards an even more fine-grained distinction because of an observation with respect to promissives. This clause type allows for IRNEG if the promise is forced externally, and NEG if it is given voluntarily.

<sup>56</sup>The data in (123) is taken from Pak, Portner, and Zanuttini (2004), their (15a,b).

- (123) a. Nayil phati-ey ka-ci mal-ayakeyss-ta  
tomorrow party-to go-NMLZ IRNEG-should-DEC  
'I should not go to the party tomorrow.'
- b. Nayil phati-ey ka-ci mal-kkayo?  
Tomorrow party-to go-NMLZ IRNEG-INT  
'Should I go to the party tomorrow?'

Third, cross-linguistically, imperative clause types are also associated with quite marked syntactic properties, especially in terms of movement of the imperativized verb. Consequently, it might not be surprising that we find particular incompatibilities with expressions of negation. Zeijlstra (2004) gives the relevant generalizations for the cross-linguistic behaviour of imperative and negation and develops a purely syntactic account for the diverging behaviour with respect to the single classes of imperatives.

Taking all this into account, I do not see why we should step back from the straightforward solution of semantically reducing prohibitions to necessity of negated propositions with respect to a deontic ordering source.

### 6.2.3 Wishes and absent wishes

Wishes as in (124) come out straightforwardly under the assumption of a speaker buletic ordering source. As the corresponding declarative (124b), the imperative (124a) can only be issued if the presupposition is met that the hearer is going to see a movie.

- (124) a. Enjoy the film!  
b. You will enjoy the film.

The conversational background for the imperative is again constituted by the Common Ground and, because of the above mentioned presupposition, entails that there is exactly one salient event of the hearer seeing a movie (e.g. in the near future); furthermore, we might also assume some mutual understanding that seeing a film without enjoying it does not make for a nice evening. (126b) shows the LF assumed for (124a) and the truth condition it is assigned when interpreted with respect to assignment function  $s$  and context  $c$ :

- (125)  $\llbracket \llbracket \text{OP}_{Imp} \text{ f g t } \rrbracket \llbracket \text{IMPPRO enjoy the film } \rrbracket \rrbracket^{c,s} =$   
 $\lambda w. (\forall w' \in O(\text{cg}_F(c), g, c_T, w)) [(\exists e)[\tau(e) \subseteq t \ \& \ \text{enjoy-the-film}'(c_A)(e)(w')]]$ ,  
 defined if  $\neg(t < c_T)$ .  $g = \textit{what the speaker wants}$  and  $g(w) = \{c_A \text{ has a nice evening}\}$

Thinking back of our descriptive speech act categories, for this to really count as wishing well to the addressee, we also have to assume that it is presupposed that *that  $c_A$  has a nice evening* is also among the wishes of  $c_A$  himself. This being plausible enough, the respective context should meet the category of WISH to be defined in any speech act theory.



Wishes that something not be the case come out as necessity of a negated proposition again, this time with respect to a buletic ordering source. For the context under consideration, assume further that not annoying oneself follows from having a nice evening as well.

- (126) a. Langweil dich nicht!  
 get-bored.IMP2SG you.ACC not  
 ‘Don’t get bored!’
- b.  $\lll[[ OP_{Imp} f g t ] [ nicht PFV [IMPPRO langweil- dich ]]]\rrr^{c,s} =$   
 $\lambda w. (\forall w' \in O(cg_F(c), g, w, c_T) [ \neg \text{be-bored}'(c_A)(t)(w') ])$ , where  
 $g = \text{what the speaker wants}$  and  $g(w) = \{c_A \text{ has a nice evening}\}$ ;  
 defined only if  $\neg(t < c_T)$

I consider this further support for treating imperative negation as propositional negation embedded under a necessity operator (cf. Section 6.2.2).

What is more problematic are what I want to call **absent wishes**.

- (127) Please, don’t have broken another vase!

These cases seem to be special in various respects.

On the one hand, it is often taken to be crucial that the intended ‘addressee’ be absent (cf. Mastop 2003). I do not think that this is correct. Imagine a scenario with a vivid child showing up in front of his father, who is at the end of his rope, the child with a guilty expression on her face that does not augur well. To my ears, under these circumstances it seems perfectly possible for the father to say (127) to the child.

On the other hand, not only do they allow for truly stative predicates, but they also require some sort of reference to the past. Furthermore, they crucially presuppose that the issue in question (whether a vase is broken or not) is already decided.

An explanation for these two characteristics distinguishing absent wishes from other imperatives could be gained if we assumed that they depend on some sort of reinterpretation, eventually assimilating them to (128a) or (128b).

- (128) a. Please, don’t turn out to have broken another vase!  
 b. Please, don’t say you have broken another vase!

Let us look at each candidate in turn, leaving aside for the moment at what level the reinterpretation should take place.

An analysis along the lines of (128a) might be able to avoid the surprising situation that at the time of issuing the imperative in (127) the complement proposition of the imperative is already decided.<sup>57</sup> Likewise, it might do away with past refer-

<sup>57</sup>Condoravdi (2002) assumes that **unsettledness** at evaluation time in the sense of the issue not being settled so far is crucial for metaphysical modality as opposed to epistemic modality. Although the issue is not easy to capture in the framework of possible worlds coming with their entire histories (cf. Fernando (2005b) for discussion), unsettledness usually seems to form part of

ence (the turning out lies in the future with respect to  $c_T$ ) and involve an eventive predicate more typical for imperatives (most likely, turning out is an achievement). Nevertheless, it does not seem to be the correct analysis. (127) simply cannot be used as a request that the addressee conceals his having broken a vase. The speaker of (127) does not distinguish the case of - another vase being broken or not -, no such fact coming out into the open vs. the fact that it comes out that another vase is broken. What seems at stake in (127) is really whether another vase was broken or not. Therefore, we cannot resort to postulating a reinterpretation along the lines of (128).

The reinterpretation in (128b) would lead to a similar assimilation of absent wishes to other types of imperatives, but it faces similar problems as (128). Again, the speaker's interest lies in the fact of another vase being broken or not, not in whether the addressee informs him about it, or not. Contrary to what (128b) would predict, (127) can not be used as a request to lie about one's having broken another vase in the worst case.<sup>58</sup> An additional problem arises from usages in the absence of the intended addressee. Somehow, it seems that one might imagine the other person without imagining an actual utterance situation at which the addressee could also have a chance to speak. Consequently, for such soliloquizing usages, the rendering in (128b) seems highly inadequate.

Despite the obvious differences w.r.t. other imperatives, it is possible to predict a satisfactory interpretation for (127). Culicover and Jackendoff (1997) remark in a footnote, that these examples do not really constitute past imperatives, but express perfect aspect. That is, they are stative in talking about the result state of an event. Obviously, like their German twins, these examples involve morphological perfect. In the following, I will concentrate on German. von Stechow (2002a) has shown that German perfect morphology is ambiguous in three ways. It can express **Extended Now (XN) Perfect** (that is, open up an interval that abuts the current reference time; cf. (129a)), denote a **Result State (RS)** (that is, express an aspectual operator that turns a transformative VP into a state, (129b)), or express semantic **PAST** (as in (129c)).

- (129) a. Arnim ist seit letztem Sommer mal in Wien gewesen.  
 Arnim is since last summer at-least-once in Wien been  
 'Arnim has been in Wien since last summer.'
- b. Die Bibliothek ist seit 2 Stunden geöffnet.  
 the library is since 2 hours opened  
 'The library has been open for 2 hours.'

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issuing imperatives. Taking serious these past wishes, I find myself discouraged from making it a crucial part of the analysis though.

<sup>58</sup>Maybe a strained usage along these lines is possible after all, but first, it seems blocked by *please* and therefore, is in any case to be distinguished from the most straightforward reading of (127). Furthermore it seems to correspond to a *Pretend (not) to  $\phi$* -reading available for any imperative  *$\phi!$ /Don't  $\phi!$* .

Besides that there is always a literal usage for (128b) that is completely unavailable for (127), and therefore constitutes clear evidence for their being different in semantics.

- c. Wir sind gestern im Theater gewesen.  
 we are yesterday in-the theater been  
 ‘We were at the theater yesterday.’

Culicover and Jackendoff (1997) claim that all morphological perfect constructions in English are result state constructions. Here, I only explore if an analogous claim would be justified for German, and it turns out not to be the case. Surprisingly, German perfect imperatives as occurring most of all in absent wishes allow for the entire spectrum of readings available for morphological perfect in German. Consider the paradigm in (130). All these examples are very natural in the context indicated by a follow up like *sonst habe ich nämlich meine Wette verloren* ‘otherwise I’ve lost my bet’.

- (130) a. Bitte sei seit Weihnachten mal in Frankfurt gewesen!  
 please be.IMPSG since Christmas once in Frankfurt be.PASTPART  
 (roughly:) ‘I wish for the following to be true: You have been to Frankfurt at least once since Christmas!’
- b. Bitte sei noch immer dort angestellt!  
 please be.IMPSG still always there employed  
 ‘Please, be still employed there!’
- c. Bitte hab 1990 noch in Tübingen gewohnt!  
 please have.IMPSG 1990 still in Tübingen lived  
 (roughly:) ‘I wish for the following to be true: In 1990, you were still living in Tübingen.’

The quantificational adverbial *mal* ‘once’ in combination with the temporal frame setting adverbial *seit Weihnachten* ‘since Christmas’ count as evidence for an Extended Now-reading. *noch immer* ‘still’ provides evidence for a Result State-interpretation, and the temporal adverbial ‘in 1990’ shows that (130c) does indeed get a PAST interpretation.<sup>59</sup>

Both Perfect of Extended Now and Perfect of Result fall out naturally under the analysis for imperatives I have been proposing. The ingredients are extensionalized versions of what is assumed in von Stechow (2002a), who follows Kratzer (2000) for the Perfect of Result. (132) gives the calculation for an XN-perfect imperative in (131), (134) the gives the calculation for a RS-perfect as in (133).

- (131) Bitte sei seit Weihnachten mal in Tübingen  
 please be.IMPSG since Christmas at-least-once in Tübingen  
 gewesen!  
 be.PASTPART

- (132)  $\llbracket \text{in Tübingen sein} \rrbracket^{c,s} = \lambda x \lambda t \lambda w. \text{in-tübingen}'(x)(t)(w)$

<sup>59</sup>(130a) and (130c) lack a straightforward translation into English, which might be taken as evidence for the fact that Culicover and Jackendoff (1997) are right about a restriction to Result State perfect in English. The lack of a direct translation for (130c) is to be expected, since English Present Perfect does not have a PAST interpretation. An Extended Now-interpretation should in principle be available (cf. (129a)), consequently, the lack of a translation for (130a) deserves a closer look.

$$\begin{aligned} \llbracket \text{HAVE}_{G-XN} \rrbracket^{c,s} &= \lambda P \lambda t \lambda w. (\exists t') [t' > t \ \& \ P(t')(w)] \\ \llbracket \text{mal} \rrbracket^{c,s} &= \lambda P \lambda t \lambda w. (\exists t') [t' \subseteq t \ \& \ P(t')(w)] \end{aligned}$$

$$\begin{aligned} \llbracket \text{HAVE}_{G-XN} \text{ mal IMPPRO in Tübingen sein} \rrbracket^{c,s} &= \\ &\lambda t \lambda w. (\exists t') [t' > t \ \& \ (\exists t'') [t'' \subseteq t' \ \& \ \text{in-tübingen}'(c_A)(t'')(w)]] \\ \llbracket \llbracket \text{OP}_{Imp} \text{ f g t} \rrbracket \llbracket \text{HAVE}_{G-XN} \text{ mal IMPPRO in Tübingen sein} \rrbracket \rrbracket^{c,s} &= \\ &\lambda w. (\forall w' \in O(f, g, c_T, w)) \\ &\quad [(\exists t') [t' > t \ \& \ (\exists t'') [t'' \subseteq t' \ \& \ \text{in-tübingen}'(c_A)(t'')(w')]]] \end{aligned}$$

- (133) Bitte hab Frankfurt verlassen!  
 please have.IMP SG Frankfurt leave.PAST PART  
 (I wish that the following be true: 'You have left Frankfurt.')

- (134)  $\llbracket \text{IMPPRO Frankfurt verlassen} \rrbracket^{c,s} =$   
 $\lambda e \lambda S \lambda w [\text{AGENT}(e)(c_A)(w) \ \& \ \text{BECOME}(e)(S) \ \&$   
 $\quad \text{CAUSE}(e)(S)(w) \ \& \ S = \text{out}'(\text{ffm}')(c_A)(w)]$   
 $\llbracket \text{STATE} \rrbracket^{c,s} = \lambda R \lambda s \lambda w. (\exists K) (\exists e) [R(e)(K) \ \& \ K(s)(w)]$   
 $\llbracket \llbracket \text{OP}_{Imp} \text{ f g t} \rrbracket \llbracket \text{STATE} [\text{IMPPRO Frankfurt verlassen}] \text{ hab} \rrbracket \rrbracket^{c,s} =$   
 $\lambda w. (\forall w' \in O(\text{cg}_F(c), g, c_T, w))$   
 $\quad [(\exists K) (\exists e) [\text{AGENT}(e)(c_A)(w') \ \& \ \text{BECOME}(e)(K)(w') \ \&$   
 $\quad \text{CAUSE}(e)(K)(w') \ \& \ K = \text{out}'(\text{ffm}')(c_A)(w')]]$

In contrast to XN-perfect and RS-perfect that allow for a natural integration in the framework I have developed so far, the past reading cannot be integrated in a straightforward way.

First, we have to ask ourselves whether the past interpretation of the morphological perfect in an imperative like (130c) assimilates German to Dutch, which has been argued to have past imperatives or maybe rather reproachatives in 6.1.1. This would force us to postulate intricate pragmatic differences between the two languages, given that Dutch past imperatives are used as REPROACHES, whereas German past imperatives are used primarily as (ABSENT) WISHES. Both these usages (and the impossibility of COMMANDS or the like) square well with the fact that the issue that is claimed to be necessary is already decided, so there is nothing the addressee could do about it anymore. Nevertheless, the pragmatic difference would be entirely unexpected if the assigned denotation was the same for Dutch past imperatives and German perfect imperatives under a past reading for the perfect.

A closer look makes it obvious that there is a crucial difference between Dutch and German. PAST makes its contribution in different positions: for Dutch, PAST constrains the time at which the necessity relation is computed (that is, the reference time). For German, it constrains the event frame to being truly past. As it stands, the treatment of the event frame as an additional argument to the imperative operator (or IMPMOD, under the more fine-grained analysis) does not allow for it (nor, of course, is an event frame located in the past compatible with the temporal restriction on the event frame argument we have so far been assuming). At the moment, I can only conclude that an elaboration of the temporal proper-

ties of imperatives should take into account the readings available for the perfect auxiliaries.

Before moving on, we might want to consider for a moment a language like Bulgarian that does not allow for morphological perfect or past to be imperativized. The most straightforward translation of (127), cf. (135), does not involve a periphrasis referring to future consequences/outcome of having broken another vase, but employs a stative predicate that can take the result state as a complement:

- (135) Ijay            štastieto da si            sčupil oste edna vaza!  
 have.IMP luck        to COP2SG broken more one vase  
 ‘Just be so lucky to have broken another vase!’  
 (roughly: ‘Please, don’t have broken another vase.’)

So, even where absence of a grammaticalized perfect imperative necessitates the use of a paraphrase, the paraphrase chosen does not avoid the properties atypical for imperatives (namely the stativity of the predicate and the fact that the matter is already decided). I taken this observation as an argument in favor of my naive treatment of the somewhat surprising class of absent wishes.

#### 6.2.4 Advice

Next, I want to look at imperatives that are used to give advice. Such cases prove most problematic for any approach to imperatives that crucially relies on a certain attitude the speaker takes with respect to the hearer’s executing the respective action (e.g. Bierwisch 1980). When giving an advice, it is clearly not the case that the speaker takes any personal interest in the hearer acting on it.

In the following, I will propose an account for the example in (107b), repeated in (136):

- (136) A: How do I get to Rüsselsheim?  
 B: Take the S8.

In principle, this could be understood as an attempt to settle the matter how A should pursue his concrete task of going to Rüsselsheim, or also the more general question of how one (or A in particular) gets to Rüsselsheim in case one develops the urge to do so. In the following, I will concentrate only on the reading that involves a concrete plan to go there.<sup>60, 61</sup>

Again, the imperative should express necessity with respect to possible courses of events that come closest to an ideal. I assume that (on the concrete case) the question posed by A leads B to accommodate that A will be going to Rüsselsheim somehow, and I will in the following assume that it is also assumed A is to go by

<sup>60</sup>I will not discuss the semantics of the question at this point; cf. e.g. van Rooy (2004).

<sup>61</sup>It should be obvious not only from the examples chosen that there is a deep link to the phenomenon of anankastic conditionals as discussed recently by Sæbø (2002), von Stechow and Iatridou (2005c), Huitink (2005), von Stechow, Krasikova, and Penka (2005), and Nissenbaum (2005).

public transport. Thus, the Common Ground is restricted to worlds that make it true that A goes to Rüsselsheim by public transport in the near future. The imperative is now evaluated with respect to that background and says that among these worlds, those that are best according to an ordering source  $g$ , are worlds in which A takes the S8. Most likely,  $g$  would be constituted either by what is known to constitute preferences of users of public transport in general (e.g.  $g_{gen} = \{\text{The train is not delayed, The train is airconditioned, The trip does not cost too much, The trip does not involve changing more than one time}\}$ ), or alternatively by preferences A is known to have (e.g.  $g_A = \{A \text{ kisses Ruud van Nistelrooy, The trip does not cost too much, The train does not smell badly}\}$ ). (136) would then be predicted to yield the truth conditions in (137) with respect to  $s$  and  $c_T$ :

$$(137) \quad \begin{aligned} & \text{[[[[OP}_{Imp} \text{ f g t } \text{ ] ] PFV [ IMPPRO take the S8 ]]]]}^{c,s} = \\ & \lambda w. (\forall w' \in O(cg_F(c), g, c_T, w)) [(\exists e)[\tau(e) \subseteq t \ \& \ \text{take-S8}'_{w'}(c_A)(e)]]; \\ & \text{defined only if } \neg(t < c_T). \end{aligned}$$

Unfortunately, this cannot be right. Intuitively, something about (136) has to be new information for the hearer (otherwise, the imperative could not count as an answer to his truly information seeking question). Nevertheless, A and B are likewise informed about the Common Ground by definition; therefore, only  $g$  or the ordering according to  $g$  could be new. Given that we are only looking at idealizations with perfectly rational agents, we cannot assume that A has to be told how to compute the ordering. Now, the first option, namely that the new information consists in which propositions should be taken to order the Common Ground, does indeed constitute a possible reading. It is not the most plausible, though. A would have to know all relevant facts about public transport in the Rhein-Main-region, but fail to see what criteria to apply.<sup>62</sup>

The much more natural setting for the exchange is that  $A$  and  $B$  mutually agree on the relevant ordering conditions, but  $A$  lacks information as to basic facts about the transportation system. Consequently, these facts cannot be assumed to be part of the Common Ground. But considering the system of graded modality, they would still have to be part of the modal base, not of an ordering source. Intuitively,  $A$  and  $B$  are only interested in worlds where trains behave exactly as they do in the world of evaluation; that is, when posing a question as in (136), informations about public transport are to be treated as facts, not as preferences.

Therefore, we need to refine the definition slightly in order to account for advice imperatives in which the speaker crucially adduces facts that are not yet part of the Common Ground. In addition to always having  $cg_F$  as the modal base, the imperative operator combines with two conversational backgrounds, the first of

<sup>62</sup>A more likely scenario for that interpretation would be a question like *How shall I go to Rüsselsheim?* though. That could well constitute an advice in a scenario where the addressee is well-aware of the (sad) facts about RMV-transportation, but does not know whether to give more weight to the high price for gasoline in case of going by car, or to the loss of time when going by public transport.

which serves to restrict the Common Ground. For technical reasons,  $\cup$  is introduced as the operation of pointwise union between functions.

- (138)  $\cup$  is pointwise union of functions:  
for all  $f, f', w : (f \cup f')(w) = (f(w) \cup f'(w))$

The imperative operator is now interpreted as in (139):

- (139)  $\llbracket OP_{Imp} \rrbracket^{c,s} = \lambda f \lambda g \lambda t' \lambda P \lambda w. (\forall w' \in O(cg_F(c) \cup f, g, c_T, w)) [P(t')(w')]$ ,  
defined if  $g$  is not empty and  $\neg(t' < c_T)$ .

In our case, let us assume that  $f(w) = \{\text{The S8 and the S9 and no other train go directly from Frankfurt to Rüsselsheim, The fares are the same on S8 and S9, The S9 is delayed more often than the S8}\}$ . This seems to make the desired predictions for the most plausible reading of (136).

For all other usages of imperatives that do not involve new (factual) information being adduced by the speaker (as exemplified by the COMMANDS, REQUEST, PROHIBITIONS, and WISHES we have been looking at so far),  $f$  remains empty.

### 6.3 Constraining the Predictions

The semantics proposed in (139) maps an imperative like (140a) onto exactly the same proposition as could have been expressed by (140b). Interpreted in a context  $c$  with respect to an assignment function  $s$  both are interpreted as (140c).<sup>63</sup>

- (140) a. Ask Melli!  
b. You should ask Melli!  
c.  $\lambda w. (\forall w' \in O(cg_F(c) \cup f, g, c_T, w)) [(\exists e) [\tau(e) \subseteq t \ \& \ \text{ask-Melli}'_{w'}(c_A)(e)]]$ ,  
defined only if  $\neg(t < c_T)$ .

At least three objections can and should be raised immediately against such an analysis. As it stands, it predicts that (i) imperatives can serve as mere reports of necessities (e.g. that certain obligations hold, or certain wishes persist), (ii) imperatives could come with a much wider range of conversational backgrounds and ordering sources than they actually do, (iii) modal particles should behave exactly as with corresponding modal verbs,<sup>64</sup> and (iv) quantifiers should behave as with modal verbs.

In this section, I will only be concerned with the first two objections<sup>65</sup>, and I will argue that they can be met by an additional non-truthconditional meaning component of the imperative semantics. Nevertheless, this does not require ad hoc

<sup>63</sup>Abstracting away for the moment from potential differences with respect to the event frame  $t$ .

<sup>64</sup>I am indebted to Manfred Krifka (p.c.) for having pointed this out to me.

<sup>65</sup>Cf. Section 9.1.1 for a consideration of quantificational elements. The discussion of modal particles will have to be left for further research. If we follow Zeevat (2003) in understanding them as filtering/modifying (pre)conditions of speech acts, the presuppositional nature of imperatives I am proposing in the following provides a promising starting point for an explanation.

assumptions w.r.t. the interpretation of sentence mood at the semantics-pragmatics interface. I assume that the additional meaning component consists in four presuppositions. I rely on a standard understanding of pragmatic presuppositions as a requirement on the context of conversation in order to permit interpretation of the sentence in that context (Stalnaker (1972:387)).<sup>66</sup>

The first presupposition formalizes a long-standing intuition that imperatives are somehow related to either social or rational *authority*, cf. Section 6.3.1 (e.g. Hamblin 1987). *Preference-relatedness* ensures that imperatives cannot be used to describe the way the world is or speculate how it might be. *Ordering Source Affirmation* captures both the subjectivity of imperatives and their instigating effect in case the embedded proposition is under the influence of the addressee. *Epistemic uncertainty*, a further precondition on imperatives not to be found with their modal verb counterparts, additionally ensures imperatives to be effective at all.

Before introducing the three presuppositions, I want to point out that the semantics proposed in (139) can already account for some of the differences as observed between imperatives and modal verbs. Moreover, a closer look at modal verbs will also demonstrate that imperatives are by no means particular in imposing restrictions on the conversational backgrounds they can combine with.

Kratzer (1981) gives a first overview of particular lexical properties of German modal elements, further distinctions are mentioned in von Stechow (2004).

We have already seen in Section 5.1 that modals differ as to whether they combine with personal or impersonal modal bases. Given that imperatives are assumed to combine with impersonal modal bases exclusively, the contrast in (141) should not come as a surprise. (141a) can express the addressee's disposition to sneeze, but (141b) cannot.

- (141) a. Du mußt niesen.  
          you must sneeze  
      b. #Nies!  
          sneeze.IMP<sub>SG</sub>

The conversational background with respect to which the modal in (141a) gets evaluated has the wrong type for combining with the imperative operator.<sup>67</sup> There-

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<sup>66</sup>In the formulation of Karttunen (1974a:149) this reads as follows:

- (i) Sentence A **pragmatically presupposes** proposition B iff it is the case that A can be felicitously uttered only in contexts which entail B.

Cf. Gazdar (1979:105) for overview and critical discussion of variants of the definition.

<sup>67</sup>That the modal and the conversational background have to be personal in (141a) can be shown by the fact that (i) allows only the wide scope reading for the quantifier (therefore, the modal is personal) with quantification into the modal base (therefore, the modal base is personal).

- (i) Keiner muß niesen.  
      nobody must sneeze  
      'Nobody must sneeze.'



fore, imperatives cannot be used to communicate dispositions.

Moreover, modals also differ in whether they allow or even require a non trivial ordering source. The German modals *sollen* and *müssen* constitute a well-known example. Both encode the modal force of necessity, but only the latter may come with an empty ordering source. Consequently, it allows for a wider variety of usages (cf. impersonal deontic modality as in (142)) than *sollen*, which requires its ordering source to be non-empty.

- (142) a. Sie müssen 500 Euro zahlen.  
 you.2PFORM must 500 euros pay  
 ‘You have to pay 500 Euros.’  
 b. Sie sollen 500 Euro zahlen.  
 you.2PFORM shall 500 euros pay  
 ‘(according to their rules) you shall pay 500 Euros.’

Such instances of *must* expressing impersonal deontic necessity cannot be replaced by imperatives either. A judge announcing a verdict could well use (143a), but never (143b):

- (143) a. Sie müssen 500 Euro zahlen.  
 you.2PFORM must 500 euros pay.INF  
 ‘You have to pay 500 Euros.’  
 b. Zahlen Sie 500 Euro.  
 pay.IMP.FORM you.2PFORM 500 euros  
 ‘Pay 500 Euros!’

But this is as it should be given that we have assumed that imperatives pattern with *sollen* in always requiring a non-empty ordering source. Therefore, instances of *must* that come with an empty ordering source can never be replaced by imperatives.<sup>68</sup>

Some modal elements come with more particular restrictions as to the kinds of conversational backgrounds they allow. An example for such an even stricter restriction is constituted by the German possibility modal *dürfen*. It is only acceptable with a teleological, deontic or volitional conversational background.

Yet another restriction is to be observed with adverbials in comparison to the corresponding impersonal constructions:

- (144) a. Es ist wahrscheinlich, daß das Schiff sinkt.  
 EXPL is probable that the ship sinks  
 ‘It is probable that the ship will sink.’  
 b. Das Schiff wird wahrscheinlich sinken.  
 the ship will probably sink  
 ‘The ship will probably sink.’

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\*‘According to disposition, it must be the case that nobody sneezes.’

<sup>68</sup>This provides an alternative explanation for the contrast in (141). Besides being treated as personal modality, dispositional modals are usually also treated as involving an empty ordering source. Replacing *müssen* with *sollen* would result in a non-dispositional reading as well.

While the impersonal construction conveys good possibility with respect to some sort of objective background (e.g. given the statistics for ships in that area), the adverbial requires a more subjective contribution of the speaker (e.g. circumstantial possibility ordered according to the speaker's stereotypes about ships in the given situation). This subjectivity is slightly reminiscent of one of the presuppositions introduced below (cf. the condition of Ordering Source Affirmation (OSA), (175)).

These examples from the realm of lexically encoded modality provides independent evidence for the plausibility of restricting in various ways the possibilities of combining modal elements with conversational backgrounds. Moreover, we have seen that the assumptions (i) that imperatives require impersonal conversational backgrounds, and (ii) that imperatives never come with an empty ordering source, already make correct predictions with respect to some of the missing readings.

Let us now turn to the additional requirements  $OP_{Imp}$  (or, under the more fine grained version of the analysis,  $IMPMOD$ ) induces on the context.

### 6.3.1 Authority - Deriving the non-descriptive effect

The strongest objection against the kind of analysis I am pursuing here is that it assigns truth-conditions to an object that does not seem to relate to truth in any natural way (cf. also Section 3).<sup>69</sup> If A expresses the same (or a highly similar) proposition in (145a) and in (145b), we would expect that in both cases B should be able to explicitly address truth or falsity of what A has said. Nevertheless, as is well known, this is possible in the case of the declarative (cf. (145b)), but excluded for the imperative (cf. (145a)).

- (145) a. A: Ask Melli about it!  
       B: #That's true./#That's not true!
- b. A: It is my wish that you ask Melli about it.  
       B: That's true./That's not true.

Let us call this the *That's (not) true*-test for propositionality and phrase it as in (146):

- (146) The *That's (not) true*-Test:  
 Utterances of linguistic objects that semantically correspond to propositions can be challenged or endorsed by replying with *That's (not) true!* (or its equivalent in the language of the context).<sup>70</sup>

The immediate consequence for semantic theorizing is stated in (147):

- (147) A linguistic object (individuated in terms of a disambiguated LF)  $o$  for which we cannot imagine any context  $c$  such that an utterance of  $o$  in  $c$

<sup>69</sup>Vranas (2005) provides an extensive survey of the relevant literature. Recently, the point has been stressed by Mastop (2005), Franke (2005), and Aloni (2005) among others.

<sup>70</sup>In principle, that is, ignoring for instance matters of politeness.

is challenged/endorsed by the addressee with *That's (not) true!* (or its equivalent in the language of *c*) should not be assigned a proposition as its semantic value.

Relying on (147), observations as in (145) are often considered knock-down arguments against a propositional analysis of imperatives.

In the following, I will argue against (146), showing that the *That's (not) true*-test does not really constitute evidence for propositionality of the linguistic object uttered, but reveals certain properties of the (non-)propositional object expressed in relation to the context. I will first discuss declaratives that do not pass the *That's (not) true*-test, and then imperatives that fare far better than expected. I assume that the *That's (not) true*-test interferes crucially with the properties that are relevant for the performative effect of imperatives. Consequently, I will then proceed to account for this performative effect.

First, consider utterances of linguistic objects that are standardly assumed to correspond to propositions at the semantic level but still do not pass (146). The first case is the subjunctive of *sollen/shall*, *sollte/should*.<sup>71</sup> Despite its declarative form, both in German and in English it seems impossible to force (148a) into a descriptive usage or counter it by *That's not true*. In that, it is highly similar to the imperative in (145a).<sup>72</sup>

- (148) a. A: Du solltest jetzt Melli anrufen!  
           you should now melli call.INF  
           'Now, you should call Melli.'
- b. B: #Das ist nicht wahr.  
           that is not true  
           #'That's not true.'

Grammatically, (148a) allows for interrogative formation, confirming its propositional nature. But note that it can only be used as a rhetorical question or as a guarded advice (maybe in relation to that, omitting the particles is hardly possible).

- (149) Solltest Du #({nicht/(nicht) vielleicht}) Melli anrufen?  
           should you not/(not) maybe Melli call  
           'Shouldn't you call Melli!?'

Consequently, *sollte/should* behaves a lot like imperatives in failing the *That's (not) true*-test and being excluded from truly information seeking questions (giving rise, like imperatives, to rhetorical questions or, alternatively, to guarded advice as observed for imperatives with rising intonation, cf. Section 3.3). A natural way to account for both observations would be to burden these forms of *sollen/shall* with

<sup>71</sup>For the following judgements, the homophonous past form has to be ignored, which is forced by inserting *jetzt/now*. Note also that in German, subjunctives do not generally give rise to non-propositional effects.

<sup>72</sup>For some reason, the positive reply *Das ist wahr*. 'That's true.' is considerably better in this case.

(part of) the presuppositional meaning component spelt out for imperatives in the following sections.

Another problematic case for (146) are utterances pertaining to issues with respect to which the speaker possesses epistemic privilege.<sup>73</sup>

- (150) A: I have a terrible headache!  
B: #That's true.

These cases show that some putatively propositional linguistic elements also have a hard time passing (146).

Second, not all imperatives are equally hopeless as antecedents for *That's (not) true*-rebuttals. In particular, those used for giving advice stand a far better chance of getting at least endorsed that way.

- (151) A: How do I get to Rüsselsheim?  
B: Take the S8.  
A: Oh right, that's true.

- (152) B: Nimm am besten die S8. A: Stimmt./Das ist wahr, an  
B: Take.IMP best the S8. A: Correct./That is true, of  
die habe ich gar nicht gedacht.  
it (=the S8) have I at-all not thought

The details of what exactly blocks or enables *That's (not) true*-replies and also why the parallel between positive and negative cases is somewhat imperfect await further study. But I hope to have already shown that the issue can not depend on the (non-)propositional nature of the linguistic object in the antecedent utterance. It is rather speech act types or properties of speech act types that decide the matter. Having thus abandoned (146) and (147), we are in principle free to assign imperatives propositions as their semantic values.

In 3.1.2, I have pointed out that utterances of sentences that contain modal verbs often behave a lot like imperatives in being felt to be neither true nor false. These were called the *performative usages* of modal verbs. In such cases, declaratives containing modal verbs fail to pass the *That's (not) true*-test as well. But in contrast to imperatives they can often be forced into a non-performative interpretation precisely by countering them in such a way.<sup>74</sup>

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<sup>73</sup>Note that in these cases the negative form is a lot better, albeit only to accuse the speaker of lying:

- (i) A: I have a terrible headache!  
B: That's not true (you are lying)!

This is closely related to a problem Manfred Bierwisch (p.c.) has pointed out for my treatment of imperatives and which I will come back to later. For the moment, note also that the exchange in (150) cannot be saved by relating the reply to the sincerity of the speaker as it happens in the negative case.

<sup>74</sup>Remember that *should/sollte* constitutes an exception.

As long as (153) is understood as a command/request for the addressee to go and not as a mere assertion that he is under an obligation to do so, it is equally weird to discuss or refute this state of affairs. If B chooses to reply as in (153), he deliberately misunderstands A's utterance as merely informing him about a standing obligation.

- (153) A: You must go now!  
 B: #That's (not) true!

In 3.2.3, I have argued that the preference for avoiding unnecessary ambiguity in a semantic theory provides one with a good argument to resort to a truth-functional treatment of performative modal verbs. Syntactically, performative modals still appear in declarative sentences. By uniformity, this gives some immediate plausibility to the attempt of interpreting them as propositions. Moreover, the same LF strings clearly have descriptive usages when evaluated with respect to a different background (viz. for any LF of a performative modal it seems that one can find an assignment function that would map it onto a clearly propositional object by assigning a different interpretation to the conversational background(s)). And, crucially, even when evaluated with respect to the very same background it is sometimes possible to lift the performative effect, e.g. by doubting that one is indeed correct about the advice one is trying to give (154a). This does not seem to be possible with an imperative (154b).

- (154) a. You must go. At least that's what I think you should do.  
 b. Go now! #At least I think that's what you should do.

So, while the ideal of uniformity constitutes a strong argument to assign a propositional semantics to performatively used modal verbs, too, such pressure is absent for imperatives that lack non-performative interpretations. With (147) we even had an argument against a propositional semantics instead. But given the arguments against the *That's (not) true*-test we should not feel forced to assign imperatives a non-propositional semantics. Instead, we may focus on their similarities with performative modal verbs. Certain properties of the parameters of modal operators (set in a particular context only) that are present optionally with modal verbs, but obligatorily with imperatives, will account for the performative effects and the absence of descriptive imperatives.

The first assumption to achieve the effect is that both performative cases of modal verbs and imperatives are confined to conversational backgrounds on which the speaker counts as an authority.

It has been noted at least as early as in Hobbes' *Leviathan* that issuing an imperative involves either **social** or **rational** authority (cf. Hamblin 1987). That means, either the social status of the speaker with respect to the hearer allows him to issue an imperative that is meant to guide the actions of the latter, or, the speaker possesses some rational authority with respect to an issue so that he is authorized to give advice on the matter. In the case of social authority as underlies

commands and prohibitions, the speaker does not have to provide any evidence for his move. In the case of rational authority, the speaker has to be capable of providing reasons that justify his imperative.

To capture this finding, I assume that modal verbs may, and imperatives must, come with an ordering source that invites the assumption that the speaker is an authority on the matter. Following Zimmermann (2000), I capture the notion of being an authority on a set of propositions in terms of Groenendijk and Stokhof's (1984) exhaustive knowledge, cf. (155a). For conversational backgrounds this has to be stated as in (155b).  $AUTH(x)(c)$  describes the set of conversational backgrounds  $x$  is taken to be an authority on in  $c$ .<sup>75</sup>

(155) (*ignoring temporality*)

a. **Authority on a property  $P$ :**

$$(\forall w \in Bel_{c_S}(c_W))(\forall x)[w \in P(x) \leftrightarrow c_W \in P(x)]$$

b. **Authoritative Conversational Backgrounds of  $x$  in  $c$ :**

$x$  is an authority on a conversational background  $f$  in  $c$  iff

$$(\forall w \in Bel(x)(c_W))(\forall p)[p \in f(w) \leftrightarrow p \in f(c_W)]$$

c.  $AUTH(x)(c) = \{f : W \rightarrow \mathcal{POW}(\mathcal{POW}(W)) \mid$

$$(\forall w \in Bel(x)(c_W))[(\forall p)[p \in f(w) \leftrightarrow p \in f(c_W)]]\}$$

Sometimes, it will be convenient to use the **authority principle**, which follows from the definition of authority (cf. Zimmermann (2000:286)). (For imperatives, it will be used in Chapter 7.)

(156) **The Authority Principle**

If the speaker is an authority on  $P$  in  $c$ , then, for any  $x$ :

$$Bel_{c_S}(c_W) \cap P(x) \neq \emptyset \text{ implies } Bel_{c_S}(c_W) \subseteq P(x).$$

The *Authority Principle* says basically that if an authority (on the respective matter) takes  $p$  to be possible she believes  $p$ .

Whenever temporal information is taken into account, we have to keep in mind that this has changed our understanding of conversational backgrounds to them being of type  $\langle i, \langle s, \langle \langle s, t \rangle, t \rangle \rangle \rangle$ . Instead of (155) and (155b) we will then use (157a) and (157b).

(157) (*considering temporality*)

a. **Authority on a property  $P$ :**

$$(\forall w \in Bel'(c_S)(c_T)(c_W))(\forall x)[w \in P(x) \leftrightarrow c_W \in P(x)]$$

b. **Authority on a Conversational Background:**

$x$  is an authority on a conversational background  $f$  in  $c$  iff

$$(\forall w \in Bel'(x)(c_T)(c_W))(\forall p)[p \in f(c_T, w) \leftrightarrow p \in f(c_T, c_W)]$$

<sup>75</sup>  $Bel$  maps an individual and a world  $w$  to the set of worlds that constitute  $x$ 's belief set in  $w$  (the worlds compatible with what  $x$  believes).  $Bel'$  is a refined version that takes a time argument into account as well. The respective functions for the speaker can be written as  $Bel_{c_S}$  ( $= Bel(c_S)$ ) and  $Bel'_{c_S}$  ( $= Bel'(c_S)$ ).

$$\begin{aligned}
\text{c. } AUTH'(x)(c) = & \\
& \{f : T \times W \rightarrow \mathcal{POW}(\mathcal{POW}(W)) \mid \\
& (\forall w \in Bel'(x)(c_T)(c_W))(\forall p)[p \in f(c_T, w) \leftrightarrow p \in f(c_T, c_W)]\}
\end{aligned}$$

Looking at two typical conversational backgrounds found as ordering sources in imperatives, namely, speaker wishes and speaker commands, it is easy to see that they are among the authoritative ones according to (155b) (or (157b)) in unmarked contexts. The modal base itself is the Common Ground and thus passes per definition. Cases with a non-empty addition to the modal base are precisely those where rational authority of the speaker is assumed in the context. This is what happens in the case of advice (cf. 6.2.4). Of course, asking for advice is a straightforward means to acknowledge the other person's authority on the issue.

The performative effect falls out in the following way: The speaker issues something that depends only on conversational backgrounds he is an authority on. Therefore, the normal process of asserting, which involves evaluating if the new information should be made part of *CG*, cannot sensibly take place. Normally, the information is just taken in, leading to an adjustment of *CG* and the respective ordering sources (e.g. the set of what the speaker wants/commands/...).<sup>76</sup> In case the authority is not primarily granted, or, in the case of rational authority the speaker says something that makes one doubt his authority, the presupposition that he is indeed an authority is at stake and communication cannot proceed along its normal lines; some repair mechanism is called for. As long as the presupposition is not encroached upon, the truth value of the necessity proposition is inaccessible because it is trivially true. As soon as there is doubt as to the authority of the speaker, the truth of the proposition is inaccessible due to a presupposition failure.

As mentioned above (in (151)/(152), repeated in (158c)), for reasons not entirely clear to me at the moment, challenge or endorsement by reference to the truth value is better acceptable in terms of rational authority. It is not inacceptable to confirm the speaker's authority on factual matters by stating that he says something correct. This, of course, is still in line with the triviality of the truth of a proposition expressed by an imperative. In contrast to that, the dialogue resulting from replacing A by A' as in (159a) is worse indeed, indicating that the proposition expressed by an imperative depends on the speaker being considered an epistemic authority. Related rebuttals as in (159b) have then to be considered as refuting the authority presupposition by reference to a(n inferred) proposition implied by what the speaker is trying to say.

- (158) a. A: Wie komme ich nach Rüsselsheim?  
 A: How do I get to Rüsselsheim?
- b. B: Nimm am besten den 16er!  
 B: take.IMPSG best the 16-line  
 B: 'Take line 16.'

---

<sup>76</sup>The dynamics resulting from the authority principle amounts to what is required by Lewis' Truthful Master Condition, cf. Lewis (1979a).

- c. A: Ah ja, das stimmt. Danke.  
A: oh yes, that's right. Thanks.
- (159) a. A': Nein, das ist nicht wahr.  
No, that is not true.  
b. A'': Nein, das kann wirklich nicht stimmen. Der fährt doch  
nach Osten! Du hast ja gar keine Ahnung.  
A'': No, that can't be correct. It goes eastwards! You don't know the  
first thing about it!

The more typical refusal proceeds as in (160b) and does indeed primarily target the authority presupposition.

- (160) a. A: Geh sofort nach Hause!  
A: Go.IMPSG immediately home!  
b. B: Du hast mir überhaupt nichts zu befehlen!  
B: You are not in the position to tell me what to do!

Under dispute is not what would follow from the speaker's commands, but rather that he has the necessary social authority to enact them.

At first glance, the theory might seem to make wrong predictions for these cases. Intuitively, the rebuke in (160b) does not seem to target the speaker's epistemic authority with respect to his commands, but rather his social authority. This would mean that *B* is saying something like 'You know your commands, but you fail to know that you are in no position to give orders!'. But under closer inspection they turn out to be the same. The set of worlds permissible to *B* according to *A*'s commands can only be restricted by commands *A* may indeed give. If an arbitrary context *c* does not grant *A* social authority to command *B* *p*, and *f* = *what A commands B to do*, then *p* can not be in  $f(c_W)$ . Therefore, if in *c* for no proposition *p*, *A* may command *B* to do *p*,  $f(c_W)$  is empty. Consequently, not being aware that one is not entitled to give commands amounts to not being an (epistemic) authority on one's commands.<sup>77</sup>

We should note though that authority in itself cannot account for a puzzle pointed out to me by Manfred Bierwisch (p.c.). While declaratives expressing statements about issues the speaker have privileged epistemic access to can be challenged as lies without doubting the speaker's authority, this is impossible for imperatives.

- (161) a. A: I want you to give me an aspirin!  
B: No, you don't, you are lying.  
b. A: Give me an aspirin!  
B: #You are lying, you don't want me to give you one.

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<sup>77</sup>The argument would not go through had the ordering source been constituted by *A*'s wishes instead. Nevertheless, this can be excluded given the particular nature of *B*'s reply. Consequently, (160) exemplifies a crucial difference between speaker commands and wishes as ordering sources in imperatives.



A serious answer to the problem needs further study of deviant contexts as resulting from suspension of the sincerity assumption (something the framework I have adopted relies on). In principle one could argue that either it does interact (locally) with authority after all, or defer the problem to interaction with the principle of ordering source affirmation as introduced in 6.3.2.

When relying on authority, we should briefly compare its role in imperatives to other phenomena where it has gained some attention recently, but ultimately has been seriously challenged as a solution. Authority presumptions in general have been shown to be extremely weak, and in particular, maybe too weak to account for free choice disjunctions. It has been observed for disjunctions that clausal implicatures outweigh authority presumptions (the following example and discussion is taken from Zimmermann 2005a, who credits both Cleo Condoravdi and Danny Fox p.c. for the respective observations):

(162) I have an apartment in Frankfurt or Berlin.

On Zimmermann's (2000) account, disjunctions express that the speaker considers both disjuncts genuine epistemic possibilities. Free choice readings for disjunctions are then derived by assuming that whenever a speaker considers something possible and is an authority on the issue, it is also true. When interpreting (162), it is most natural to assume that the speaker is an authority on the issue of where he has an apartment. Consequently, one would expect a (highly sensible) reading that the speaker has both an apartment in Frankfurt and an apartment in Berlin. Nevertheless, (162) only gets the readings that the speaker is being uncooperative (so, one option is not a live option, but the speaker just presents it as if it were), or that the speaker does not know where his apartments are (assuming cooperativity we get a clausal implicature that he does not know where his apartment is). The fact that the second reading is quite prominent shows that clausal implicatures can indeed easily outweigh the authority assumption.<sup>78</sup> Given that, with modal verbs, free choice readings persist despite clausal implicatures, authority is too weak to explain the behaviour of disjunctions.

Is this reason to worry about our account for imperatives? What I am saying is that authority is a presupposition the modal operator  $OP_{Imp}$  brings in. Therefore, we should never expect it to be cancellable. And I think this is as desired.

On the other hand, we would expect it to be filtered out by conditional antecedents. This seems to be born out (cf. (163)):<sup>79</sup>

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<sup>78</sup>Zimmermann (2005a) cites another example attributed to Manfred Krifka (p.c.):

(i) I live in Frankfurt or in Berlin.

I agree that in this case authority outweighs the clausal implicature in favor of a conjunctive reading, implying that the speaker spends his life alternating between the two places. It would be interesting to investigate in more detail the role of the implicit temporal/habitual quantification.

<sup>79</sup>One might object that these fall into a particular class of non-hypothetical conditionals, namely relevance (or speech act) conditionals (cf. Bhatt and Pancheva 2001). Therefore, one might be tempted to argue that it is not a presupposition of the clause but a felicity condition of the speech

- (163) a. Wenn ich hier noch etwas zu sagen habe, ruf ihn an.  
 if I here still something to say have, call.IMP SG him PRT  
 ‘If I am still in a position to say something, call him.’
- b. Wenn ich dir etwas raten darf, komm nicht noch mal zu spät.  
 if I you something give-advice.INF may, come.IMP SG not again QPRT  
 too late  
 ‘If I may give you a piece of advice, don’t be late another time.’
- (164) The Authority Condition as a presupposition on  $OP_{Imp}$ :  
 $\llbracket OP_{Imp} \rrbracket^{c,s} = \lambda f \lambda g \lambda t \lambda P \lambda w. (\forall w' \in O(cg_F(c) \uplus f, g, c_T, w)) [P(t)(w')]$ ,  
 defined only for  $f, g \in AUTH'(x)(c)$

Conversational backgrounds can be in  $AUTH'(x)(c)$ <sup>80</sup> in virtue of their context independent nature, for example, a speaker is usually taken to have privileged access and thus be an authority about what his wishes are. Likewise, he is also taken to be aware of what he commands. For these cases, most  $c$  would have them in  $AUTH'(x)(c)$ , and contexts where they are not are deviant. But for other cases, especially the ones where the speaker is giving advice, it is crucial that the context supports that  $x$  counts as an authority on the relevant matter. For example, for an arbitrary individual  $x$ , the set of contexts  $c'$  that have *what is a fact about public transportation in the Rhein-Main-Area*  $\in AUTH'(x)(c')$  is a lot smaller than that of contexts  $c''$  that have *what  $x$  commands*  $\in AUTH'(x')(c'')$ .<sup>81</sup> I assume that this naturalness assumption on contexts lies behind the fact that COMMANDING and REQUESTING are felt to be the prototypical usages of imperatives, eventually providing an answer to the problem of clause type encoding (PCTE) as discussed in Section 1.4.

Authority does not rule out any conversational backgrounds. It only imposes a restriction on the context, and predicts replies that dispute the truth value of the proposition expressed to be infelicitous. Relying on authority means that either a proposition is expressed and accepted without further ado, or that a crucial prerequisite that gets filtered out. Independently from the fact that the observation could be turned around in order to say that such felicity conditions on speech acts are best treated as presuppositions, we can also show that relevance conditionals can filter ordinary presuppositions (e.g. the existence presupposition for the pronoun *ihn* ‘him’ in (i):

- (i) Wenn du einen Hund hast, (\*dann) kannst du ihn jetzt neuerdings auch in der  
 if you a dog have, (then) can you it now newly as-well in the  
 Straßenbahn mitnehmen.  
 tram take-along.INF  
 ‘If you have a dog, - you can now take it along on the tram as well.’

Insertion of *dann* ‘then’ is claimed to be unacceptable in relevance conditionals, thus forcing a hypothetical reading. Its oddity in (i) provides strong evidence that this is indeed a relevance conditional.

<sup>80</sup>Note that any  $x$  in any context  $c$  is an authority on the empty conversational background.

<sup>81</sup>Note that authority would not have ruled out the cases in (142), because a judge issuing a verdict should definitely be an authority over the respective law. I have suggested that imperatives cannot express absolute deontic necessity because imperatives can not occur with empty ordering sources.

uisite for uttering an imperative is not met. This seems an adequate characterization of the behavior of imperatives.

### 6.3.2 Epistemic uncertainty and ordering source affirmation

As it stands, our semantics of imperatives would lead us to expect that an imperative as in (165) could also express something along the lines of (166a)-(166c). But this is, of course, blatantly false.

(165) Be home at 5!

- (166) a. The alternatives that are *most plausible according to what I know*, are such that you are at home at 5.  
 b. The alternatives that are *most plausible according to what rumours say*, are such that you are at home at 5.  
 c. The alternatives that are *most plausible according to what I take to be the usual course of events*, are such that you are at home at 5.

Nothing of what we have said so far would rule these cases out. The background is assumed to be the Common Ground and the ordering source is non-empty and impersonal. Furthermore, it is highly plausible that the speaker is considered an authority on what he believes and it might well be the case that he indeed counts as an authority over what he knows. Therefore, the authority condition is not going to help us out here.<sup>82</sup>

A closer look at the nature of these putative ordering sources should show that at least (166a) is immediately ruled out due to the assumptions about ordering sources. What is known can never be used as an ideal (an ordering source) but can only restrict the modal base. Consequently, (166a) is ruled out because there is no ordering source.

In the following I will introduce two more requirements on the context in which an imperative can be issued, and also briefly discuss the possibility that they might suffice to rule out knowledge related ordering sources.

On the one hand, issuing an imperative seems to require that the speaker believes the thus modalized proposition to be possible, but not necessary. That is, if the speaker is sure that  $\phi$  is going to happen (or will not happen), then issuing an imperative  $\phi!$  results infelicitous. I will call this restriction the **Epistemic Uncertainty Constraint**. In that respect, imperatives differ crucially from other necessity modals. Consider the contrast in (167).<sup>83</sup>

<sup>82</sup>As I have said above in more generality, the authority condition by itself does not rule out any conversational backgrounds.

<sup>83</sup>Something else seems to happen in connection with permissions and concessions (I am indebted to Florian Schwager (p.c.) for having pointed out these cases to me):

- (i) a. A: Ich gehe jetzt schwimmen.  
 A: I go now swim  
 'I'm going swimming now.'

- (167) a. Ich weiß, daß du das auf jeden Fall tun wirst, und du mußt  
 I know that you that in any case do.INF will, and you  
 es auch tun.  
 must it too do.INF  
 ‘I know that you are at any rate going to do this, and moreover you  
 have to.’
- b. #Ich weiß, daß du das auf jeden Fall tun wirst, also tu’s  
 I know that you that in any case do.INF will, so  
 auch.  
 do.IMP-it too  
 #‘I know that you are at any way going to do this, so do it also.’

The constraint is formulated in (168).<sup>84</sup>

- (168) Epistemic Uncertainty Constraint (EUC) on imperatives:  
 $\llbracket OP_{Imp} \rrbracket^{c,s} = \lambda f \lambda g \lambda t \lambda P \lambda w. (\forall w' \in O(cg_F(c) \uplus f, g, c_T, w)) [P(t)(w')]$ ,  
 is defined only if the precontext  $c$  of  $c'$  is such that  
 $CG(c') \subseteq$   
 $\lambda w. (\exists w' \in Bel'_{c_S}(c'_T)(w)) (\exists w'' \in Bel'_{c_S}(c'_T)(w)) [\neg p(t)(w') \& p(t)(w'')]$   
 (= *the speaker believes that both  $\neg p$  and  $p$  are possible*).

Given that EUC denies speaker epistemic necessity, is there a chance that EUC might rule out doxastic ordering sources? Consider the case in (166c). Assume that in  $c$  the speaker counts as an authority on what he takes to be the usual course of events (which is indeed highly plausible). Now, he attempts to issue (166c) in form of the imperative (165) (repeated here as (169b) and (169a) respectively).

- (169) a. Be home at 5!  
 b. Those alternatives that are *most plausible according to what I take to be the usual course of events*, are such that you are at home at 5.

In order to be interpretable in  $c$ , the EUC has to be met, consequently, (170) has to hold at the context immediately preceding the utterance of (169a):

- (170) The speaker does not exclude that the addressee is going to be home at 5, nor does he exclude that the addressee is not going to be home at 5.

---

b. B: Ja, bitte, tun Sie das.  
 B: yes, please, do.IMP SG you.2PF ORM that  
 ‘Please, do so.’

But such exchanges are pretty marked. In a way,  $B$  seems to behave as if he was giving a permission. Yet, if  $A$  has already decided to go swimming, there is no real point in doing so. I would assume that  $B$  really behaves as if there was a possibility that  $A$  would not stick to his plan if he had resented.

<sup>84</sup>This presuppositional meaning component is closely related to *dissociation* as a meaning component of subjunctive attitude reports (cf. Farkas 1992). Brasoveanu (2005) uses dissociation as a presuppositional meaning component of subjunctive attitude reports, requiring that *there is at least one world  $w^*$  among the speaker’s belief worlds s.t. the reported belief  $p$  is not true in  $w^*$* .

But, of course, it is perfectly coherent to believe that both  $p$  and  $\neg p$  are possible, and yet to believe that  $p$  is a necessity with respect to what is most plausible or the usual course of events.

Therefore, the impossibility of knowledge related ordering sources can not be reduced to the independent requirement of epistemic uncertainty.

Consequently, we should replace the requirement of imperatives to come with a non-empty ordering source with the requirement to come with a **preference-related ordering source**. The notion of preference-relatedness has to be taken as primitive, covering at least deontic and buletic conversational backgrounds as opposed to stereotypical, circumstantial or doxastic ones (cf. Section 5.1 for an overview of types of conversational backgrounds).

(171) **Ordering Source-Restriction**

$$\llbracket OP_{Imp} \rrbracket^{c,s} = \lambda f \lambda g \lambda t \lambda P \lambda w. (\forall w' \in O(cg_F(c) \uplus f, g, c_T, w)) [P(t)(w')],$$

is defined only if  $g$  is a preference related conversational background.

This type of restriction is again not atypical for modal elements in general. English *might* for example mostly comes with a non-empty ordering source, but requires it to be doxastic, that is, exactly not preference-related.

So far, our treatment of imperatives still fails to ensure that they indeed have the effect of an incentive to act on them. Consider the following scenario: In context  $c$ , I know exactly what Melli wants. In particular, I also know that from Melli's wishes it follows that Verena calls Melli that particular evening (which is therefore the interval assigned to the event frame; it fulfills the requirement of not entirely preceding  $c_T$ ). And, I am insecure whether Verena is going to call Melli within the intended event frame. But for some reason, I do not consider it a good idea for her to do so. Given that, it should be possible for me to issue (172).

(172) Call Melli! #But I don't want you to call her.

Nevertheless, this is hopelessly awkward. So far, nothing I have said about imperatives would predict that.  $c_S$  is an authority on the preference-related ordering source  $g$ ,  $f$  is most likely empty and therefore unproblematic, the temporal requirement of the event frame following  $c_T$  should be easy to meet, and  $c_S$  is insecure as to whether Verena will call Melli or not.

Something similar to this puzzle has been pointed out by Annette Frank (1996:84), who correctly observes its similarity to Moore's paradox exemplified in (173), as it is familiar from the epistemic realm (cf. Hintikka 1962, Gazdar 1979).

(173) #Paul is dead but I do not believe that he is dead. Lakoff (1975)

(174) a. #You should go to Paris, but in fact, I think it is not advisable.  
(her (11a))

b. You should go to Paris, even if Peter thinks this is not advisable.  
(her (11b))

- c. Max told me that you should go to Paris, but I think this is not advisable. (her (11c))

Intuitively, (174a) is awkward, because (unembedded) *should* is understood with a speaker centered ordering source, so the speaker himself is taken to be the source of the advice given to the addressee. Consequently, the adversative clause expresses a contradiction to what has just been said.

Capturing the obvious intuition behind it is not easy. In a way, this seems to be the source of the deontic/obligation installing nature of the imperative. It could also be seen as the remnant of Bierwisch's (1980) cognitive attitude *I want that* which I have argued to be too strong to be met by advice imperatives. Yet, intuitively, the speaker need not only be an authority on the ordering source, but he also needs to affirm it somehow.

- (175) **Ordering source affirmation-principle (OSA)**  
The speaker affirms the ordering source. (Therefore, he considers it to be better (sometimes with respect to a contextually salient goal<sup>85</sup>) that the proposition modalized by the imperative operator comes out true.)

However this is to be made more precise ultimately, it has to ensure that the speaker thinks that the ordering source ensures a good approximation as to what should constitute the maxims of one's (or at least the addressee's) future behaviour.

Given OSA, the infelicity of example (172) should be immediately obvious. It also explains why uttering imperatives induces a strong pressure on the addressee to act upon them, or, why imperatives are felt to be *unbequem* 'uncomfortable' as Wrátil (2004) chooses to put it. Given that EUC holds as well, it is already known in the context that the hearer cannot be taken to share the speaker's conviction that the ordering source has to be taken as a maxime. Of course, this does not hold for cases where the addressee had been lacking information in order to take the right decision (ADVISES), or where the future course of events is not in the hands of the addressee, as in WISHES like *Enjoy yourself!*, *Get well soon!* - which consequently, on my analysis, do not share the taste of discomfort Wrátil (2004) postulates for imperatives in general. I take this to be a favorable outcome.

### 6.3.3 Putting it all together

The semantic contribution of the imperative operator amounts to the propositional and presuppositional ingredients in (176).<sup>86</sup>

- (176)  $\llbracket OP_{Imp} \rrbracket^{c,s} = \lambda f \lambda g \lambda t \lambda P \lambda w. (\forall w' \in O(CG_F(c) \uplus f, g, c_T, w)) [P(t)(w')]$ ,  
defined only if

<sup>85</sup>For an analysis that makes such a goal a crucial part of the semantics of an imperative, cf. the approach of Franke (2005) discussed in Section 14.

<sup>86</sup>As always,  $CG_F(c)$  is the set of propositions that describe  $CG$  in  $c$ .  $\uplus$  was defined as pointwise union of functions into sets. That is, for any two functions  $f_1, f_2$  of type  $\langle s, \langle \langle s, t \rangle, t \rangle \rangle$ ,  $f_1 \uplus f_2$  is the complex function  $f_3$ , s.t. for all  $w \in W$ ,  $f_3(w) = f_1(w) \cup f_2(w)$ .

- a.  $\neg(t < c_T)$  cf. 6.1.1
- b.  $g \neq \emptyset$  is *preference-related* cf. 6.2.1/6.3.2
- c.  $f, g \in AUTH'(c_S)(c)$  *authority*, cf. 6.3.1
- d. for the precontext  $c'$  of  $c$ ,  
 $CG(c') \subseteq \lambda w. (\exists w' \in Bel'_{c_S}(c'_T)(w)) (\exists w'' \in Bel'_{c_S}(c'_T)(w)) [\neg P(t)(w')$   
 $\& P(t)(w'')]$  *epistemic uncertainty (EUC)*, cf. 6.3.2
- e.  $c_S$  affirms  $g$  *ordering source affirmation (OSA)*, cf. 6.3.2

The original idea of analysing imperatives as graded modals relied on the idea of endowing imperatives with precisely those presuppositions that describe a context in which an overt necessity modal would be used performatively. This should warrant the connection in (177).

- (177) Uttering  $\phi = \textit{You must } p$ . (or  $\phi = \textit{You should } p$ ), such that the LF of  $\phi$  is  $[\textit{must } f \textit{ } g \textit{ } \psi]$  in a context  $c$  such that  $\llbracket [OP_{Imp} \textit{ } f \textit{ } g \textit{ } t \textit{ } \psi] \rrbracket^{c,s}$  would be defined, amounts to a performative (that is, non-descriptive, non-assertoric) usage of  $\phi$ .

I am quite confident that the principles as put forth in the preceding two subsections do indeed guarantee the validity of (177).<sup>87</sup> Nevertheless, it has to be seen as a task for future research to find out if some of the principles can be reduced to more general requirements of speech act types as categories of moves in the conversational game.

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<sup>87</sup>The connection is weakened by the fact that not all imperatives can be substituted for by *must* or *should* indiscriminately. I take this to depend on the fact that modal auxiliaries like *must* and *should* are not completely neutral expressions of (graded) necessity themselves. Moreover, the claim does not extend to cases that crucially draw on the presuppositional meaning component of imperatives in order to force accommodation, cf. Section 7.





## Chapter 7

# Permitting Permissions

In Section 1.4, I have shown that imperatives allow for a wide range of functions, which is generally argued to be surprisingly stable cross-linguistically.

What proved to be especially problematic for assigning a semantics to imperatives was the effect that imperatives cut across necessity and possibility (the *Problem of Quantificational Inhomogeneity* (QIP)). If given a modal analysis, the usages in (1) should all be related to necessity and thus correspond to a universally quantified statement as in (1f) (proposition  $p$  and accessibility relation  $R$  to be filled in respectively). Those in (2) on the other hand should correspond to possibility (cf. (2c)).

- |     |    |                                                                  |            |
|-----|----|------------------------------------------------------------------|------------|
| (1) | a. | Read this!                                                       | COMMAND    |
|     | b. | Stay away from the projector!                                    | WARNING    |
|     | c. | Have fun at the party!                                           | WISH       |
|     | d. | Turn off the light, please!                                      | REQUEST    |
|     | e. | Take the A train if you want to go to Harlem. <sup>1</sup>       | ADVICE     |
|     | f. | $\lambda w.(\forall w')[wRw' \rightarrow p(w')]$                 |            |
| (2) | a. | (It starts at eight, but) come earlier if you like! <sup>2</sup> | PERMISSION |
|     | b. | All right, don't come then! (If you think you are so clever.)    |            |
|     |    |                                                                  | CONCESSIVE |
|     | c. | $\lambda w.(\exists w')[wRw' \& p(w')]$                          |            |

As I have argued previously (cf. section 1.3), such an existential/universal flip-flop is a nasty ambiguity one would want to avoid to attribute to a natural language element. We have also seen that this flip-flop in quantificational force provides a serious argument for not putting too much of the effect it is to have on the discourse into the semantics of the imperative.

So far, the fact that there is a bias in favour of necessity usages, and that permission usages are mostly marked by particles or other modifiers has been taken to

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<sup>1</sup>Billy Strayhorn/via Sæbø (2002).

<sup>2</sup>Example from Hamblin (1987).

constitute encouraging evidence for the uniform necessity semantics I am proposing. In this section I will explain how the necessity proposition I have proposed as the semantic interpretation of the imperative can have the effect of a possibility statement.

Let's first take a closer look at the modifiers we find in permission imperatives. Besides various particles (e.g. *ruhig*, *nur*, *einfach*, ... in German), we often find reduced conditional antecedents (German *wenn du willst* or its English equivalent *if you like*).

- (3) a. Nimm dir *ruhig* einen Apfel!  
 take.IMP you.DAT PRT an apple  
 '(Feel free to) take an apple!'  
 b. Nimm dir einen Apfel *wenn du magst*!  
 take.IMP you.DAT an apple if you like  
 'Take an apple if you like!'

Taking into account these reduced antecedents, it is very tempting to assume that permission imperatives are simply commands conditionalized on the wishes of the addressee. The example in (4a) would then correspond to the paraphrase in (4b).

- (4) a. Come earlier if you like.  
 b. If you want to come earlier, (*given what your wishes are/given what my wishes are/...*) you must come earlier.

But as pointed out by Hamblin (1987), this makes wrong predictions. Intuitively, even if the addressee wants to come earlier (and even if this is mutually known to speaker and addressee) there is no real obligation for the addressee to do so after an utterance of (4a). For (4b) this does seem to be the case, though.

Therefore, conditionalizing  $\Box p$  on the addressee having a wish for  $p$ , cannot explain for the permission readings we find for imperatives in a straightforward way.

But looking more closely at such reduced *if you like*-antecedents, they seem to constitute a problem in their own right. Even when occurring with overtly expressed permissions as in (5), the permission issued is not felt to depend on the addressee having a wish for what has been permitted.

- (5) You may come earlier if you like.

Just imagine a scenario where the addressee did not have a wish to come earlier, but ended up doing so, for example because his taxi driver did not respect the speed limit. Then still, it does not seem that he could be blamed by the speaker for having done something that was prohibited.

Consequently, we have to keep in mind that *if you like*-modifiers themselves are problematic. Having explained the solution to permission readings for imperatives, an analysis for the *if you like*-modifiers will fall out naturally.

## 7.1 The Permission Effect

Under what circumstances can we get a permission reading for an imperative like (6)?<sup>3</sup>

(6) Take an apple!

I want to assume that for imperatives to have the effect of a permission in a context  $c$ ,  $c$  has to meet three requirements.<sup>4</sup> It has to be presupposed<sup>5</sup> that

- the addressee wants to
  - take an apple, and to
  - please the speaker, and that
- the addressee is not allowed to take an apple by the speaker (consequently, taking an apple would upset the speaker)

To guarantee the correlation between permissibility and the mood of the speaker, I rely on the following meaning postulate which states that no one is pleased if his prohibitions are disobeyed with.

(7) For any individual  $x$  and proposition  $p$  it holds that:  
 prohibited-by'(p, x, w)  $\subseteq$   $\lambda w[p(w) \rightarrow \neg(\text{pleased}'(x)(w))]$

In addition to the presuppositions that describe the context, let's assume in addition that in principle, both the addressee's taking an apple and the speaker's being pleased are live possibilities (have a non-empty intersection with  $CG$ ).<sup>6</sup> Consequently, a  $CG$  described by the three crucial presuppositions can be characterized as follows.  $CG$  is a subset of *taking an apple is prohibited*, that is, on  $CG$ , *the addressee takes an apple* and *the speaker is pleased* have an empty intersection. Furthermore,  $CG$  entails that the addressee wants to take an apple and that the addressee wants that the speaker is pleased (with him). Assume that  $p_a$  stands for *the addressee takes an apple*, and  $p_s$  stands for *the speaker is pleased*. The resulting description of the context is given in (8).

<sup>3</sup>In order to simplify the presentation, the temporal information will not be taken into account neither in this section nor in the following one, consequently, the version of  $OP_{Imp}$  used is (28a). The evaluation time is tacitly understood to be  $c_T$ , the event frame can be taken to denote some adequate interval following  $c_T$ . Furthermore, we will not be dealing with cases of advice, so it will always be assumed that  $f$  is empty (the speaker does not contribute additional information).

<sup>4</sup>For the moment, I confine my explanation to simple cases where any further wishes of the addressee are compatible with each other, and both with taking an apple and pleasing the speaker. Consequently, potential further wishes of the addressee will not affect the status of these two propositions with respect to the set of hearer buletically optimal worlds and can thus safely be ignored for the moment.

<sup>5</sup>Presupposed is again understood as entailed by  $CG$ , cf. section 6.3

<sup>6</sup>I take that to be a reasonable background for the mechanism to be described below. If the speaker was known to be angry with the addressee anyway, the reasoning wouldn't make much sense. Likewise, if taking an apple is assumed to be impossible, permitting or prohibiting it does not make much sense.

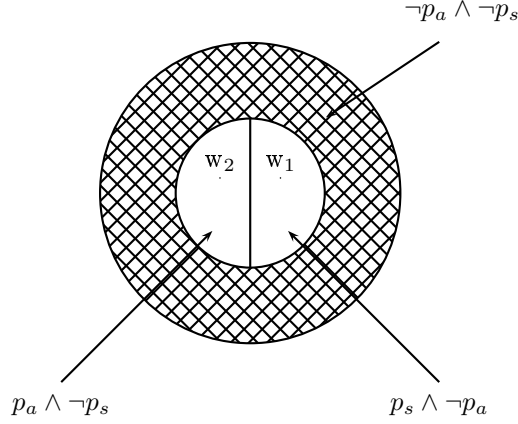


Figure 7.1:  $CG$ , ordered by  $g(w) = \{p_a = \text{the addressee takes an apple}, p_s = \text{the speaker is pleased}\}$ .

- (8) a. assumptions:  $CG \cap p_a \neq \emptyset$ ,  $CG \cap p_s \neq \emptyset$   
 b. presuppositions:  
 (i)  $CG \subseteq p_a$  is prohibited  
 (ii)  $CG \subseteq \text{the addressee wants } p_a$   
 (iii)  $CG \subseteq \text{the addressee wants } p_s$   
 therefore,  $(\forall w \in CG)[g(w) = \{p_a, p_s\}]$ , for  $g = \text{the wishes of the addressee}$ )

In the scenario described by (8), ordering  $CG$  with respect to the wishes of the addressee leaves us with the picture in Figure 7.1. The set of optimal worlds in the  $CG$  with respect to the ordering source  $g$  (the wishes of the addressee),  $O(cg_F(c), g, w)$  consists in the union of the two white segments, the one containing  $w_2$  characterized by *the addressee takes an apple, the speaker is not pleased*, the one containing  $w_1$  characterized by *the addressee doesn't take an apple, the speaker is pleased*. (Since  $CG \cap p_a \wedge p_s = \emptyset$ ,  $\neg(\exists v)[(v \leq_{g(w)} w_2) \wedge \neg(w_2 \leq_{g(w)} v)]$ , and likewise  $\neg(\exists v)[(v \leq_{g(w)} w_1) \wedge \neg(w_1 \leq_{g(w)} v)]$ .) The imperative in (6) expresses the proposition in (9):

- (9)  $\llbracket [ [ OP_{Imp} f g ] [IMPPRO \text{ take an apple } ] ] ]^{c,s} =$   
 $\lambda w. (\forall w' \in O(cg_F(c), g, w)) [\text{take-an-apple}'(c_A)(w')]$ ,  
 $g = \text{what the addressee wants } (= bul_{c_A})$ .

(9) describes the same set of worlds for each world  $w \in CG$  ( $\forall w, w' \in CG)[cg_F(c)(w) = cg_F(c)(w')]$ , and in the given scenario,  $bul_{c_A}(w) = bul_{c_A}(w')$ . Therefore, it is either true of all the worlds in the  $CG$ , or it is not. It is easy to show that it is not. Just pick for example  $w_1$ .  $w_1 \in O(cg_F(c), g, w)$ , but not  $w_1 \in p_a$ . Therefore, the proposition expressed by the imperative, (9), has an empty intersection with  $CG$  and can consequently never be used for a consistent update of  $CG$ . Consequently,

at that point of the conversation, the imperative is assumed/known to be false (as things stand, it cannot be said truthfully that it is best according to the wishes of the addressee to take an apple).

I want to assume that it is precisely here that the authority principle kicks in. According to its semantics in (176) the imperative is only well defined, because the speaker is presupposed to be an authority on the conversational backgrounds with respect to which the imperatives is evaluated. Assuming with Grice (1975a) that the addressee is cooperative, he will try to accommodate information so that the speaker can be taken to have made a consistent utterance. This makes it an instance of *global accommodation*, which has been introduced as *accommodation* by Lewis (1979b).

Let's look again at the proposition in (22). Remember that so far it is false at all worlds in  $CG$ , because of the incompatibility of *the speaker is pleased* ( $p_s$ ), and *the addressee takes an apple* ( $p_a$ ). In the following, I will argue that the addressee can basically make two assumptions that permit the imperative to come out true. One causes the imperative to have the effect of a PERMISSION, the other gives rise to a CONCESSION.

In the unmarked case, the addressee will accommodate that the speaker has given up his preference against him taking an apple. That is, there have to be worlds that are both in  $p_s$  and in  $p_a$ . Of course, here again we have to be careful about which  $p_a$ -worlds to add (Lewis's (1979a) *problem about permission*). I will adopt van Rooy's (2000) solution to pick out the least reprehensible worlds.<sup>7</sup> He uses an ordering relation in terms of closeness to an ideal with respect to the number of propositions verified (cf. (10)). Accommodating that  $p \wedge q$  worlds are in  $CG$  is interpreted as revision of  $CG$  by  $p$  ( $\text{revise}(A, CG)$ ).

$$(10) \quad \text{closeness to } CG \text{ in terms of the ordering relation } \leq_{cg}:^8 \\ \text{for all } u, v \in W : u \leq_{cg} v \text{ iff} \\ |\{p \in cg_F(c)(c_W) \mid v \in p\}| \leq |\{p \in cg_F(c)(c_W) \mid u \in p\}|$$

$$(11) \quad P^*_q = \text{def} \{u \in q \mid (\forall v \in q)[u \leq_{cg} v]\}$$

$$(12) \quad \text{revise}(p, CG) = CG \cup P^*_p$$

---

<sup>7</sup>The approach runs into problems with respect to conjunction and disjunction. Basically, under a classical interpretation of disjunction, one is committed to assuming that the least reprehensible  $p \wedge q$ -worlds only contain both  $p$  and  $q$  worlds if  $p$  and  $q$  are equally reprehensible. This is clearly not what we want. Consider (i) where it is clear that an allowance to use the laptop is more remote than an allowance to use the computer. Nevertheless, both of them count as permitted.

(i) You may use my computer or even my laptop.

I'm not worried about the disjunction, because I don't believe in a classical semantics for *or* anyway (cf. Section 13.1.2). I'm not so sure what to say about the problem of the **Package Deal**-interpretation for conjunctions (cf. Merin 1992). At this point, I will leave it for further research.

<sup>8</sup> $|A|$  is the cardinality of the set  $A$ .

Accommodating that taking an apple is not prohibited (or rather, doesn't cause the speaker to be angry) thus amounts to contraction of  $CG$  by  $\neg(p_s \wedge p_a)$ .

$$(13) \quad CG \Rightarrow \text{revise}(p_s \wedge p_a, CG) = CG \cup P_{p_s \wedge p_a}^*$$

Relying again on (7), the new Common Ground also entails that taking an apple is not prohibited.

The ordering source  $g$  (the wishes of the addressee) has not been changed on the worlds in  $CG$ , and due to the minimality condition on the revision, it has also not changed in the new worlds. Of course, this newly added set of worlds  $P_{p_s \wedge p_a}^*$  makes true both propositions in the ordering source and consequently  $O(cg_F(c), g, w) = P_{p_s \wedge p_a}^*$ . The imperative (6) consistently describes the new  $CG$  that has resulted from adding  $P_{p_s \wedge p_a}^*$ .

The other case of revision is slightly marked and gives rise to the concessive reading:

$$(14) \quad (\text{Go ahead and}) \text{ take an apple (if you think you are so clever)!}$$

In this case, the addressee relies on giving up the other presupposition, namely his wish that the speaker be pleased. He interprets the utterance saying something like *You don't want to conform to my wishes/orders*. Adding the closest worlds that verify this to  $CG$  consequently adds worlds  $w$  for which  $g(w) = \{p_a\}$  ( $p_s$  being omitted). Consequently, in these worlds, the worlds in  $O(cg_F, g, w)$  only have to verify  $p_a$  and thus trivially come out as making the imperative in (6) true.

Since the second strategy is marked (it draws on assuming that cooperativity is suspended), it has to be invited by prosodic clues. The particles or modifiers we have found in permission readings do not distinguish between the two strategies of accommodation though.

It might be interesting to consider a parallel between the concessive interpretation and the surprising permission-like reading in German modals *mag* and *soll* (Önnerfors (1997)). Both normally express necessity, but can assume possibility readings when appearing in sentence initial position.<sup>9</sup> This holds only for third person though.

- (15) a. Er soll sich die Grippe holen!  
           he shall REFL the flu catch.INF  
           He shall catch the flu! ORDER/CURSE
- b. Soll er sich doch die Grippe holen!  
           shall he REFL PRT the flu catch.INF  
           Ok then, so he may just as well catch the flu! (*given that he does not listen to me*) CONCESSION/CURSE

It might be interesting to explore if one could link the V1-position of the modal verb which is highly reminiscent of the imperative to the presence of the authority

<sup>9</sup>German is a V2-language, and does not normally allow for V1 constructions in matrix sentences.

principle in these cases. I will leave this for further research though.

## 7.2 Explaining *if you like*-Modifiers

As I have shown above, conditionalizing of a command on the wishes of the addressee fails to predict the permission readings. Furthermore, permissions in the consequents of *if you like*-antecedents do not depend on whether this antecedent is fulfilled or not. This is reminiscent of a contrast discussed in some intensity in the recent literature on conditionals. Hare (1971) observes a contrast between (16a) and (17a), pointing out that only the case of (17a) seems equivalent to the pseudo-contraposition in the b-sentence (16b). (17a) but not (16a) expresses that the goal in the antecedent is best achieved by the means given in the consequent. Employing a terminus coined by von Wright (1963), these sentences are called **anankastic conditionals** in the literature.

- (16) a. If you want sugar in your soup, you should get tested for diabetes.  
 b.  $\not\rightarrow$  If you don't get tested for diabetes, you don't get sugar in your soup.
- (17) a. If you want sugar in your coffee, you should call the waiter.  
 b.  $\rightsquigarrow$  If you don't call the waiter, you don't get sugar in your coffee.

Sæbø (2002) has pointed out that the standard analysis for conditionals as given in Kratzer (1991) makes incorrect predictions for anankastic conditionals. Under the standard treatment<sup>10</sup>, conditionals are assumed to contain an overt or covert modal operator that expresses a necessity/possibility w.r.t. to a hypothetically modified modal base. What is hypothetically added to the modal base is the proposition expressed by the antecedent.

$$(18) \quad \llbracket [\text{if } \alpha] \text{ must} \rrbracket^{c,s} = \lambda f \lambda g \lambda p \lambda w. (\forall w' \in O((f \uplus \lambda w. q), g, w)) [p(w')], \text{ where } q = \llbracket \alpha \rrbracket^{c,s}.$$

Sæbø (2002) argues that this makes incorrect predictions in case of anankastic conditionals where the actual goals differ from the goal expressed in the antecedent. Assume (19a) is evaluated in the scenario given in (19b).

- (19) a. If you want to go to Harlem, you must take the A train.  
 $[\forall w' \in O((f \uplus \lambda w' [\lambda w. \text{want-to-go-to-Harlem}'(c_A)(w)]), g, w)] [\text{take-the-A-train}'(c_A)(w')].$
- b. **facts:** A goes to Harlem, B goes to the North End, one does not go to both Harlem and the North End on one occasion  
wishes of  $c_A$ :  $c_A$  goes to the North End.

<sup>10</sup>Again: modulo the treatment of the conversational backgrounds as variables.

Evaluating (19a) in the scenario described in (19b) and under the very natural assignment that  $f = \text{facts about transportation, ...}$  and  $g = \text{the wishes of the addressee}$ , predicts the conditional to come out wrong. The worlds in the modified modal base (where the locations, A and B behave as usually and the addressee wants to go to Harlem), that make as much of his wishes true as possible are such that he goes to the North End, and therefore does not take the A but the B train.

Consequently, he proposes that in the case of anankastic conditionals, the antecedent simultaneously serves to indicate the ordering source via the choice of a desire verb<sup>11</sup> and to modify it by hypothetically adding the complement proposition of the desire verb. The semantics is given in (20).<sup>12</sup>

- (20) assume  $\llbracket \alpha \rrbracket^{c,s} = q$ , then  
 $\llbracket \llbracket \text{if } \alpha \rrbracket \text{ must } \rrbracket \rrbracket^{c,s} =$
- a.  $\lambda f \lambda g \lambda p \lambda w. (\forall w' \in O((f \uplus \lambda w. q), g, w))[p(w')]$ , or
  - b.  $\lambda f \lambda g \lambda p \lambda w. [\forall w' \in O(f, (g \uplus \lambda w. [\bigcap_{v \in q} G_\alpha(v)]), w)][p(w')]$ , where  $G_\alpha$  is the ordering source expressed in  $\alpha$  (e.g., *what the addressee wants*)

Various complications with conflicting and independent further goals have been pointed out by von Fintel and Iatridou (2005c), Huitink (2005) and von Stechow, Krasikova, and Penka (2005). Nevertheless, apart from the proposal by von Stechow, Krasikova, and Penka (2005), the general idea is maintained.

If we compare this with the semantics of the *if you like*-modifiers, it seems to give us two crucial details for the permission effect of the necessity statement. On the one hand, the ordering source  $g$  is set to the wishes of the addressee. On the other hand, the reduced antecedent can only be completed by filling in the proposition permitted/commanded in the consequent ( $\phi!$ , *if you like*  $[\phi]$ ; *you may*  $\phi$ , *if you like*  $[\phi]$ ). Antecedents are well-known to filter presupposition (cf. Karttunen 1974b)<sup>13</sup>, therefore, we can assume that the first presupposition is taken care of, namely that the addressee does indeed consider desirable what is to be permitted. It does not come as a surprise then that these reduced antecedents are often used to facilitate permission readings.

<sup>11</sup>von Fintel and Iatridou (2005c) point out problematic cases where it is not clear what should constitute the ordering source:

- (i) If you hate Dr. Smith, you should stay home today.

<sup>12</sup>The addition of the complement of the ordering source indicator in the antecedent is ensured as follows: add to the ordering source indicated in the antecedent what it contains at all those worlds that make the antecedent true. In the concrete case, add to the ordering source the set of propositions  $p$  s. t. you want  $p$  in all those worlds where you want to go to go to Harlem.

<sup>13</sup>Karttunen argues for the following equivalence (assume that  $\text{PREP}(p)$  gives the set of presuppositions triggered by  $p$ ).

- (i)  $\text{PREP}(\phi \wedge \psi) = \text{PREP}(\text{If } \phi, \text{ then } \psi) = \text{PREP}(\phi) \cup \{p \in \mathcal{POW}(W) \mid p \in \text{PREP}(\psi) \ \& \ \neg[\phi \subseteq p]\}$



w <sub>1</sub>	PROH(p <sub>a</sub> )	p <sub>a</sub>	¬p <sub>s</sub>
w <sub>2</sub>	PROH(p <sub>a</sub> )	¬p <sub>a</sub>	p <sub>s</sub>
w <sub>3</sub>	PROH(p <sub>a</sub> )	¬p <sub>a</sub>	¬p <sub>s</sub>
w <sub>4</sub>	¬PROH(p <sub>a</sub> )	p <sub>a</sub>	p <sub>s</sub>
w <sub>5</sub>	¬PROH(p <sub>a</sub> )	p <sub>a</sub>	¬p <sub>s</sub>
w <sub>6</sub>	¬PROH(p <sub>a</sub> )	¬p <sub>a</sub>	p <sub>s</sub>
w <sub>7</sub>	¬PROH(p <sub>a</sub> )	¬p <sub>a</sub>	¬p <sub>s</sub>

Figure 7.2:  $CG$ , partitioned by  $PROH(p_a), p_a, p_s$ 

### 7.3 Descriptive Side-Effects?

I'm indebted to Denis Bonnay (p.c.) for having pointed out to me that the presuppositions for imperatives to acquire permission readings are maybe too strong. He observes that an imperative could also get a permission reading if it is simply unknown that whether the complement proposition is prohibited or not. In this section I will try to explore this and show how it is related to the information conveying/performative contribution of imperatives.

The respective presuppositions should now be the following:

- the addressee wants to take an apple
- the addressee wants to please the speaker
- it is possible that taking an apple is permitted and it is possible that taking an apple is prohibited

Again, (7), repeated here as (21) ensures that the usual connection between permissibility and mood of the speaker holds.

- (21) For any individual  $x$  and proposition  $p$  it holds that:  
 prohibited-by'(x)(p)  $\subseteq$   $\lambda w.[p \rightarrow \text{upset}'(x)]$

Therefore, *taking an apple is prohibited and the addressee takes an apple* entails *the speaker is not pleased*. This implies that  $CG$  contains seven different kinds of worlds with respect to the three presuppositions *It is possible that it is prohibited by the speaker that the addressee takes an apple*. ( $\diamond\text{PROH}(p_a)$ ), *The addressee takes an apple* ( $p_a$ ) and *The speaker is pleased*. ( $p_s$ ). They are represented by  $w_1, \dots w_7$ . In addition to the worlds exemplified by  $w_1, w_2$  and  $w_3$  which correspond to the partions on the  $CG$  in the above discussed scenario where  $p_a$  is known to be forbidden, we now have to consider the set of worlds  $w_4$  to  $w_7$  in which  $p_a$  is not prohibited. The wishes of the addressee are still constant on the entire Common Ground. Thus, the imperative again expresses the same proposition on the entire Common Ground, cf. (22).

- (22)  $\lll [ [ OP_{Imp} f g ] [ \text{IMPPRO take an apple } ] ] \rrr^{c,s} =$   
 $\lambda w.(\forall v \in O(cg_F(c), g, w))[\text{take-an-apple}'(c_A)(v)],$

where  $g = \textit{what the addressee wants}$ , and  $(g)(w) = \{p_a, p_s\}$ .

For each  $w \in CG$ ,  $O(cg_F(c), g, w) = \{w_4\}$ , since this is the only world that makes both propositions in the ordering source true. But this is true of all the worlds in the Common Ground. What the addressee may infer directly is that if the speaker is to speak truthfully, given the situation of  $CG$ , the speaker does not exclude  $w_4$ . That is, the speaker does not exclude the existence of a world that verifies  $\neg\textit{PROH}(p_a)$ . If he wanted to exclude the set of worlds that make  $\neg\textit{PROH}(p_a)$  true, we would be left with the same problem of inconsistency (and need for accommodation) as before. But now a consistent update is possible. Given how I have defined the function  $\mathcal{J}$  that adds semantic objects to  $CG$  in section 2, the update takes place so as to rule out all those worlds at which  $\textit{PROH}(p_a)$  is true.

(23) If  $p$  can be used to consistently update  $CG$ ,  $CG \mapsto CG \cap p$ .

So no accommodation takes place and the addressee may infer that the speaker relies on  $w_4$ -type worlds being live possibilities. What the addressee has learned is thus the proposition in (24).

(24)  $\lambda w.(\exists w')[w' \in \textit{Bel}_{c_S}(w) \ \& \ \neg\textit{PROH}(p_a)(w')]$

In order to be able to jump from that to the conclusion that  $\neg\textit{PROH}(p_a)$ , we need a further assumption about what follows from what the speaker takes to be possible. As we have been assuming all the time, it lies in the very nature of commanding and prohibiting that speakers normally count as authorities on what they command or permit (cf. Section 6.3.1). Consequently, also at the particular context, prohibited-by' $(c_S) \in \textit{AUTH}(c_S)(c)$ . Therefore, Zimmermann's (2000) *authority principle* (cf. (156), repeated here as (25)) applies.

(25) **The Authority Principle**

If the speaker is an authority on  $P$  in  $c$ , then, for any  $x$ :

$\textit{Bel}_{c_S}(c_W) \cap P(x) \neq \emptyset$  implies  $\textit{Bel}_{c_S}(c_W) \subseteq P(x)$ .

So, by the *authority principle* one can conclude that  $\textit{Bel}_{c_S}(c_W) \subseteq \neg\textit{PROH}(p_a)$ , which by authority of  $c_S$  on  $\textit{PROH}$  allows the addressee to conclude that indeed  $\neg\textit{PROH}(p_a)$ .<sup>14</sup>

What is interesting in this case is that here we get the effect of a descriptive permission statement, namely the speaker indirectly informs the addressee that the action expressed by the complement proposition of the imperative operator is not prohibited.

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<sup>14</sup>Note, of course, that the presence of  $w_4$  in  $CG$  did not allowed to conclude  $\neg\textit{PROH}(p_a)$ . Possibility with respect to mutual joint belief does not allow to adopt the authority principle. Only possibility with respect to the beliefs of the authority does.

## 7.4 *Any* Troubles?

So far, the necessity semantics works quite well. We seem to be running into problems though when considering free choice items.

It is well known that *any* is licensed by possibility modals (26a), but not normally by necessity modals (26b), (cf. McCawly (1970), Aloni (2002)).

- (26) a. You may pick any flower.  
b. \*You must pick any flower.

Imperatives pattern with possibility modals, and license free choice *any*:

- (27) Pick any flower!

At first glance, this seems to constitute evidence for imperatives expressing possibility at a relevant level.

Above we have seen that even with a uniform necessity semantics we can account for the effect that imperatives sometimes induce adding of possibilities (as would a performative necessity statement). Consequently, it might seem promising that *any* is licensed by the pragmatic effect of possibility. Unfortunately that would account only for a small subset of the data to be accounted for and thereby does not constitute an interesting solution.

Instead of giving up the idea of a uniform necessity semantics I want to have a closer look at the nature of the *any*-licensing imperatives. In the following, I want to point out that two different cases have to be distinguished and that neither of them has a reading equivalent to *may* and one is even exactly paralleled by *must*.

### 7.4.1 Indifference *any*-imperatives

The first case of *any*-imperatives is typically constituted by cases as in (28). Examples along these lines have been discussed as instances that could not be expressed with overt necessity modals.

- (28) a. Pick any flower!  
b. Pick any card!
- (29) a. \*You must pick any flower!  
b. \*You must pick any card!
- (30) a. You may pick any flower!  
b. You may pick any card!

These cases arise precisely when the domain of objects (flowers or cards in our case), is fixed. Typically, the addressee is presented with a flowerbed or a set of cards. Taking a closer look at these examples we have to notice that they are not equivalent to their counterparts with *may*. While the former seem to presuppose/assert that affecting one of the objects is necessary (that is, one object will or must be af-

fect), this necessity part with respect to a neutral existential quantifier is lacking in combination with *may*. The reading we get for an imperative as in (28a) is thus best depicted as in (31).

- (31) {You must pick a flower/you will pick a flower} but I'm indifferent as to which you pick.

A treatment along these lines has been proposed in Aloni (2004). She assumes that the imperative is sensitive to alternatives as induced by existential operators and disjunctions, and with respect to these expresses the following proposition ( $A$  e.g. the permissibility sphere, and  $ALT$  the function that maps each proposition onto its sets of alternatives, e.g. with  $f_1, f_2, f_3$  the flowers in the context,  $ALT(\textit{you pick a flower}) = \{\textit{you pick } f_1, \textit{you pick } f_2, \textit{you pick } f_3\}$ ).

- (32)  $\lambda w. (\forall \alpha \in ALT(\phi)_{M,g})(\exists w' \in A_w)[w' \in \alpha] \ \&$   
 $(\forall w' \in A_w)(\exists \alpha \in ALT(\phi)_{M,g})[w' \in \alpha]$

This reads as “each alternative is permissible and it is obligatory to chose one of them”. It is easy to see that it boils down to necessity with respect to the background whenever the complement proposition of the imperative induces trivial alternatives.

### 7.4.2 Subtriggered necessity *any*-imperatives

Aloni's (2004) treatment cannot be extended to cover a second set of imperatives though. Here, the domain is open, but seems restricted by a presupposition of the lexical verb or maybe also just salient in the context.

- (33) a. Confiscate any guns.  
 b. Remove any stains.

In these cases, necessity modals are just as acceptable, and the reading we obtain corresponds to necessity with respect to the entirety of objects in the restricted domain. This time, the speaker presents himself as ignorant or indifferent as to whatever objects might happen to be within the restricted domain.

- (34) a. You must confiscate any guns.  
 b. You must remove any stains.

- (35)  $(\forall x)[\textit{gun}(x) \ \& \ \textit{find}(c_A, x) \rightarrow \Box \textit{confiscate}(c_A, x)]^{15}$

The cases involving presuppositions (and thus restriction of the domain of *any*) have generally be assumed to be on a par with the more general phenomenon of *subtriggering* (cf. Le Grand (1975), Dayal (1998)). In the case of overt or contextually salient restrictions, the ungrammaticality of *any* under *must* can be remedied.

<sup>15</sup>For these examples it is not entirely clear how the quantifier and the necessity operator should be assumed to scope with respect to each other, cf. section ?? for discussion.

The readings we get are again the same for the variant involving the imperative and the *must* respectively.

- (36) a. Pick any flower you find along the way.  
 b. You must pick any flower # (you find along the way).  
 c.  $\Box(\forall x)[\text{flower}'(x) \ \& \ \text{find-along-the-way}'(c_A, x) \rightarrow \text{pick}'(c_A, x)]$

If a pure permission reading along the lines of (26a) is indeed observed to be possible for (27) after all (unfortunately, speaker judgments vary with respect to the matter), I would propose to derive it via subtrigging with *if you like* and the same pragmatic mechanism we have applied for deriving permission imperatives of simple imperatives.

- (37) a. You must pick any flower *you want to pick*.  
 b.  $\lambda w.(\forall w' \in O(\text{cg}_F(c), g, c_T, w))$   

$$[(\forall x)[\text{flower}'(x)(w') \ \& \ \text{want}'(c_A)(\lambda y \lambda w. \text{pick}'(x)(y))(w') \rightarrow \text{pick}'(x)(c_A)(w')]]$$
  
 implicates: “speaker has given up his preference against the addressee’s picking all the flowers he wants to pick”

Note that given the restriction of adding the least reprehensible worlds, it would maybe come with a restriction that only worlds should be taken into account where the wishes of the addressee are not too exaggerate (an ingredient missing with the (26a)-case). For those speakers who accept the reading at all, this seems indeed to be the case.

### 7.4.3 Recapitulating *any* results

Above, we have explored two different notions of *any* in imperatives. If there is subtrigging or something similar (cf. section (37), imperatives behave exactly like necessity modals. The sentences express necessity with respect to all the objects in the (restricted) domain of *any*.

What comes as a surprise though, is the behaviour of *any* in those cases where the imperative could not have been substituted for by a necessity modal. Here, necessity with respect to the disjunction of all possibilities is backed up by possibility with respect to each single disjunct.

Recently, various attempts have been proposed to capture this additional meaning components of free choice items e.g. in terms of implicatures (cf. Schulz (2003), Kratzer and Shimoyama (2002), Aloni and van Rooij (2005)). Aloni and van Rooij (2005) give the following summary of the behaviour of free choice items in general. In principle, we have to distinguish between existential (*or*, Italian *un N qualsiasi*, German *irgendein, ein x-beliebiger*) and universal free choice items (*any*, Italian *qualsiasi N*, German *jeder x-beliebige, ...*). In the following, the free choice item is equated with a disjunction over all the possibilities.

- (38) existential FC-item
- a.  $A \vee_{\exists} B \diamond A \wedge \diamond B$
  - b.  $\Box(A \vee_{\exists} B) \diamond A \wedge \diamond B$
  - c.  $\diamond(A \vee_{\exists} B) \diamond A \wedge \diamond B$
- (39) universal FC-item
- a.  $A \vee_{\forall} B A \wedge B$
  - b.  $\Box(A \vee_{\forall} B) \Box(A \wedge B)$
  - c.  $\diamond(A \vee_{\forall} B) \diamond(A \wedge B)$

With respect to the two cases of *any*-imperatives, we may now remark that the second case patterns exactly as expected, that is as in (39b). The first case though, where necessity modals are not licensed, follows a pattern we do not find with universal FC-items, neither under necessity (39b), nor under possibility (39c). All of a sudden, *any* seems to behave like an existential FC-item. Nevertheless, it exactly follows the pattern of an existential FC-item embedded under necessity. While it is all but clear to me why the universal free choice item *any* would behave in that way, it shows clearly, that data as in (27) do not provide evidence for possibility in imperatives.

One interesting direction for investigating *any* in imperatives might be to take a closer look at the interaction of necessity with authority, a factor that has been assigned a prominent role in a number of theories on free choice phenomena (cf. Zimmermann (2000), Schulz (2003), Kratzer and Shimoyama (2002),...), though not undisputedly (Zimmermann 2005a). Given that authority features so prominent as a presupposition in imperatives, this might be a promising direction for research. I have to leave any exploration of the issue to future research though.

An alternative to that is hinted at in connection with the slightly different imperative semantics sketched in 16, where exhaustification and possibility are argued to constitute crucial parts of the imperative semantics.

## 7.5 Conclusion

In this section I hope to have shown how the authority condition associated with the imperative operator can be used to explain why imperatives (but not necessity modals) assume permission or concession readings given certain contextual constellations.

Permissions and concessions correspond to two different strategies of accommodating the necessity proposition expressed by the imperative, which is mutually known to be false at the moment when it is uttered. The accommodation is forced by the speaker being considered an authority on the matter.

One of the presuppositions necessary for a permission reading to arise consists in the addressee wanting the imperativized proposition to come true. Frequently found *if you like* modifiers are analyzed as elliptical filters for precisely that presupposition,

which at the same time serve to introduce a hearer buletic ordering source.

In 7.3 it is shown how imperatives can sometimes have the effect of only informing that something is permitted.

Last but not least, in 7.4 the necessity analysis is challenged by the fact that imperatives pattern with possibility modals in licensing free choice items like *any*. Nevertheless it is argued that two variants of free choice readings have to be distinguished. One (the subtriggering case) behaves just as if embedded under *must*, the other behaves differently from both *any* embedded under *may* or *must*. Therefore, although very little is known about the interaction of free choice items with imperatives so far, free choice items do not seem to constitute a serious challenge for assigning a uniform necessity semantics to imperatives.





## Chapter 8

# Conditioned Imperatives (CI)

In this section I want to show that the analysis proposed in Section 6 extends naturally to what I will call **conditioned imperatives**. The constructions I have in mind are constituted by conditionals that have an imperative in the main clause, cf. for instance (1).

- (1) a. If you are tired, go to bed.
- b. If you run into Patrick, say hello from me.

While these construction have been subject to quite a bit of attention in philosophy (cf. Hamblin 1987), the body of work from the side of linguistic semantics is surprisingly small (cf. Asher and Lascarides (2003a), Zarnic (2002) for approaches motivated by (among other) linguistic interests to some extent). Given the well-known fact that 'imperatives' are more likely understood as a functional than a grammatical category in philosophy (cf. Section 1), not all of the work done there carries over straightforwardly.

One of the main views on (1) would be to assume that these are imperatives, conditional on whether the condition stated in the antecedent is met. In the following, I will call such an approach a **hypothetical speech act analysis** (HSA). The opposing view I want to propose takes the imperative in the main clause as a modal operator whose domain can be restricted by the proposition in the *if*-clause (a **modal operator analysis** (MOP)). I will show that this correctly predicts many properties conditionalized imperatives share with indicative conditionals.

First, I will show that CI display the entire range of conditionals known from the realm of declaratives as well, in particular, they allow for truly hypothetical constructions. This will be followed by a schematic explanation of an HSA-approach, and its predictions. I will then present some empirical arguments in favour of MOP, and explain how the analysis proposed in Section 6 extends naturally to explaining these data within a standard view on conditionals.

## 8.1 A Full Paradigm of CIs

In her dissertation, Sabine Iatridou (?) distinguishes three major classes of conditionals. All of them can occur as CIs as well.

First of all, we would maybe expect **relevance conditionals**. Here, it is not the truth of the consequent that depends on the truth of the antecedent proposition. Rather, the antecedent filters the felicity condition that the speech act to be performed by the consequent is relevant in the context in which it is uttered.

(2) If you are thirsty, there's beer in the fridge.

Most likely, (2) is issued in a context where the existence of beer in the fridge is in no way contingent on the addressee's being thirsty. That is, from (2) we may conclude that there's beer in the fridge even if the addressee is not thirsty. So even without assuming that imperatives correspond to propositions (and thus can be related to truth), relevance conditionals shouldn't be any more problematic with imperatives than they are with declaratives - at least structurally. We still have to explain what the status of the speech act in the consequent is if the condition is not met, e.g. has the speaker of (2) made an assertion if the addressee is not thirsty? I would tend to say yes. He is only exempted from the responsibility to meet Grice's maxim of relevance as long as the addressee's being thirsty in the given context would count as a motivation for issuing (2) (and likewise is the addressee to look for a relevant interpretation of (2) if he is not thirsty and the information about the beer therefore strikes him as irrelevant).

And, unsurprisingly, examples like (4) are perfectly fine. Likewise, the imperative is given in (4), but the evaluation is restricted to those contexts in the context set that meet the requirement that the speaker has authority to issue an imperative on the matter of calling Andreas or not.

(3) If I may be honest, better call Andreas as soon as possible.

This can be shown to be a true relevance conditional e.g. by inserting *then* which is ungrammatical in relevance conditionals (cf. ?)).

(4) #If I may be honest, then better call him as soon as possible.

We also find **factual conditionals**. Here, the antecedent is presupposed to be true in the context. Again, neither the speech act (nor, in the case of a declarative) the truth of the matrix clause does depend on the proposition expressed in the antecedent. The latter is evocated as a reason for the speech act performed by the consequent. Again, whatever our theory of imperatives was, we wouldn't assume them to behave any differently from other speech acts. And, indeed, the interrogative example in (5a) can be paralleled easily by an example with an imperative matrix clause (cf. (5b)).

(5) a. If you like him so much, why don't you help him?

- b. If you like him so much, then go ahead and help him!

The crucial case is presented by **hypothetical conditionals**. Intuitively, hypothetical conditionals somehow express that the truth of the consequent depends on the truth of the antecedent, and (at least with indicative conditionals), the speaker presents the antecedent proposition as something the truth value of which is not known to him. Hypothetical conditionals can be distinguished from both relevance conditionals and factual conditionals by allowing binding and modification with *only*.

Consider (6). (6a) is clearly different from (2) in that the presence of beer in the fridge now crucially depends on the addressee's being thirsty. Analogously, (6b) does no longer express the presupposition that the addressee likes the pronoun's referent so much. Clearly, the presence of *only* has turned both cases into hypothetical conditionals.

- (6) a. There's beer in the fridge only if you are thirsty.  
 b. #Only if you like him so much, (then) go ahead and help him!

Note that the impossibility of binding from the matrix sentence into the antecedent likewise distinguishes hypothetical conditionals (cf. (7a)) from both relevance conditionals (cf. (7b)) and factual conditionals (cf. (7c)).

- (7) a. If you really like it<sub>i</sub>, a donkey<sub>j</sub> will be grateful. *ok*<sub>i = j</sub>  
 b. If you own it<sub>i</sub>, let a donkey<sub>j</sub> rest every now and then. *\**<sub>i = j</sub>  
 c. If you have it<sub>i</sub>, why don't you keep a donkey<sub>j</sub> in your garden? *\**<sub>i = j</sub>

Given the possibility of binding from the consequent into the antecedent and the possibility of modification with *only*, (8) clearly constitutes evidence for CIs that express hypothetical conditionals.

- (8) a. If it<sub>i</sub> is tired, let a donkey<sub>i</sub> rest.  
 b. Call a doctor only if you are sick.

Both relevance conditionals and factual conditionals crucially draw on the speech act to be executed by the consequent proposition. Whatever semantic assumptions about imperatives we want to make, they will have to allow for imperatives to fulfill speech acts, and as such, to be modified like any other speech act as well (be it performed drawing on whatever semantic object corresponds to a declarative, an interrogative or an imperative respectively). Hypothetical conditionals are a lot different. Theories of hypothetical conditionals mostly draw on the propositions expressed by antecedent and consequent, not on the speech act performed by uttering them. Typical renderings would be given by **material implication** (to be interpreted as truth in the actual world), (cf. (9a)), or **strict implication** (that is truth at all worlds) (cf. (9b)).

- (9) a.  $A \rightarrow B \equiv \neg A \vee B$

$$\text{b. } \forall w \in W : A(w) \rightarrow B(w)$$

Both have been shown to be inadequate for natural language semantics as they stand (cf. e.g. Kratzer (1978) for extensive discussion). Therefore, most current approaches either model some sort of accessibility relation to single out a subset of the possible worlds, restricted to which the conditional can then be interpreted as a strict conditional as sketched in (10a) (cf. Kripke 1963). An alternative that has gained more interest lately is to assume that the antecedent works like a definite description in singleing out a world with respect to which the imperative has to be evaluated as sketched in (10b) (cf. ?; ?).

$$(10) \quad \begin{array}{l} \text{a. } \forall w \in ACC(w)(\subseteq W) : [A(w) \rightarrow B(w)], \\ \quad ACC \text{ some suitable accessibility relation.} \\ \text{b. } B(\iota w(A(w))) \end{array}$$

It is immediately evident that hypothetical CIs result problematic under any of these views if imperatives are assumed to be non-propositional.

But not all approaches rely on purely propositional objects for the parts of conditionals, though. Without going into too much detail, ?) holds that conditionals should rather be analysed as a relation between the assertability of the consequent given the truth of the antecedent. It would not be inconceivable to construct an analogous notion of being commandable (or requestable) to capture the relation of justification to issue the imperative expressed by the consequent depending on the antecedent. I don't know of any approach that would try to make that precise for imperatives, though. Since a lot of arguments against the HSA-analysis would carry over immediately against such an approach, I will rather concentrate on discussing these proposals in the following.

## 8.2 HSA and Its Problems

At least four proposals that rely on a non-propositional semantics for imperatives provide us with an explicit solution for CIs.

Most of them constitute what I would like to call **hypothetical speech act-analysis (HSA)** (Segerberg 1990, Asher and Lascarides 2003a, (and, to a certain extent) Zarnic 2002). They all differ on the semantic value assigned respectively to the imperative clause type. Let's for the moment abstract away from these differences and uniformly denote it by a formula  $\phi$  prefixed by  $!$ . The structure assumed for CIs can then be depicted as in (11).

$$(11) \quad [\text{If } \phi, \psi!] = \phi \rightarrow !\psi$$

Apart from Segerberg (1990)'s static semantic in terms of action terms, the approaches are dynamic. This means that the effect of the imperative  $!\psi$  comes to bear only in case of a successful update with  $\phi$ . Zarnic (2002) adds that in case

an update with  $\phi$  does not go through (that is, in case  $\phi$  is not already known at the state of the communication), the information is stored that one is either in a  $\neg\phi$ -state, or that the effects of  $!\psi$  are enact.

For all of these approaches it is crucial though that the condition is evaluated, and the imperative is evaluated in the result state of a successful update. Crucially, there is no direct interaction with the semantics of the imperative.

The view sketched in (11) faces at least two problems.

As we have seen in Section 7, imperatives modified by *if you like* are often used as permissions.

(12) Come earlier if you like.

But as I have shown there, these cases cannot be explained as commands that are contingent on the wish of the addressee: even if indeed wanting to come earlier, the addressee is still free not to do so. Consequently, (13a) can't be the right analysis for (12). But neither can they be seen as permissions contingent on the wish of the addressee (showing up earlier despite not having wanted to is not prohibited after (12) has been issued; consequently, (13b) is not the right analysis either.

- (13) a. you want to come earlier  $\rightarrow$  OBLIGATION(you come earlier)  
 b. you want to come earlier  $\rightarrow$  PERMISSION(you come earlier)

Therefore, I don't really see how we (12) could be assigned an analysis along the lines of (11).

Furthermore, it seems that the HSA makes wrong predictions when the *if*-clause has a lawlike flavour and is combined with a quantificational adverbial different from *always* (e.g. *never*). Consider (14).

(14) If your boss comes in, never stare at him.

What (14) means is that you should make sure that for no occasion  $t$  of your boss walking in, you stare at him at  $t$  (or maybe rather the moment immediately after  $t$ ). It is thus equivalent to modification by *whenever* (or *if* under a covert *always*) and a simple negation in the consequent (15).

(15) Whenever/If your boss comes in, don't stare at him.

The desired reading is thus (16a). Nevertheless, HSA predicts (16b). (And even if one allowed for this to be in the scope of a higher (covert) *always*, the quantification over subintervals in the consequent is not what we want)<sup>1</sup>. Alternatively, HSA

<sup>1</sup>Ede Zimmermann (p.c.) has pointed out to me that this is not immediately obvious. As long as the imperative operator is tied to the context time and thus kept independent of the temporal quantification, this is not obvious for the given example, cf. (16b). He suggests considering a predicate that fails to distribute to subintervals, cf. (i):

- (i) If your boss comes in, never press this button less than 3 times.  
 a.  $\text{always}_t$  [your boss comes in( $t$ )  $\rightarrow$   $!(\neg\exists t' \subseteq t: \{e : \text{you press the button}(e) \& \tau(e) \subseteq$

could also be made to predict (16c) (by assigning wide scope to the q-adverb), but this doesn't seem to be a possible reading for the sentence.<sup>2</sup>

- (16) a.  $!(\neg\exists t[\text{your boss comes in}(t) \ \& \ \text{you stare at him}(t)])$   
 b.  $\text{your boss comes in}(t) \rightarrow !(\neg\exists t' \subseteq t: \text{you stare at him}(t'))$   
 c.  $*\neg\exists t[\text{your boss comes in}(t) \ \& \ ! \ \text{you stare at him}(t)]$

That is, both with q-adverbials and with *if you like*-modifiers, HSA seems to be bound to make the wrong predictions. In the following I will try to show that the imperative semantics as proposed in 6 allows for a natural extension to CIs under the standard approach to conditionals in possible worlds semantics as proposed e.g. by Kratzer (1991).

### 8.3 Spelling out MOP

In accordance with the syntactic literature (cf. Bhatt and Pancheva (2001)) I assume that the sentence type of the entire conditional is determined by the matrix clause, and thus constitutes a complex imperative (cf. ?) for an AI-proposal along these lines). Semantically, I will again rely on the framework of graded modality as spelled out in Kratzer (1991) (cf. Section ??).

The proposal is usually extended to conditionals in the following way (cf. Kratzer 1991). Conditionals are assumed to always contain a modal operator (if no overt modal operator is to be found, an operator of epistemic necessity can be assumed to be present. The contribution of the *if*-clause (or antecedent more generally), is to restrict the modal base of that operator.

- (17)  $\llbracket \text{If } \alpha, [\text{must } f \ g] \ \beta. \rrbracket^{c,s} = \llbracket [\text{must } f^+ \ g] \ \beta \rrbracket^{c,s}$ , where for all  $w \in W$ ,  $f^+(w) = f(w) \cup \{\llbracket \alpha \rrbracket^{c,s}\}$ .

In the absence of an overt modal operator in the matrix sentence, covert epistemic *must* is assumed as a default. Consequently, both cases like (18a) and (18b) can be taken care of.

- (18) a. If you are in Frankfurt, you must come by.  
 b. If she is at home, the light is on.

Given the semantics we have assigned to imperatives (cf. Section 6, (176), repeated

- 
- b.  $!(\neg\exists t[\text{your boss comes in}(t) \ \& \ \{e : \text{you press the button}(e) \ \& \ \tau(e) \subseteq t\} \mid < 3])$

An analysis along the lines of (16b) as in (ia) predicts this to be unsatisfiable, because all subintervals of an interval of pressing a button 3 or more times are not intervals of pressing a button three or more times. Consequently, the imperative could not be complied with. Nevertheless, it has a sensible reading which is captured by (ib), the analogon of (16a).

<sup>2</sup>The reading is clearly to weak if ! is interpreted as a scope taking element. The proposal of Asher and Lascarides (2003a) does not fall victim to this problem. Nevertheless, the price is a somewhat inconclusive assimilation to epistemic modality, cf. Section ??.

here as (20)), we can treat (19) as exactly analogous to (18a).

(19) If you are in Frankfurt, come by.

(20)

Just like in (18a), in (19) we find a necessity operator that is evaluated with respect to a modal base  $(cg_F(c) \cup f)$  and an ordering source  $g$ . Consequently, we would want to assume that by an analogous process the proposition expressed by the *if*-clause is hypothetically added to the modal base.

(21)  $\llbracket \text{If } \alpha, [OP_{Imp} f g t] \beta \rrbracket^{c,s} = \llbracket [OP_{Imp} f^+ g t] \beta \rrbracket^{c,s}$ ,  
where for all  $w \in W$ ,  $f^+(w) = f(w) \cup \{\llbracket \alpha \rrbracket^{c,s}\}$ .

A generalization to an arbitrary modal operator constituting the conditional operator could be given as in (22)<sup>3</sup> Due to the additional temporal argument required by the imperative operator, a case distinction is needed. Ultimately, this might be unifiable depending on the assumptions one makes with respect to the temporal interpretation of modals.

(22) a.  $\llbracket \text{If } \alpha, \text{MOP } f g \beta \rrbracket^{c,s} = \llbracket [\text{MOP } f^+ g] \beta \rrbracket^{c,s}$ ,  
where for all  $w \in W$ ,  $f^+(w) = f(w) \cup \{\llbracket \alpha \rrbracket^{c,s}\}$   
b.  $\llbracket \text{If } \alpha, \text{MOP } f g t \beta \rrbracket^{c,s} = \llbracket [\text{MOP } f^+ g t] \beta \rrbracket^{c,s}$ ,  
where for all  $w \in W$ ,  $f^+(w) = f(w) \cup \{\llbracket \alpha \rrbracket^{c,s}\}$

By the rule in (21), CI-imperatives of the hypothetical type are predicted to pattern largely with *If p, you should/ought to q*. As far as I can see at the moment, this is born out in many respects.

For example, it fits nicely with the contrast exemplified in (23a) vs. (23b). This mimicks an observation discussed for conditionals with modals in Hare (1971), cf. (23)

(23) a. If you want sugar in your soup, you should get tested for diabetes.  
b. If you want sugar in your coffee, you should call the waiter.

Hare observes that only the case of (23a) yields to a paraphrase as in (24a), this showing intuitively, that the sentences differ in semantic make-up. The type that does allow for this kind of pseudo-contraposition is called an **anankastic conditional**.

(24) a. If you don't call the waiter, you don't get sugar in your coffee.  
b. If you don't get tested for diabetes, you don't get sugar in your soup.

Sæbø (2002) has shown recently, that Kratzer's (1991) semantics for conditionals as given in (17) makes incorrect predictions for the case in (23b) (cf. 7.2 where the

<sup>3</sup>Kratzer's (1978) original framework allows also for conditionals with possibility modals constituting the conditional operator. Frank (1996) excludes that.

approach is discussed in more detail).

Sæbø's (2002) treatment amounts to allowing an alternative interpretation for conditionals. A *want* in the antecedent of a conditional can also be used to indicate the ordering source to be applied (in that case, the wishes of the addressee), and it's proposition is then hypothetically added to the ordering source (instead of adding it to the modal base as in the original semantics for conditionals, (17)).

$$(25) \quad \llbracket \text{If } you \text{ want } \alpha, \text{ should } f \text{ } g \text{ } \beta \rrbracket^{c,s} = \llbracket \text{should } f \text{ } g^+ \text{ } \beta \rrbracket^{c,s}, \text{ only defined if } g = \text{what the addressee wants}; \text{ where } \forall w \in W : g^+(w) = g(w) \cup \{\llbracket \alpha \rrbracket^{c,s}\}$$

For problems and refinements of an analysis in this spirit, cf. von Stechow and Iatridou (2005c), Huitink (2005). However the analysis is to be refined ultimately, under the modal analysis we have proposing, it carries over immediately to the examples with conditionalized imperatives.

Furthermore, the analysis also makes a second favourable prediction. Imperatives cannot normally be interpreted under epistemic modals. Consequently, we would expect that hypothetical CIs lack an ambiguity to be found with overt modals, namely, an interpretation where the overt modal is not taken as the conditional operator, but is assumed to be embedded under a covert modal of epistemic necessity (nested modality).<sup>4</sup>

Consider the contrast in (26), taken from Geurts (ta). Both sentences are equally ambiguous between *should* itself and a covert epistemic necessity modal constituting the conditional operator. But world knowledge clearly leads us the favour the former construal for (26a), and the latter for (26b).

- (26) a. If you are myopic, you shouldn't use contraceptives.  
 b. If the pope is right, you shouldn't use contraceptives.

The preferred construals and their interpretations are given in (27).

- (27) a.  $\llbracket \llbracket \text{if (you are myopic)} \rrbracket \llbracket \text{should } f \text{ } g \rrbracket \llbracket \text{not you use contraceptives} \rrbracket \rrbracket^{c,s} = \llbracket \text{should } f^+ \text{ } g \llbracket \text{not you use contraceptives} \rrbracket \rrbracket^{c,s}$ , where  $\forall w \in W : f^+(w) = f(w) \cup \text{myopic}'(c_A)$ .  
 $= \forall w' \in O(f^+, g, w) : \neg \text{use-contraceptives}'(c_A)(w')$ , where  $f^{e,+}(w) = \text{the relevant facts}(w) \cup \{\text{myopic}'(c_A)(w)\}$ ,  $g = \text{what is considered healthy}$ .
- b.  $\llbracket \llbracket \text{if (the pope is right)} \rrbracket \llbracket f_1^e \text{ } g_1^\emptyset \llbracket \text{should } f_2 \text{ } g_2 \llbracket \text{not you use contraceptives} \rrbracket \rrbracket \rrbracket^{c,s} = \llbracket \llbracket f^e \text{ } g^\emptyset \llbracket \llbracket \text{should } f \text{ } g \llbracket \text{not you use contraceptives} \rrbracket \rrbracket \rrbracket^{c,s} = \forall w' \in O(f_e^+, g_\emptyset, w) : \forall w'' \in O(f_2, g_2, w') : \neg \text{use-contraceptives}'(c_A)(w'')$ .  
 $f_e^+ = f_e \cup \{\text{the pope is right}\}$ .  
 Because of the covert modal can only be epistemic: defined only if  $s(f_e) = \text{what is known}$ , and if  $s(g_\emptyset) = \text{the empty conversational background}$ .

<sup>4</sup>Frank (1996) extends this possibility to be the correct analysis of conditionals in general.



Compare this with (28). (28) does not share the most prominent reading of (26b). This falls out automatically from a much more general constraint, if imperatives are excluded from embedding under a modal operator as the covert epistemic necessity operator in (27b).

(28) If the pope is right, then don't use contraceptives.

$$[*\Box_{epi}(p)(\Box_{deontic} q); \#\Box_{deontic}(p)(q)]$$

As far as I can see, the HSA does not make any predictions as to these differences and similarities.

Consider now a third issue for different predictions of MOP and HSA. In contrast to the HSA, the modal analysis predicts that trying to avoid the antecedent to come true should be an alternative way of complying with the imperative unless there are independent reasons not to avoid the antecedent (to be given in the ordering source  $g$ ). I take this to be a favourable prediction, e.g., in order to comply with (29), one could just as well try to get enough sleep before departing instead of just waiting if one will feel tired (cf. ?) for a similar view).

(29) Don't risk your life when driving. If you are tired, stop and have a nap.

## 8.4 Conclusion

I have argued that conditionalized imperatives should not be analyzed as imperatives that depend on the truth or falsity of the antecedent, but rather constitute complex imperatives that convey necessity with respect to some restricted modal base. An analysis of the imperative operator in terms of graded modality allows for the observed scopal relations with quantificational adverbials and predicts the actual parallels to ordinary indicative conditionals containing modal verbs like *must* or *ought to*. The puzzle of conditionalized imperative permissions reduces to the one of imperative permissions in general.



## Chapter 9

# Embedding Imperatives

The imperative semantics I have developed in Section 6 assigns to imperatives a propositional object similar to what is expressed by declarative sentences containing necessity verbs. Thereby, (1a) and (1b) are assimilated in semantics, apart from the fact that (1a) carries presuppositions which (1b) does not carry.

- (1) a. Close the window!
- b. You should close the window!

Consequently, one might expect that imperatives can be embedded just like their modalized declarative counterparts. As is widely known, this is not born out for the majority of natural languages (cf. Sadock and Zwicky 1985). (2) exemplifies the contrast for English, where imperatives do not seem to be embeddable.

- (2) a. Peter thought (that) you should help me.
- b. \*Peter thought (that) help me.

While a large body of literature on imperatives agrees on the observation that *crosslinguistically, imperatives cannot be embedded* (for various reasons though)<sup>1</sup>, other authors claim that no such restriction is enacted<sup>2</sup>. Those who assume that imperatives cannot be embedded draw either on syntactic explanations as for example uniform blocking of the complementizer position by the imperative operator (cf. Rivero and Terzi (1995), but Wratil (2004) for arguments against universality of such an operator), or adopt explanations of a more semantic or pragmatic nature, as for example conflicts with the inherently performative nature of imperatives (e.g. Han 1998).

Taking a closer look at the data from various languages, we will see especially with respect to reported speech that there is a rather large amount of typological variation that is unexpected both under a purely syntactic account and under a

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<sup>1</sup>Cf. among others Han (1998), Palmer (1986), Platzack and Rosengren (1997), Lohnstein (2000), Wratil (2000), Sadock and Zwicky (1985),...

<sup>2</sup>Rögnvaldsson (1998), Hamblin (1987), Parsons (1993), Krifka (2001), Portner (1997), Mauck (2005)

semantic explanation.

Having taken a closer look at the data from various languages, (i) we will have to admit that there seems to be some typological variation between languages with respect to syntactic and semantic properties of imperatives after all, and (ii) I will hypothesize that the various restrictions with respect to (in)subordination are linked systematically to the multiple context dependence of imperatives.

In that discussion, both the conception of *embedding* and the conception of *imperative* contribute to a certain extent to the disagreement. Therefore, I will briefly comment on these two notions.

For imperatives we can of course rely on the form-biased individuation strategy of clause-type pairs as described in Section 1.3. For embedding in reported speech contexts, the pairing with the prototypical function might be loosened to reporting it instead of actually performing it. This is somewhat similar to other clause types, as for example embedded interrogatives, that don't normally perform speech acts either (e.g. in (3), the *wh*-clause is only used to report Joost's question and does not perform a speech act of questioning).<sup>3</sup>

(3) Joost asked where the printer had gone.

Note that the separation between the semantic content of the imperative and its effect on the context is in principle easily extendable to such a view. The question of whether imperatives can be embedded is therefore completely independent from the old question of whether speech acts can be embedded.<sup>4</sup>

As to the understanding of embedding, the syntactic and the semantic notions associated do not necessarily go hand in hand (cf. Culicover and Jackendoff 1997, Gärtner 2001, Gärtner and Schwager 2004, Gärtner and Endriss ta, Ebert, Endriss, and Gärtner ta).

On the syntactic side, subordination can be defined in terms of c-command showing its repercussions in form of binding and licensing phenomena. Embedding can thus be distinguished from parataxis and parentheticals.

(4) **Syntactic Embedding:**

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<sup>3</sup>With the possible exception of explicit performatives, cf. Mayer (2005) for an approach that would assume that the speech act is indeed performed by the complement proposition and just described by the explicit performative prefix *I ask you*:

(i) I hereby ask you where the printer has gone.

<sup>4</sup>Scholars in favour of such a position have argued that for example (i) can be used to perform the act of dismissing someone in virtue of the corresponding speech act being embedded under the factive verb *regret*, marked by the performative adverbial *hereby* (cf. Lee (1975), Krifka (2001), Parsons (1993), ...).

(i) We regret that we have to inform you that you are hereby dismissed.

Cf. Asher (2005) for a recent proposal that is extremely liberal with respect to embedding of speech acts.

- a. A constituent  $\beta$  is embedded under  $\alpha$  iff  $\alpha$  c-commands  $\beta$ .
- b.  $\alpha$  c-commands  $\beta$  iff  $\alpha$  is sister to a node  $\gamma$  that dominates  $\beta$ .

The semantic notion of embedding corresponds to the notion of being an argument to a functor, which is of course to a large extent theory dependent (just compare for example a Montagovian and a Fregean treatment of proper names). It is to a very large extent a matter of choice what is taken to be the argument and what is taken to be the functor. Quite clear intuitions are to be had with respect to the embedding of clauses in the sense of indirect speech. In addition to eventual wide scope readings for quantifiers this is the cross-linguistically most discussed case of imperative embedding.

I will first present a list of (putative) imperative embeddings that deserve closer investigation, discussing some in more detail or referring to other chapters of this work, before going into a more detailed discussion of imperatives and indirect speech. It will be shown that, on the one hand, there is considerable typological variation, and, on the other hand, a solution to some of the puzzles arising with (un)embeddability of imperatives should be linked to their particular multiple context dependence.

## 9.1 Outscoping Imperatives

### 9.1.1 Wide scope quantifiers

One form of semantic embedding consists in being outscoped by a quantifier.<sup>5</sup> The propositional modal semantics leads us to expect that this should be largely unproblematical. This prediction is not born out though (cf. also Section 6 for related remarks). While (5b) allows for a wide scope reading of the quantifier, (5a) does not.

- (5) a. Kein Buch gib dem Hans.1  
no book give.IMP the Hans  
'Don't give a book to Hans. (#But you may give him any one you like.)'  
(\*'No book is such that you must give it to Hans. But you may give him any one you like.')
- b. Kein Buch mußt du dem Hans geben.&&  
no book must you the Hans give  
R<sub>1</sub>: 'Don't give a book to Hans.' (with stress on *kein Buch*)  
R<sub>2</sub>: 'No book is such that you must give it to Hans.'

Krifka (2001) and Parsons (1993) have argued that there is an asymmetry with respect to quantificational force. It seems that only universal quantifiers may take scope over speech acts. But in Section 3.1.1 we have seen that imperatives do not

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<sup>5</sup>Syntactically, this should only count as embedding if one assumes that at some level of the derivation (LF), the quantifier appears in a position c-commanding the imperative operator, or for the disjoint feature analysis, maybe at least the modal element.

pattern with speech acts in allowing wide scope only for universal quantifiers. Wide scope for *most* proved to be acceptable as well. In the following, I will briefly repeat the arguments and examples in favour of wide scope for both universals (which could also be expected to take scope over speech acts), and non-universals (which clearly show that imperatives underly yet other restrictions).

Given that imperatives likewise express universal quantification, the difference between the imperative outscoping the necessity operator or vice versa is hard to tell.

- (6) a. Leg jedes rote Buch auf den Tisch!  
 put.IMP each red book on the table  
 ‘Put every red book on the table!’  
 b. Leg alle roten Bücher auf den Tisch!  
 put.IMP all red books on the table  
 ‘Put all red books on the table!’

For both cases it is difficult to decide if the imperative is to take wide scope over the quantifier or the quantifier is to take wide scope over the imperative. Parsons (1993) and Roger Schwarzschildt (p.c.) have proposed to test for the respective order in terms of disobedience evaluation. On a wide scope reading for the universal quantifier, the imperative’s LF should correspond to the schema in (7a), on a narrow scope construal it should come out as in (7b):

- (7) a.  $\forall x.[\text{red-book}(x) \rightarrow \Box \text{you put } x \text{ on the table}]$   
 b.  $\Box[\text{red-book}(x) \rightarrow \text{you put } x \text{ on the table}]$

The possibility of a narrow scope reading can easily be shown by conjoining with another quantifier:

- (8) Leg alle roten Bücher auf den Tisch, oder keines!  
 put.IMP all books on the table, or no one  
 ‘Put either all books on the table, or put no book on the table.’

The existence of a wide scope reading is much harder to prove. Imagine the addressee failed to put on the table Günther Grewendorf’s *Minimalistische Syntax*<sup>6</sup>. Under the narrow scope reading, this would clearly mean that he had failed to conform to his obligation, and that there was no point for him in trying to get at least all the other books right (cf. (7b)). But can this also mean that his doing well is directly proportional to the proportion of red books he does indeed put on the table, so he better try to get at least as many of the other red books on the table as he can (cf. (7a))?. Unfortunately, speaker intuitions seem a bit shaky in these respects. When trying to turn these imperatives into rules of a game, where disobeying with a command gets you a penalty point, it seems that indeed both readings are possible. (Leaving three books out gives three penalty points with respect to the wide scope reading (three commands have been disobeyed with), whereas it gives you

<sup>6</sup>Being published in the UTB series it is of course (mainly) red.

one penalty point on the narrow scope reading (the entire single command has been disobeyed with).

In contrast to questions (cf. 3.1.1 for the lack of pair-list readings with non-universal quantifiers), imperatives allow for wide scope of non-universal quantifiers. In those cases, the different scopal orderings can be detected easily.<sup>7</sup>

- (9) a. Die meisten Anträge lies erst gar nicht!  
 the most proposals read.IMP to.begin.with PRT not  
 ‘Most of the proposals you shouldn’t even read, to begin with.’  
 MOST > □, ??? □ > SOME
- b. Ein paar Dinge merk dir auf jeden Fall.  
 a couple things remember.IMP you.DAT in any case  
 ‘A few things you should remember in any case.’ SOME > □, □ >  
 SOME
- c. Einige deiner Schulfreunde lad lieber nicht ein.  
 some of.your schoolfriends invite.IMP better not in  
 ‘Some of your schoolfriends you should better not invite.’ SOME > □,  
 □ > SOME

Should this be taken to challenge Krifka’s (2001) generalization that only universal quantifiers can take scope over speech acts? I don’t think so. As I have said in the beginning, our semantics for imperatives does not force us to automatically have a speech act at the level of the imperative operator and that consequently whatever was to scope over an imperative was to scope over a speech act. Given the propositional but modalized semantics I am assigning to imperatives, the quantifier that outscopes the modal verb may well be part of the proposition used to perform a particular speech act.

Closely linked to the observations concerning wide scope construals for quantifiers are of course specific readings for indefinites. Portner (2004) tries to account for a putative universal incompatibility of specific indefinites with imperatives. At least German does not obey to this restriction, though.

- (10) a. Einen Apfel iß auf keinen Fall.  
 one apple eat.IMP in no case  
 ‘A certain apple you should not eat.’ (Namely the huge red one. It’s  
 poisoned.)
- b. Ein Gericht probier auf jeden Fall wenn Du in Schottland bist.  
 a dish try.IMP in any case when you in Scotland are  
 ‘You absolutely have to try a certain dish when you are in Scotland.’  
 (Namely Haggis.)

At that point we may conclude that imperatives do in principle allow for quantifiers to outscope them (that is to say, the modal element they contribute). Nevertheless, not all quantifiers can do so. But the restriction is not similar to the one on speech

<sup>7</sup>For German, the surface wide scope by positioning the quantifier in the *Vorfeld* seems to be helpful for some speakers. Others don’t share this preference. For no one of my informants was it crucial though.

acts as observed in Krifka (2001). Non-universal quantifiers allow for wide scope readings (cf. (9)). Quantifiers that do not seem to ever outscope imperatives are at least negative existentials.

Having seen that imperatives do not pattern with speech acts with respect to the restrictions they impose on quantifier scope, we might ask how they compare to epistemic modals that have been argued not to allow outscoping by quantifiers at all in von Stechow and Iatridou (2003) (cf. (11)). Under their epistemic reading, all of (12) are awkward.

- (11) The **Epistemic Containment Principle (ECP)**  
A quantifier cannot have scope over an epistemic modal.
- (12) a. #Every student may be Jones.  
b. #Most students may be Jones.  
c. #No student must be Jones.

Closer investigation shows that the general restriction is untenable (e.g. the recent discussion of the data in (13) by Tancredi (2005), but also various examples discussed in the literature, e.g. (14) taken from Groenendijk, Stokhof, and Veltman (1996)).

- (13) a. Each student may be Jones.  
b. Either student may be Jones.  
c. Any student may be Jones.
- (14) Someone might be the culprit. She is not the culprit.

Although on first glance epistemic modals seem to underly yet different restrictions as to which quantifiers are allowed to outscope them, it might still be interesting to compare their behaviour with what is to be observed for imperatives.

### 9.1.2 A short glance into the realm of adverbials and modal particles

In Section 6 we have seen that the necessity based account in terms of possible worlds can cope very naturally with quantification over times or situations expressed in the complement of the imperative operator. Here I want to explore if these adverbials ever give rise to constellations where they would quantify the world or time variable of the necessity operator that is part of the imperative semantics. For the moment, I will only be looking at data from German, and it seems that stable evidence cannot be found. The explanation I give draws on the context dependence of the imperative operator.

It has often been observed that imperatives are incompatible with epistemic modality. German *vielleicht* ‘maybe’ seems to constitute an exception in that it occurs freely in imperatives (both with falling or raising intonation).



- (15) a. Trink vielleicht einen Tee?  
 drink.IMP maybe a tea  
 ‘What about drinking some tea?’  
 b. Ruf Ede vielleicht besser mal an!  
 call.IMP Ede maybe better PRT on  
 ‘Better call Ede, maybe.’

These imperatives can only be used as giving a suggestion. *vielleicht* is not part of the propositional complement of the necessity operator. If it were to be interpreted as a sentence adverbial, we would predict a reading along the lines of (16a) for (15b). By the authority principle (cf. 6.3.1), if defined, it would have to imply (16b).

- (16) a.  $\lambda w.(\exists w' \in Bel_{c_S}(w))[(\forall w'' \in O(cg_F, g, c_T, w'))[(\exists e)[\tau(e) \subseteq t \ \& \ \text{call-ede}'(c_A)(e)(w'')]]]$ , where  
*Bel<sub>c<sub>S</sub></sub>* the speaker’s belief worlds at *w*, *g* = the addressee’s wishes.  
 b.  $\lambda w.(\forall w' \in O(cg_F, g, w, c_T))[(\exists e)[\tau(e) \subseteq t \ \& \ \text{call-ede}'(c_A)(e)(w')]]]$ ,  
 where  
*BEL<sub>c<sub>S</sub></sub>* the speaker’s belief worlds at *w*, *g* = the addressee’s wishes.

That is, the information conveyed by an imperative cannot be altered by modifying the imperative with *vielleicht*. Furthermore, embedding of an imperative under an epistemic operator obviates an ubiquitous assumption to the impossibility of such an assumption. Under closer inspection, German *vielleicht* in imperatives does not seem to constitute a real sentence adverbial. I think there is good reason to believe that it is a modal particle.

Modal particles do not modify the truth conditions of the sentence; consequently, they do not enter a functor-argument relation with the proposition expressed by the imperative. If *vielleicht* was to be analyzed as a modal particle, it should rather be treated akin to relevance conditionals in filtering out a requirement on the context, e.g. along the lines of (17).

- (17) If I may have an opinion on that, better call Ede.

Of course, it is hard to directly check for an eventual truth-conditional contribution in the imperative. But some of the other standard tests (cf. Thurmair 1989) to distinguish modal particles and sentence adverbials are available after all.

First, *vielleicht* in imperatives cannot receive stress, whereas its adverbial counterpart in other sentence types can do so.

- (18) a. Hans kommt VIELLEICHT, ich kann es aber nicht mit Sicherheit  
 Hans comes MAYBE I can it but not with security  
 versprechen.  
 promise  
 ‘Hans MIGHT come, but I can’t promise he will come for sure.’  
 b. #Trink VIELLEICHT einen Tee.  
 drink.IMP MAYBE a tea

Likewise, *vielleicht* cannot occupy the *vorfeld*-position in German imperatives (cf. (19a)). Again, this is perfectly possible for its adverbial counterpart in a declarative clause (cf. (19b)). Other adverbials can appear in the *vorfeld* of an imperative though (cf. (19c)).

- (19) a. \*Vielleicht trink            einen Tee.  
           maybe    drink.IMPSG a    tea
- b. Vielleicht kommt ja    Hans auf die Party.  
           maybe    comes PRT Hans to the party  
           ‘Maybe Hans will come to the party.’
- c. Heute/Auf jeden Fall trink            einen Tee.  
           today/in    any    case drink.IMPSG a    tea  
           ‘Drink some tea today./In any case drink some tea.’

Consequently, I want to propose that *vielleicht* as occurring in imperatives is a modal particle. Therefore, it doesn’t provide evidence for imperatives being embedded under epistemicity.<sup>8</sup>

Another phenomenon I won’t have to say much about at that point are adverbials like *better*, *best* and their German equivalents *lieber/besser*, *am besten*.

- (20) Geh    am besten/besser/lieber nach Hause.  
           go.IMP at best/better/better to home  
           ‘Better go home now./You best go home now.’

They are similar to *vielleicht* in being unable to carry stress. Likewise, they don’t seem to make a contribution to the semantic core (the truth conditions). But they differ from *vielleicht* in not really contributing a speech act modifying effect. In a way, they seem to constitute an overt realization of the grading which is part of the imperative semantics. An analysis of the construction remains to be given. The tight connection to the idiosyncratic preference construction to be found in Frisian (cf. (26)) should not be overlooked.

Parting again from parallel cases with modal verbs, it will also be necessary to look at the scopal possibilities for other adverbials. Imperatives seem to be severely restricted in hardly ever allowing wide scope for e.g. temporal quantificational adverbials. While the examples in (21) are ambiguous or prefer surface scope, the ones in (22) do not seem to allow for the temporal adverbial to outscope the necessity operator.

- (21) a. Du solltest oft    einfach ins    Kino    gehen. &&  
           you should often simply to-the cinema go.INF  
           R1: ‘On many occasions, it holds that you should simply go to the  
           cinema.’  
           R2: ‘What you should do is on many occasions simply go to the cin-

<sup>8</sup>*vielleicht* in imperatives is not mentioned by Thurmair (1989), as, so far, imperatives and particles have not gained much attention in general. It has been noted though, that the meaning or use of particles varies considerable with the clause type they occur in. This also holds for *vielleicht*.

- ema.’
- b. Manchmal mußst du sie anrufen. *manchmal* > □  
 sometimes must you her call.INF  
 ‘Some occasions are such that you should call her.’
- (22) a. Geh oft (#einfach) ins Kino! \*oft > □  
 go.IMP SG often (simply) to-the movies  
 ‘Go to the movies frequently.’
- b. Ruf sie manchmal einfach an. \**manchmal* > □  
 call.IMP her sometimes simply PRT  
 ‘Call her every now and then without making a big deal of it.’

But in other cases, wide scope for the adverbial seems to be available after all.

- (23) a. Manchmal probier’s erst gar nicht.  
 sometimes try.IMP SG’CL3PNEUTR PRT PRT not  
 ‘On some occasions don’t even try it.’
- b. An manchen Tagen ruf sie an, an anderen schreib ihr  
 on some days call.IMP SG her PRT on others write.IMP SG her  
 lieber.  
 better  
 ‘On some days call her, on other days you should better write her.’  
 (You’ll learn to distinguish.)

At that point I can only conclude that for some reason outscoping the imperative is much harder than outscoping a modal verb. But for some cases (as e.g. (23)) wide scope for the temporal adverbial is pretty natural after all, just as the modal operator analysis would predict. Nevertheless, the restrictions against wide scope in other cases are entirely unclear at that point and have to be left to further research.

### 9.1.3 Particular constructions displayed language dependently

Apart from these more wide spread phenomena, we also find embedding of imperatives in language particular constructions. Ultimately, the question of whether the imperative contributes its usual semantics, and the idiosyncrasy lies entirely in the construction itself, has to be decided from case to case. Nevertheless, for most cases there seem to be strong arguments in favour of trying an analysis along these lines.

In this section I will confine myself to giving a brief list of some idiosyncratic constructions that have been put forth in studies of various Germanic languages.

German allows for conjunctions of two imperative conjuncts, whereby the right conjunct appears to be subordinated to the left one, cf. Reis (1993), Reis (1996).<sup>9</sup>

- (24) Sei nicht so blöd und ruf ihn noch mal an!  
 be.IMP not so stupid and call.IMP him yet once up  
 ‘Don’t be so stupid to call him yet another time!’

For these cases it is disputed if they constitute embeddings at all; Reis (1993) ad-

<sup>9</sup>I’m indebted to Michael Wagner (p.c.) for having drawn my attention to Marga Reis’ discussion of the construction.

vocates an analysis in terms of a purely coordinative syntax and generates the additional meaning component from the kataphoric incompleteness of the first conjunct.

Verb-second relative clauses as discussed in Ebert, Endriss, and Gärtner (ta) likewise allow for imperatives:

- (25) Es werden sich Dinge ereignen, die erzähl besser keinem.  
 EXPL will REFL things happen, which tell.IMP better none  
 ‘Things will happen that you should better not tell anyone.’

Frisian allows conjunctions by *en* ‘and’ that have an impersonal preference predicate in the first conjunct and an imperativized verb in the second conjunct, cf. Weermann (1989).

- (26) it beste is en jou him in book.  
 the best is and give.IMP him a book  
 ‘It is best that you give him a book.’

In a way, Dutch past imperatives (e.g. Mastop (2003), Boogaart and Trnavac (2004), Mastop (2005); cf. Section 6.1.1 for discussion) can be seen as an instance of temporal information outscoping the modal information or, in Mastop’s (2005) framework, the effect of the imperative.

## 9.2 Reported Speech and Cross-Linguistic Data

A large part of the literature devoted to the discussion of embedded imperatives has focussed on instances of reported speech. That particular kind of embedding is to be distinguished from direct speech and quotative constructions.

Indirect speech, that is embedding under *verba dicendi* or attitude predicates, differs from both quotative constructions and direct speech in that deictic elements inside the reported utterance refer to the matrix utterance situation (as exemplified in (27a) vs. (27b)).

- (27) a. John said: ‘I am tired.’  $I = \text{john}$   
 b. John said that I was tired.  $I = c_S (\neq \text{john})$

While this provides a clear criterion for languages with truly deictic pronominal elements, it can be obscured by the presence of pronominal elements that can optionally be bound by intermediate contexts (e.g. Amharic first person pronouns, cf. Schlenker (2003), or logophoric elements that have to be bound obligatorily (e.g. the German subjunctive, cf. von Stechow (2003)).

- (28) a. I am a hero.  
 b. John thinks that he is a hero.
- (29) Cecile meinte, Patrick komme erst in 2 Wochen wieder.  
 Cecile said Patrick come.3PSGPRESSUBJ only in 2 weeks again.

Er sei nach Kuba geflogen.  
 He be.3PSGPRESSUBJ to Cuba flown  
 ‘Cecile said that Patrick would only be back two weeks later. He had flown to Cuba.’

Consequently, it will sometimes be helpful to rely on a second criterion. Indirect speech is fully integrated into the matrix sentence and consequently allows for extraction of elements out of that clause. Consequently, the entire clause is marked as *wh* by a constituent that is extracted from the embedded indirect speech clause which doesn’t have to be *+wh* itself.

- (30) Wen<sub>i</sub> hat Günther Ortrud gebeten daß sie t<sub>i</sub> anrufen soll?  
 who has Günther Ortrud asked that she call.INF shall?  
 ‘Who is the person *x* such that Günther has asked Ortrud to call *x*?’

Quotative constructions differ from direct speech most of all in their tighter syntactic integration, which sometimes makes them even harder to distinguish from indirect speech. Nevertheless, our criteria should be applicable likewise. A special case is constituted by partial quotations as discussed in Geurts and Maier (2005), nevertheless, this phenomenon is constituted by small parts embedded into larger contexts, and will not constitute an alternative analysis for the data I’m going to look at.

Turning to imperatives, it is certainly possible to report utterance situations involving issuing of an imperative (cf. English (31) for at least some typical possibilities involving direct speech (cf. (31a)), *to*-infinitivals (cf. (31b)), complement clauses (cf. (31c)), and object control constructions (cf. (31d))).

- (31) a. John to Mary: ‘Go home!’  
 b. John told Mary to go home.  
 c. John told Mary that she should go home.  
 d. John wanted for Mary to go home.

Some of these (namely (31b), (31d)) have been called embedded imperatives (cf. Parsons (1993), Portner (1997)). Of course, they can be used to report imperative utterances, but they seem to constitute far more underspecified constructions. The link to the clause type *imperative* as individuated in Section 1 is far looser than for example in the case of interrogatives and embedded interrogatives, as exemplified in (32).

- (32) a. Rick asked Florian: ‘Who did you invite?’  
 b. Rick asked Florian who he had invited.

Despite some formal differences (e.g. requirement or lack of *do*-support), the relation is generally assumed to be tight enough to assign the same object at least at the semantic level (cf. Bäuerle and Zimmermann (1991)). For the putatively embedded imperatives in (31) this doesn’t seem to be born out. All candidate

constructions occur freely in a wide variety of other contexts as well. Moreover, none of the constructions employs the morphosyntactic characteristics as observed with imperatives, which is of course still far more obvious for languages with distinct verbal morphology, as for example German.

Again, all of these complements can be used in a much wider variety of contexts. Going back to the form-biased strategy of individuating imperatives, the main interest thus lies on finding truly embedded instances of speech reports employing morphological forms of the verb that, in matrix sentences, occur exclusively in imperative clause types.<sup>10</sup>

But even if such imperative forms were to be found in reported speech, it is still unclear what we should expect them to mean. Most of all, it will be interesting to see how the various (seemingly) indexical meaning components of the imperative semantics behave with respect to embedding, and if the presuppositions assumed display the expected projection behaviour. For the moment, I will not be able to do much more than sketch a map of the territory. A deeper investigation of these questions has to await further research.

In the following, we will see that there are about as many restrictions on embedding of imperatives as languages have been looked at so far. Nevertheless, they all seem to be linked systematically to one part or other of the semantic object I have assumed to be denoted by imperatives. I will briefly present quotative constructions and embeddings in Japanese and Malagassy, embedding in Korean, performative constructions in Old Germanic languages and discuss in some more detail embedded imperatives in Modern High German, since German has traditionally been taken as an example for a language where embedding of imperatives is completely impossible. At this point, I won't have anything to say about Slovenian, which has recently been argued to allow for unrestricted embedding (cf. Rus 2005), nor Amharic, which is maybe likewise unrestricted (cf. Schlenker 2005).

### 9.2.1 Quotative constructions in Japanese and Malagassy

For languages that happen to have elements that serve both as complementizers (introducing a subordinate context) and as quotative markers (introducing a quote, a string of direct speech), it is often not easy to decide on the first glance if imperatives can occur in embedded contexts or not. It has to be tested if the imperative is restricted to quotative contexts or may also occur in the subordinate cases. Languages in question are for example Japanese or Malagassy.<sup>11</sup>

For Japanese, Han (1998:145) remarks in a footnote that it would maybe allow for embedding of imperatives. She does not mention the double role of the element *-to* as either a quotative or a subordination marker though.<sup>12</sup> If followed by a

<sup>10</sup>Cf. the discussion in Section 3.3 for a potential well-defined deviation in form of rhetorical questions.

<sup>11</sup>For the data in this section I am indebted to Jiro Inaba (Japanese) and Hanitry Gerull (Malagassy).

<sup>12</sup>I am indebted to Peter Sells (p.c.) for having pointed this out to me.

short intonational break, it can be interpreted either as a quotative marker or as a subordination marker. It is exclusively interpreted as a subordination marker if prosodically integrated into the matrix sentence (no intonational break).

In (33), the personal pronoun *watashi* 'I' does allow for two different readings. When *-to* is used as a quotative marker, the first person pronoun refers back to John and the temporal adverbial *asita* 'tomorrow' refers to the day preceding the utterance day ( $R_{Quote}$ ). When *to* is used as a subordination marker (as forced by omission of an intonational break), the first person pronoun refers to the utterance speaker and the temporal pronominal refers to the day after the utterance day ( $R_{Sub}$ ).

- (33) john-ga ototoi [watashi-ga asita tokyo-e iku] to  
 John-NOM day-before-yesterday [I-NOM tomorrow Tokyo-to go] TO  
 itta  
 said  
 $R_{Quote}$ : 'John said two days ago: 'I'm going to Tokyo tomorrow.'  
 $R_{Sub}$ : 'John said two days ago that I was going to Tokyo tomorrow.'

Applying this to a *to*-clause that contains an imperative, the pronominal test seems to argue in favour of imperative embedding in Japanese. Under an integrating intonation contour, the possessive pronoun is understood as referring to the matrix speaker.

- (34) Mary-ga John-ni [[watashi-no hon]-o yom-e] to itta  
 Mary-NOM John-DAT [[my book]-ACC read-IMP] TO said  
 $R_{Quote}$ : 'Mary said to John: 'Read my book!'  
 $R_{Sub}$ : 'Mary said to John that he should read my book.'

The same facts can be repeated with temporal pronominals.

- (35) john-ga ototoi mary-ni [asita tokyo-e ik-e]  
 John-NOM day-before-yesterday Mary-DAT [tomorrow Tokyo-to go-IMP]  
 to itta  
 TO said  
 $R_{Quote}$ : 'John told Mary two days ago: 'Go to Tokyo tomorrow.'  
 $R_{Sub}$ : 'John told Mary two days ago that she should go to Tokyo tomorrow.'

The quotative reading is preferred (Mary is to go the day after John's utterance), but we also get an embedded reading (Mary is to go the day after the utterance of the entire sentence).

Embedded imperatives behave like matrix imperatives in (marginally) allowing the embedded subject to be filled in for contrastive stress.

- (36) a. Anata-ga asita tokyo-ni ik-e.  
 you-NOM tomorrow tokyo-to go-IMP  
 'YOU go to Tokyo tomorrow!  
 b. john-ga ototoi mary-ni [??kanojo-ga asita  
 John-NOM day-before-yesterday Mary-DAT [she-NOM tomorrow

tokyo-e ik-e] to itta  
Tokyo-to go-IMP] TO said  
‘John told Mary two days ago that SHE should go to Tokyo tomorrow.’

So, from pronominal reference we may conclude that Japanese imperatives can be embedded. It should be added though that, additionally, Japanese has an imperative form that occurs preferably in embedded constructions. In a matrix context, it has an elliptic taste (filling in an explicit expression for *I order you* renders it more acceptable). Consequently, for (37b) only the subordinated interpretation is available (*asita* ‘tomorrow’ refers to the day after the utterance of the entire sentence).

- (37) a. Asita tokyo-ni iku-yoomi #(*I order you*)  
tomorrow Tokyo-to go-IMP<sub>dep</sub>  
‘Go to Tokyo tomorrow!’
- b. John-ga ototoi Mary-ni [asita Tokyo-ni  
John-NOM day-before-yesterday Mary-DAT tomorrow Tokyo-to  
iku-yoomi] (to) itta.  
go-IMP<sub>dep</sub> (COMP) said  
R<sub>Sub</sub>: ‘John told Mary two days ago that she should go to Tokyo  
tomorrow.’  
(\*R<sub>Quote</sub>: ‘John told Mary two days ago: ‘Go to Tokyo tomorrow.’)

Apart from testing pronominal reference, Japanese also allows a syntactic distinction between quotations and sentential complements in indirect speech. Only the latter count as direct objects and are thus subject to the **Double Object Constraint**.<sup>13</sup> The constraint spells out as follows:

- (38) **Japanese Double Object Constraint:**  
A sentence may contain maximally one direct object. As direct objects we have to count DPs bearing accusative case (*-o*) and sentential complements (prosodically integrated *-to*-clauses).

Causative constructions allow for the causee to be marked either as dative or as accusative (which is a bit marked, though). We will be looking at instances of the following schemata:

- (39) a. X makes Y-*ni* [Z]-*to* say  
b. ???X makes Y-*o* [Z]-*to* say

The prediction is that Z can be interpreted as subordinated only if Y is marked as dative (*-ni*). Accusative marking of Y (*-o*) forces a quotative interpretation. The prediction for pronominal reference is thus that only the case of *-ni* marked causees allows for both quotation and subordination interpretation, while accusative marked causees only co-occur with quotative interpretation of the *to*-clause. This is indeed born out.<sup>14</sup>

<sup>13</sup>I am again indebted to Peter Sells for pointing this out to me.

<sup>14</sup>The causative constructions in (40) and (42) that allow for embedding of the *to*-clause



- (40) Mary-ga John-ni [[watashi-no hon]-o yom-inasai]-to  
 Mary-NOM John-DAT [[my book]-ACC read-IMP]]-TO  
 (minna-no-mae-de) iw-ase-ta  
 (in-front-of-all) say-CAUSE-PAST  
*R<sub>Quote</sub>*: Mary made John say (in front of all): ‘Read my book!’  
*R<sub>Sub</sub>*: Mary made John say (in front of all) that they should read my book.

Marking of the causee (John) as direct object (-o) clearly forces -to to be interpreted as a quotative marker. The possessive pronoun can only refer to the speaker of the reported speech situation which in that case is John (the causee).

- (41) Mary-ga John-o [[watashi-no hon]-o yom-inasai]-to  
 Mary-NOM John-ACC [[my book]-ACC read-IMP]]-TO  
 (minna-no-mae-de) iw-ase-ta  
 (in-front-of-all) say-CAUSE-PAST  
*R<sub>Quote</sub>*: Mary made John say (in front of all): ‘Read my book!’  
 \**R<sub>Sub</sub>*: Mary made John say (in front of all) that they should read my book.

The same pattern is to be obtained for the plain imperative form (used for commanding in a less polite way).

- (42) Mary-ga John-ni [[watashi-no hon]-o yom-e]-to  
 Mary-NOM John-DAT [[my book]-ACC read-IMP]]-TO  
 (minna-no-mae-de) iw-ase-ta  
 (in-front-of-all)say-CAUSE-PAST  
*R<sub>Quote</sub>*: Mary made John say (in front of all): ‘Read my book!’  
*R<sub>Sub</sub>*: Mary made John say (in front of all) that they should read my book.
- (43) Mary-ga John-o [[watashi-no hon]-o yom-e]-to  
 Mary-NOM John-ACC [[my book]-ACC read-IMP]]-TO  
 (minna-no-mae-de) iw-ase-ta  
 (in-front-of-all)say-CAUSE-PAST  
*R<sub>Quote</sub>*: Mary made John say (in front of all): ‘Read my book!’  
 \**R<sub>Sub</sub>*: Mary made John say (in front of all) that they should read my book.

Interestingly enough, the data seems to be clearer when avoiding an accusative object within the sentential complement:

- (44) Mary-ga John-ni [[watashi-no ie]-ni koi]-to  
 Mary-NOM John-ACC [[my house]-DAT come-IMP]]-TO  
 (minna-no-mae-de) iw-ase-ta  
 (in-front-of-all)say-CAUSE-PAST  
*R<sub>Quote</sub>*: Mary made John say (in front of all): ‘Come to my house!’  
*R<sub>Sub</sub>*: Mary made John say (in front of all) that they should come to my

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marginally also allow some sort of intermediate reading under which the possessive pronoun refers to the agent, Mary. (*Mary made John say (in front of all) that they should read her book.*) It is of course absent when accusative marking forces a quotative interpretation, cf. (41), (43).

house.

- (45) ??Mary-ga John-o [[watashi-no ie]-ni koi]-to  
 Mary-NOM John-ACC [[my house]-DAT come-IMP]]-TO  
 (minna-no-mae-de) iw-ase-ta  
 (in-front-of-all)say-CAUSE-PAST  
*R<sub>Quote</sub>*: Mary made John say (in front of all): ‘Come to my house!’  
*\*R<sub>Sub</sub>*: Mary made John say (in front of all) that they should come to my house.

The prediction would also be that the dependent imperative form should be ungrammatical if the causee is marked as accusative, because the reported utterance can only be interpreted as truly embedded, that is as an object. This is indeed born out.

- (46) Mary-ga John\*-o/<sup>ok</sup>-ni Magda-ni [Tokyo-ni iku-yooni](to)  
 Mary-NOM John-ACC/DAT Magda-DAT [Tokyo-DAT go-IMP<sub>dep</sub>](COMP)  
 iw-ase-ta  
 say-CAUSE-PAST  
 ‘Mary made John say to Magda that she should go to Tokyo.’

Even if judgements are in part very subtle, Japanese *to*-clauses could be shown to allow for embedding of imperatives. The predictions with respect to interpretation as sentential complement vs. quotative construction conform to the observations.

The data from Malagassy points to the opposite conclusion. Malagassy distinguishes two complementizers, *hoe* and *fa*, both of which allow for true subordination. The possessive pronoun in (47) can be understood to refer to the utterance speaker both when embedded under *hoe* and under *fa*.

- (47) Nilaza tamin'i Hans i Maria hoe/fa  
 PAST-ACTFOC-say PAST.PREP'NART Hans NART Maria COMP  
 nosasany ny fiarako.  
 PAST.PATFOC.wash.by.er DEF car.my  
 ‘Maria told Hans that she had washed my car.’

But only *hoe* allows for usage as a quotative marker in addition. An additional marker *hoy* marks direct speech in these cases.

- (48) Hoy i Maria tamin'i Hans hoe/\*fa:  
 to NART Maria PAST-PREP'NART Hans COMP:  
 ‘Nosasany ny fiarako.’  
 PAST.PATFOC.wash-by-me DEF car.my  
 ‘Maria said to Hans: ‘I have washed my car.’ ’

Imperatives can only be embedded under *hoe*, *fa* is ungrammatical. Unfortunately, the interpretation of the pronoun is not clear anymore. My informant accepted the sentence, but could not distinguish if Sonja was talking about her own book or the book of the utterance speaker.

- (49) Niangavy an'i Marina i Sonja hoe/\*fa  
 PAST.ACTFOC.ask ACC'NART Marina NART Sonja COMP  
 atero ny bokiko.  
 send-back.IMP DEF book-my  
 'Sonja asked Marina to give back her/my book.'

The preferred way to express this would clearly be an infinitival construction, where, as expected, the pronoun refers unambiguously to the utterance speaker.

- (50) Niangavy an'i Marina i Sonja hanatitra ny  
 PAST.ACTFOC.ask ACC'NART Marina NART Sonja send.back.INF DEF  
 bokiko.  
 book-my  
 'Sonja asked Marina to give back my book.'

Given the fact that only the subordinating element *hoe* that also allows for a quotative usage permits embedding of an imperative and no clear reference of the pronoun to the utterance speaker can be established, I conjecture that Malagassy does not allow for embedding of imperatives in reported speech.

### 9.2.2 Imperative-like forms in Korean

Korean proves to be the language that has gained the most attention so far as to whether it allows for imperative embedding (cf. Han (1998), Pak, Portner, and Zanuttini (2004), Gamerschlag (2005)). Indeed it seems to be one of the best candidates put forth so far. Korean sentence moods are all marked by sentence final markers (*-ta* for declaratives, *-(l)a* for imperatives, *-ni/-nya* for interrogatives, *-ca* for exhortatives, and *-m,-l-kkey* for promissives)<sup>15, 16</sup> It seems that all of these plain-style sentence markers can be embedded under what is called a quotative marker *-ko*.<sup>17</sup> (51) exemplifies this for declaratives and interrogatives.

- (51) a. (Na-nun) cemsim-ul mek-ess-ta.  
 (I-TOP) lunch-ACC eat-PST-DEC  
 'I ate lunch.'
- b. John-i cemsin-ul mek-ess-ta-ko mal-ha-ess-ta.  
 J.-NOM lunch-ACC eat-PST-DEC-COMP say-do-PST-DEC

<sup>15</sup>Pak (2004) argues that all a lot of other sentence final particles giving in descriptive grammars (e.g. exclamatives, premonitives, permissives, ...) are rather subtypes of one or the other and do not come out as clause types when applying Sadock and Zwicky's (1985) criteria for individuating clause types. Crucially, in Pak (ta) imperatives, permissives and promissives are reduced to a common sentence type called *jussives*.

<sup>16</sup>Korean is a language with very fine grained speech style system (plain, intimate, familiar, polite, semiformal, formal). The markers given here belong to the plain speech style (used e.g. towards children and intimate adult friends, but also in written text and newspapers); it is mostly given as a reference in Korean grammar (cf. Pak 2004). The picture gets a lot more complicated the moment we take into account other speech styles. Note that the imperative form of no other speech style can be embedded.

<sup>17</sup>This is therefore often called a quotative marker. Nevertheless, indexicals in the embedded clause clearly get evaluated with respect to the utterance situation. A quotative (direct speech construal) is achieved if the particle *-la* precedes *-ko*, cf. Pak (2004:28f).

- ‘John said that he ate lunch.’
- c. (Ne-nun) cemsim-ul mek-ess-ni?  
(You-TOP) lunch-ACC eat-PST-DEC  
‘Did you eat lunch?’
- d. Emma-ka John-i cemsin-ul mek-ess -nya -ko mul-ess-ta.  
mother-NOM J.-NOM lunch-ACC eat-PST -INT -COMP ask-PST-Dec  
‘Mother asked if John ate lunch.’

Imperatives likewise seem to occur in embedded contexts.

- (52) Emma-ka meku-u-la-ko mal-ha-si-ess-ta.  
mom-NOM eat-IMP-COMP say-do-SH-PST-DEC  
‘Mom told (me) to eat.’

The first difference is that the subject of the imperative does no longer refer to the addressee of the utterance context, but is interpreted as coreferential with the addressee in the reported speech context. One possibility to account for that would be to assume that *-ko* shifts the context of utterance (second person referring to the person talked to in the reported situation, the subject of the matrix verb counting as the speaker, etc.). But not only would this violate Kaplan’s *prohibition against monsters* (that is, the constraint against quantification over context variables), it would also require an account of why all the other elements are still interpreted with respect to the utterance situation. Therefore, embedding by *-ko* does not seem to involve quantification over contexts.

Now, we have to ask if the object in the embedded clause is really an imperative. Only if this gets a positive answer, Korean would qualify as a language that truly has embedded imperatives. I agree with Han (1998) that there might be reasons to distinguish the embedded constructions from matrix imperatives.<sup>18</sup>

The first argument comes from Han (1998:113f). She argues that the Korean *ko*-construction does not really display imperative embedding because of a form difference. While matrix imperatives always have to contain a speech style particle (*-a/-e-*, depending on phonological properties of the verb), but allow for omission of the sentence mood marker *la*, the embedded cases require omission of the speech style particle and presence of *la*. The set of possible realizations of the “imperative” is thus complementary (cf. (53)).

- (53) a. Ppalli o-a-la/o-a/\*o-la  
quickly come-IMP  
‘Come quickly.’
- b. Na-nun Mary-eykey ppalli {\*o-a-la-ko/\*o-a-ko/<sup>ok</sup>o-la-ko}  
I-TOP Mary-to quickly come-IMP’-COMP  
myenglyengha-yess-ta  
order-PAST-DEC  
‘I ordered Mary to come quickly.’

<sup>18</sup>In their papers on Korean clause types, Miok Pak, Paul Portner, and Raffaella Zanuttini argue for the contrary.

Pak is well aware of that argument, but points out that there are main clause instances of *\*(e/a)-la* imperatives as well. The example given comes from the Ten Commandments.<sup>19</sup>

- (54) Todukcil-ha-ci mal-(\*a)-la  
steal-do-NMN NEG-IMP  
'Do not steal.'

It has to be said though that other translations of the bible contain the speech style particle (Shin-Kim, p.c.). Furthermore, I do not find the explanation convincing that Pak gives for the lack of the speech style particle in (54) and in embeddings. She says that *when there is no one specific to whom the sentence is addressed, there cannot be any speech style particle because one does not know which speech style particle to use. I believe the same thing happens in embedded contexts as well. When an imperative clause is embedded, it is not the embedded clause that carries the burden of expressing the relation between the speaker and the hearer, so no speech style particle is necessary in the embedded clause.* (p. 30). I do not see why the Ten Commandments should be less specific in whom they address than any other written text. Furthermore, it is not entirely clear to me why all other clause type markers show the same form in embedded contexts and in matrix contexts.

Alternatively, I would want to speculate that the speech style particle is maybe connected with setting the first parameter of the imperative, that is, the identification of the modal base with the actual common ground. It does not come as a surprise then that truly generic imperatives as occurring in the Ten Commandments and embedded imperatives are not evaluated with respect to the actual Common Ground of the (complex) utterance.

The second argument has been pointed out to me by Shin-Sook Kim (p.c.). Korean matrix imperatives allow for contrastive subjects (cf. (55)):

- (55) ney-ka changmwun-ul tat-ala!  
you-NOM window-ACC close-IMP  
'You close the window!'

The possibility of optional overt realization of the imperative subject is cross-linguistically wide-spread. Wratil (2004) argues convincingly that this forces us to assume that the covert subject pronoun of imperatives is distinct from PRO. The latter is known never to alternate with overt realizations.<sup>20</sup> The subject of the Korean embedded imperative contrasts with that in prohibiting covert realization (both second person (for shifted context) or third person (for an embedded proposition)).<sup>21</sup>

<sup>19</sup>In negative imperatives, the clause type marker is always affixed to the (verbal) negation rather than to the lexical verb.

<sup>20</sup>Wratil (2004) also shows that it indeed has to be distinct from the other covert categories, introducing the special covert element *impro*; cf. Section 6.

<sup>21</sup>Note, that generally there is nothing wrong with having contrastive stress in the English translation of the embedding construction that makes use of a modalized propositional complement

- (56) Na-nun Hans-eykey (\*ku-ka/\*ney-ka) changmwun-ul tat-ula-ko  
 I-TOP Hans-DAT (he-NOM/you-NOM window-ACC close-ula-COMP  
 malha-ess-ta  
 tell-PAST-DEC  
 'I told Hans that he should close the window.'

Taking this together with its semantic properties, the subject of the embedded imperative seems to be an instance of (object-controlled) *PRO*.

Therefore, we can conclude that the relation between the semantic objects corresponding to Korean matrix and embedded imperatives is most likely to be spelled out in terms of compositionality, rather than of identity.

A first speculation has been given with respect to the speech-style-particle being linked to the Common Ground as a modal base, and the subject pronoun being substituted for by *PRO*. That would mean though that the addressee-feature of IMPMOD would somehow have to be related to the embedded context. I leave that for further research.

### 9.2.3 Fossilized construction in Ancient Greek and Middle High German

Rivero and Terzi (1995) argue in a footnote that Ancient Greek would allow for the embedding of imperatives, just as it does for indicative, subjunctive and optative verbal forms. They quote an example from Smyth (1920).<sup>22</sup>

- (57) Oistha ho drason;  
 know.2PSGPRESEIND what do.AORISTIMP  
 'Do you know what you are to do?' *Ancient Greek, Euripides, Hecuba 225*

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(cf. (i)). They are likewise excluded of course in the case of control infinitivals:

- (i) John told Mary that SHE should kill the fly.  
 (ii) \*John told Mary to {PRO, \*SHE, \*HER(SELF)} kill the fly.  
 (iii) John told Mary to PRO<sub>i</sub> kill the fly herSELF<sub>i</sub>.

<sup>22</sup>They quote a second example from the same grammarian which is indicated as taken from Sophocles' *Oedipus Tyrannus*, 473; nevertheless, none of the editions I had access to had the quoted example at the indicated position. Nor could it be found on the electronic edition of the Perseus project ([www.perseus.tufts.edu](http://www.perseus.tufts.edu), featuring the edition by Sir Richard Jebb). This rendering me slightly suspicious, I will ignore the rather surprising, absolutely unique example of an aorist imperative in a relative clause:

- (i) Kratères eisin . . . òn krat' erepson (Sophocles, Oedipus  
 bowls are . . . of-which brims crown.AORIST-IMP  
 Tyrannus 473)

'There are mixing-bowls, the brims of which thou must crown.'

The possibility of embedding imperatives is generally not reported by grammars of Ancient Greek. What is then the status of such an example then?

(57) is indeed quite a frequent construction in dramatic writing, and has already been discussed in Grimm (1852), comparing it to analogous data from Middle High German (MHG) (all instances before 1300).

- (58) a. ich râte dir, waz du tuo  
 I advise you, what you do.IMP  
 'I give you advice what you should do' *MHG, (Kudrun 149)*
- b. ich sage dir, herre, wie du tuo.  
 I tell you, mylord, how you do.IMP  
 'I tell you how to act, Mylord.' *MHG, Rolandslied 14,22; 16,21*

Grimm observes that in both languages, the instances are strictly confined to verbs of doing (German *tuo* 'do.IMP'/Ancient Greek furthermore restricts the matrix context to questions involving the second person forms of Middle High German is a bit freer in that, but confines itself to instances that could all be substituted for by a simple unembedded imperative *tue das, tue so* 'do this/that' (cf. Erdmann (1886b:121)). Note though that the appearance of the subject pronoun seems obligatory for the construction in question. Ordinary imperatives of the same stage do not require an overt subject pronoun.

Given these severe restriction in the ample data cited, I agree with Erdmann (1886a) that these examples should be treated as instances of a fossilized construction.<sup>23</sup> Neither the cases put forth for Ancient Greek, nor for Middle High German could be taken as evidence in favour of productive embedding of imperatives in these languages.

#### 9.2.4 Context harmony in Old Germanic

In contrast to the fossilized construction in Middle High German, older Germanic languages seem to display productive embedding of imperatives (cf. Grimm 1884, Erdmann 1886b, Rögnvaldsson 1998). In the following, I will argue that these are particularly telling because they display an interesting stage in the syntactic development of imperatives and hypotaxis that seems quite telling as to the semantics of imperatives.

Like Modern English (2), Modern Icelandic excludes imperatives from subordinate clauses that are introduced by a complementizer (cf. (59b)). The subject

<sup>23</sup>For the MHG examples it also has to be remarked that they all appear in rhymed position. Grimm (1852) in a footnote even gives examples where the usage seems to have been generalized to other persons:

(i) je enweiz ich was ich tuo (Gudr, 1209)  
 now know I what I do.2P.SG.IMP  
 'Now I know what I have to do.'

pronoun has to be present and has to follow the verb onto which it is usually cliticized (cf. (59a)).

- (59) a. Far þú/Farðu heim!  
 go.IMP(-)you home  
 'Go home!' *Modern Icelandic*
- b. \*Èg bið þig að {vertu, þú ver} kyrr!  
 I ask you that {be.IMP-you, you be.IMP} staying  
 'I ask you to stay.' *Modern Icelandic*

The situation must have been different at older stages of the language, though. Rögnvaldsson (1998) cites 14 examples of imperatives embedded under reported speech verbs or imperatives.<sup>24</sup> Lexical restrictions as in Ancient Greek or Middle High German are not to be observed.

- (60) a. 'Verða kann það,' segir Arnkell, "en það vil eg við þig  
 happen.INF can that says A. but that want I with you.ACC  
 mæla, Þórarinn frændi, að Þú ver með mér Þar til er  
 speak.INF Þórarinn relative that you be.IMP with me there until is  
 lýkur málum þessum á nokkurn hátt."  
 ended affair this in some mode  
 'That may be', said Arnkell, 'but this I want to arrange with you,  
 Cousin Þórarinn, that you stay with me until this affair is in some way  
 ended.' *Old Icelandic, (Eyrbyggja saga)*
- b. Nú ger þú svo mannlega að þú rek þá brottu svo  
 now act.IMP you so manly that you drive.IMP them away so  
 adh við þörfnumst eigi allra góðra hluta.  
 that we lack not all good things  
 'Now act so manly that you drive them away, so that we don't lack all  
 good things.' *Old Icelandic, (Þorvalds þáttur við förla)*

Parallel instances are to be found in Old Swedish, Old Saxon and Old High German (cf. Erdmann (1886b:119)).

- (61) a. ik bimunium dih, [...] daz du niewedar ni gituo.  
 I.NOM implore you.ACC [...] that you never not do.IMP  
 'I implore you never to do this again.' *Old High German, (Dkm. 4,7)*
- b. biddu ik, that thu sie [...] bisweri.  
 ask I that you them [...] ...implore.IMP  
 'I ask you to implore them.' *Old Saxon, (Heliand, 2993)*
- c. Jak bidhir thik, at thu, mildasta iomfru, bidh for mik oc  
 I ask you, that you, dear virgin, ask.IMP for me and  
 hielp mik at faa j hymerike roo (ST)  
 help.IMP me to ...  
 'I ask you, dear Virgin, to pray for me and help me to ...' (taken from  
 Rögnvaldsson (1998))

<sup>24</sup>His corpus consists of the *Family sagas*, *Sturlunga saga*, *Heimskringla*, *The Book of Settlement* and *Grágás*, all dating back to the 12th or 13th century.



I think it is extremely telling that all the examples given fall into the two classes schematized in (62). (62a) is attested for Old Icelandic at least, and (62b), attested for all Old Icelandic, Old Swedish, Old Saxon and Old High German.

- (62) a. IMPERATIVE that you IMPERATIVE  
 b. I ({must, want}) {allow, advice, ask, ... } (you) that you IMPERATIVE

Both constructions give rise to some sort of *double access* phenomenon<sup>25</sup> already seen as a remnant with the fossilized construction in MHG. On the one hand, a directive speech act of the very sort the embedded imperative would perform is announced by the matrix context (this is warranted by the syntactic embedding). On the other hand, the embedded imperative could just as well be given in the utterance situation - and indeed in all cases somehow feels to be.

The more wide-spread class (62a) is exactly parallel to explicit performatives, that require likewise that speaker and hearer are the same in reporting and reported context.<sup>26</sup>

The second class is a bit more particular, in that here what should be embedded is not an imperative. It is more that the first (very general imperative) serves to introduce the second which conveys the content, or requests a choice between two alternative given in the following. In both cases the embedding seems to merely indicate cataphoricity.<sup>27</sup>

- (63) a. Do the following. Do A!  
 b. Do one of the following: Do A or Do B!

The expectation would be that languages that do not syntactically block embedding of imperatives would allow at least for the double access constructions as in (62a).

---

<sup>25</sup>The phenomenon is reminiscent of a somewhat similar effect in the temporal realm, namely English Present Tense in Reported Speech under a Past Matrix predicate that requires a state to hold both of the embedded and the matrix reference time:

- (i) John said that Sally is pregnant. (= Sally pregnant at both the time of John's saying it and at utterance time.)

<sup>26</sup>Several of the attested data involve shifting of the world variable as for instance in (ia). Note that this is a phenomenon observed in the literature on explicit performatives as well (p.c. Verena Mayer). Bach and Harnish (1979) call examples as in (ib) *hedged performatives*.

- (i) a. I must/want to tell you that you do...  
 b. I have to tell you to immediately leave my office.

<sup>27</sup>This seems to be unsurprising given that the Germanic complementizers have developed precisely out of such a cataphoric pronoun. Unfortunately, at that stage of development, Icelandic *að* already has to count as a full fledged complementizer in contrast to the pronoun *það*.

### 9.2.5 Embedded imperatives in Modern High German

In Modern High German (ModHG), imperatives and complementizers compete for the same position. Consequently, embedding of imperatives should be blocked syntactically. But ModHG also allows for V2-embedding under bridge verbs (Gärtner 2001, Meinunger 2004). Here, the finite verb is assumed to be situated in C and therefore occupies exactly the position the imperative has to occupy.<sup>28</sup> Consequently, we would expect imperatives to occur under lexically appropriate bridge verbs. Thus we have to take into account verbs that allow for V2-embedding and describe a speech act that can be performed by the use of an imperative. Of Meinunger's (2004) list remain *sagen* 'say', *vorschlagen* 'propose'. We would then assume that examples analogous to the Old Germanic data can be construed. This seems to be born out (cf. (64c)).<sup>29</sup>

- (64) a. \*Ich sag dir, daß geh nach Hause.  
 I tell you.DAT that go.IMP to home  
 b. Hans glaubt, ich bin müde.  
 Hans believes I am tired  
 'Hans believes that I am tired.'  
 c. Ich sag dir, geh nach Hause.  
 I tell you go.IMP to home  
 'I tell you to go home.'

But note that in contrast to the Old Germanic data involving a complementizer, here we have no means to tell apart true embedding from direct speech. If Modern High German was to require the same constraint on semantically vacuous embedding by obligatorily keeping all the parameters constant, we could never tell if there was V2-embedding of imperatives in German.

On closer inspection, (spoken) Modern High German proves to be a lot more liberal than what the examples attested for Old Germanic seem to suggest for its ancestors. In the following, I will use the two criteria (i) interpretation of indexicals, and (ii) *wh*-extraction, to show that Modern High German allows for genuine embedding of imperatives. Nevertheless, the paradigm leaves us with a puzzle we can at the moment only speculate about: while contexts may be shifted on all other parameters, the addressee has to be the same in reporting and reported utterance context.

<sup>28</sup>Despite the fact that the embedded sentence looks like a simple root declarative, it is unambiguously evaluated in the scope of the propositional attitude predicate. (64b) thus fails to entail *I am tired*.

<sup>29</sup>Note that the data in the following all employ the most neutral verb *sagen*. Substitution with other V2-embedding verbs results far more marginal, though not impossible:

- (i) ??Ich hab dir gestern schon vorgeschlagen, geh da heute hin!

I assume that this is to a large part due to a stylistic clash between the very informal construction of embedding the imperative under a bridge verb and a refined choice of matrix predicate.

Indexicals could be used as a test (e.g., *I* refers to the matrix speaker ( $\neq$  Hans) in (64b), making it clear that this has to be a case of hyotaxis). In the case of context harmony imperatives though, one of the requirements is precisely that the context may not be shifted by the speech report. But interestingly enough, the constraint does not apply to all the parameters in Modal High German.

First, it is easy to show that at least the temporal parameter can be shifted with respect to the utterance context. Most speakers seem to accept (65) under the crucial reading that *heute* 'today' refers to the day of the utterance context. Under such an interpretation, the imperative clause is truly embedded.

- (65) Ich hab Dir gestern schon gesagt, geh da heute hin.  
 I have you yesterday already told go there today to  
 'I've already told you yesterday to go there today.'

Nevertheless, from (65) we still cannot tell whether such examples come with a double access requirement, in that the imperative given yesterday still has to be considered valid by the speaker at the time of the reporting utterance. This doesn't seem to be the case though. Speakers also accept (66), which clearly indicates that the reported imperative is now taken back.<sup>30</sup>

- (66) Ich hab dir gestern zwar gesagt, geh da heute hin, aber  
 I have you yesterday PRT<sub>conc</sub> told go.IMP there today at but  
 inzwischen glaub ich nicht mehr, daß das eine gute Idee war.  
 by-now believe I not anymore COMP that a good idea was  
 'I've told you yesterday that you should go there today, but by now I'm not  
 convinced anymore that that was a good idea.'

What about the other parameters then? (67) shows that also the speaker need not be the same in reported and reporting context.

- (67) Hans hat dir doch gestern schon gesagt, ruf meinen Vater  
 Hans has you.DAT PRT yesterday already told, call.IMP my father  
 an.  
 to  
 'John has already told you yesterday that you should call my father.'

The surprising restriction is now that shifting the parameter of the addressee results in ungrammaticality. For most speakers,<sup>31</sup> the imperative in (68) can only be interpreted as direct speech, in that Maria was told to go to the respective place at that same day.

- (68) Ich hab Maria gestern gesagt, geh da heute hin.  
 I have Maria yesterday said go there today to  
 'I told Mary yesterday: 'Go there today!'

<sup>30</sup>Indicated by the concessive particle *zwar* and the adversative sentence connective *aber* 'but'.

<sup>31</sup>Out of 10 speakers questioned, one didn't accept the data at all; 8 people accepted shifting of speech time and speaker, but not of the addressee, and one person accepted shifting of all three parameters alike.

We should now apply the second criterion on true embedding, namely the possibility of *wh*-extraction. This is particularly telling in the case of imperatives, since they never allow for formation of (information seeking) questions.

(69) shows that *wh*-extraction out of imperative complement clauses is possible. Consequently, these have to be cases of true embedding.<sup>32,33</sup>

- (69) a. %Wo stell den Blumentopf hin?  
 where put.IMP the flower-pot at  
 (\*information seeking)
- b. Wo hab ich gestern gesagt stell den Blumentopf hin?  
 where have I yesterday said put.IMP the flower pot  
 'Where did I tell you yesterday to put the flower pot?' (ok: information seeking)
- c. Wo hab ich dir schnell noch mal gesagt stell den  
 where have I you PRT PRT PRT told put.IMP the  
 Blumentopf hin?  
 flower-pot at  
 '(Help me out), where did I tell you to put the flower pot? (I can't remember.)'

Furthermore, the paradigm as to which parameters can be shifted is corroborated by the *wh*-extraction data. Both speech time and speaker can be shifted with respect to the reporting context, but the addressee has to stay the same. Since direct speech is not a possible interpretation for the *wh*-extraction data, examples (70b) and (70c) come out as ungrammatical.

- (70) a. Wohin, hat Hans dir gesagt, stell den Blumentopf?  
 where-to has Hans you.DAT told put.IMP the flower-pot  
 'Where did Hans tell you to put the flower pot?'
- b. \*Wohin hab ich Maria gesagt stell den Blumentopf?  
 where-to have I Maria told put.IMP the flower-pot  
 (intended: 'Where did I tell Maria to put the flower pot?')
- c. \*Wohin sag ich Maria bloß stell den Blumentopf?  
 where-to tell I Maria PRT put.IMP the flower-pot  
 (intended: 'Where shall I tell Maria to put the flower pot?')

<sup>32</sup>(69a) is acceptable only as either an echo question or a rhetorical question towards an addressee who is clearly inferior in social hierarchy and who should already know what he is to do. Cf. 3.3 for discussion.

<sup>33</sup>Note that this is in a way complementary to the investigations in Reis and Rosengren (1992), who consider German *wh*-imperatives as in (ia).

- (i) a. Wieviel<sub>i</sub> sag mir mal [t<sub>i</sub> daß das kostet t<sub>i</sub>]!  
 how-much tell me PRT COMP that costs  
 'Tell me how much that costs!'
- b. Sag mir mal wieviel<sub>i</sub> das kostet t<sub>i</sub>!  
 tell.IMP me PRT how-much that costs  
 'Tell me how much that costs!'

Reis and Rosengren (1992) argue convincingly that the construction in (ia) is an imperative that embeds an indirect question and has a +*wh*-phrase topicalized into the preverbal position. It is therefore semantically equivalent to (ib).

The data in this section are quite surprising in that they show that imperatives can be embedded productively in colloquial Modern High German. The requirement on context harmony between the reporting and the reported context is much looser than what we were led to assume from the examples attested from Old High German. The only requirement consists in the addressee being the same in both contexts. I call it the **Puzzle of the Prevailing Addressee**.

(71) **The Puzzle of the Prevailing Addressee (PPA)**

Imperative embedding in Modern High German is possible only if the person spoken to in the reported context is identical to the addressee in the utterance situation  $c_A$ .

Having done so, I can only leave it for further research at the moment.

### 9.3 Conclusion

In this section, I have tried to investigate the controversial topic of embedded imperatives. I hope to have shown that despite a lot of restrictions, cross-linguistically imperatives appear to be embedded in various constructions. I take it to be a favourable property of the propositional analysis that it allows us an immediate hold of what these embedded cases should mean. I take it to be an urgent task for future research to find out how the multiply context dependent nature to be found with imperatives together with the individual properties of the respective languages can be made to account for the various restrictions to be found.



## Part III

# Conditional Imperatives







about.

While the resemblance of conjunction and conditional should most likely come as a complete surprise, the similarity between disjunction and conditional might be less unexpected. It is indeed tempting to try to reduce it to the familiar equivalence of classical propositional logic as exemplified in (4):

$$(4) \quad P \rightarrow Q \equiv \neg P \vee Q$$

Nevertheless, I will agree with the major part of the literature in claiming that this surface similarity is not sufficient for explaining IoDs.

The unexpected conditionality of the conjunctive case can easily be shown in the lack of entailment of the single conjuncts in (5a) (vs. the ordinary conjunction in (5b)):

- (5) a. Call your supervisor and he'll help you with the awkward binding data.  
 $\not\rightarrow$  Your supervisor will help you with the awkward binding data.  
 b. I will call my supervisor and he will help me with the awkward binding data.  
 $\rightarrow$  My supervisor will help me with the awkward binding data.

This, of course, is in line with the intuitive perception that IaDs as in (1a) really express conditionals.

On the other hand, we have to keep in mind that, pragmatics and world knowledge permitting, we sometimes get a reading of *speech act conjunction* for imperatives conjoined with declaratives after all. As we have already seen in Section 3.1.1, speech acts can be conjoined with each other quite freely. I will follow Krifka (2001), in assuming that speech act conjunction is interpreted as subsequent performance of the respective conjuncts. Examples for which an interpretation in terms of speech act conjunction is more likely than an IaD-interpretation are given in (6).<sup>4</sup>

- (6) a. Kauf du die Brötchen, und Hans soll den Wein mitbringen.  
 buy.IMP you the rolls, and Hans shall the whine bring-along.INF  
 'You bring the rolls, and Hans shall bring the whine.'  
 b.  $\approx$  Ich bitte dich, die Brötchen zu kaufen, und ich ordne an,  
 I ask you, the rolls to buy.INF, and I order PRT,  
 daß Hans den Wein mitbringen soll.  
 that Hans the whine bring-along.INF shall  
 'I ask you to bring the rolls, and I order that John bring the whine.'

---

<sup>4</sup>I agree with Asher and Lascarides (2003a) and Franke (2005) in assuming that some speech act conjunctions share an important feature with IaDs, namely that the proposition expressed in the second speech act depends on the command of the first being complied with.

- (i) Mow the lawn, please, and I'll give you 50 Euro.

In contrast to both Asher and Lascarides (2003a) and Franke (2005), I will argue in 12 that these are better treated in terms of speech act conjunction involving regular modal subordination than as special cases of IaDs.

- (7) a. Geht schon mal nach Hause, und ich räume hier noch ein  
 go.IMPPL already PRT to home, and I tidy here still a  
 bißchen auf.  
 bit up  
 ‘You (all) go home, I’ll do some cleaning up here.’
- b. ≈ Ich erlaube euch, schon nach Hause zu gehen, und ich  
 I allow you.2PPL, already to home to go, and I  
 verspreche euch, hier noch ein bißchen aufzuräumen.  
 promise you.2PPL here still a bit up-INFMK-tidy  
 ‘I allow you to go home already, and I promise you to do some cleaning  
 up here.’

For many instances of imperatives conjoined with declaratives, we only get the IaD reading, e.g. (8a) (in that case, for pragmatic reasons) or (8b) (in that case, for syntactic or semantic reasons, cf. Section 11).

- (8) a. Be late and you’ll lose your job!  
 ≠ I order you to come late, and I assert that you’ll lose your job.
- b. Come any closer and I’ll shoot!  
 ≠ I order you to come (\*any) closer, and I assert that I’ll shoot.

In contrast to conjunction, disjunction of speech acts is only marginally possible, if at all (again, cf. Section 3.1.1). Therefore, disjunctions of imperatives with declaratives give less rise to ambiguity between IoDs and *or* combining speech acts. The only possibility for surface identity stems from **speech act correction**, which can be expressed by disjunction at least in English or German.

- (9) Lies noch ein paar Artikel, oder eigentlich kannst du gleich  
 read.IMP PRT a couple articles, or really can you immediately  
 heimgehen.  
 go.home.IMP  
 ‘Read some more articles, or, actually, you can go home immediately.’

Intonation and often particles help to bring forth such an interpretation.

In the following, I will be concerned with the conditional interpretations. The speech act coordinating readings will only be taken into account where grammatical properties block one of the two readings.

As I have argued in the beginning, imperatives are (mostly) taken to convey some kind of directive meaning, which does not square well with the conditional readings. But also the necessity semantics I have proposed in the preceding chapter does not say anything about expressing a condition. Consequently, the question to be asked is how imperatives ever get to express conditions. But if it should be something else that triggers the conditional reading (e.g. the coordination construction as such), the clause-type specific contribution of the imperative (directivity or necessity) would be in the way. The conditional readings are not equivalent to (10a) or (10b), but rather to (10c).

- (10) Come one step closer and I'll shoot.
- a. If I order you to come one step closer, I'll shoot.
  - b. If you must come one step closer, I'll shoot.
  - c. If you come one step closer, I'll shoot.

Consequently, a theory of conditional imperatives has to answer two questions:

- (11)
  - a. Where does the hypotheticality come from?
  - b. Where does the imperative semantics go?

Let's first look at general strategies of solving this surprising usage of imperatives. Most of the attempts to account for IaDs and/or IoDs rely on one of the following three strategies:

**imperatives vs. pseudo-imperatives:** The forms in the first coordinand are to be distinguished from true imperatives already in their semantics. Pseudo-imperatives lack part of the semantics imperatives are associated with; this provides an immediate answer to question (11b). An appropriate mechanism for interpreting the coordination of the two non-like constituents pseudo-imperative and declarative gives rise to a conditional interpretation in order to provide an answer to (11a). Proposals along these lines are found in Han (1998), and Clark (1993).

**pragmatic blocking of directivity:** The forms in the first coordinand are true imperatives which are invariably associated with directivity in semantics. It is pragmatic effects that strip off the directivity in the constructions under discussion, answering (11b), and ideally also (11a). Proposals along these lines are put forth by Davies (1986) and Asher and Lascarides (2003a).

**underspecified semantics for imperatives:** The forms in the first coordinand are true imperatives, but their semantics is highly underspecified; the conditional semantics as well as the various speech act types observable for imperatives have to result from a complex interplay of semantic and pragmatic factors. A proposal along these lines has been sketched by Manfred Krifka (e.g. Krifka 2004c), and recently also Michael Franke (Franke 2005). The analysis I am proposing in Section 12.3.2 and Section 13.1.2 respectively follows this spirit as well.

In order to decide on the right type of analysis, we will have to take a closer look at the properties of IaDs and IoDs. First, I will show that despite initial appearance IaDs are very different from IoDs when it comes to the status of the imperative. In a nutshell, I will agree with a large part of the recent literature (e.g. Han 1998 for English, but not for German and Korean) in assuming that only IaDs are truly conditional, while IoDs are more like plain imperatives in possessing directive force in addition to their conditional flavour (e.g. vs. Clark 1993). IaDs are thus correctly paraphrased as in (1b) (repeated here as (12b)), but the paraphrase for

(2a) (repeated here as (13a)) should really be something along the lines of (13c) rather than (2b) (repeated here as (13b)):

- (12) a. Be in time and you'll get a seat.
- b. If you are in time, you will get a seat.
- (13) a. Be in time or you'll miss the first slot.
- b. If you are not in time, you will miss the first slot.
- c. Be in time! If you are not in time, you will miss the first slot.

The hypotheses I will defend in this chapter are the following:

- (14) **Hypotheses on Conditional Imperatives:** IaDs and IoDs differ. (Franke (2005) dubs this a **Diversification Strategy**).
- a. Both IaDs and IoDs contain true imperatives with respect to syntax and semantics.
- b. IaDs correspond to one speech act, IoDs correspond to two speech acts (or one complex speech act consisting of two sub-speech acts), where the first of the two corresponds to a typical speech act for plain imperatives.
- c. The semantics proposed for imperatives as developed in Section 6 naturally extends to a treatment of IoDs and seems quite promising as a point of departure for treating IaDs.

In the following, I will first present arguments in favour of the difference between IaDs and IoDs (cf. Section 11), and then discuss them separately in Sections 12 and 13 respectively.



## Chapter 11

# How IaDs Differ from IoDs

Davies (1986) seems to have been the first to argue systematically that IaDs and IoDs behave differently in various aspects. In the following, I will adduce a list of differences between them, collecting arguments from previous literature as well as own observations; all of this seems to indicate that, in fact, IaDs are more like true conditionals (the imperative merely stating a condition), while in IoDs, the imperative is somehow actually issued. It is only when discussing IaDs and IoDs in detail that I will try to answer which level the difference is best located at. This leads directly to proposing an analysis for the constructions under investigation.

### 11.1 Insertion of Speech Act Related Elements

It has been noted at various points that some particles seem to interact with how utterances manage to fulfill speech acts in given contexts (cf. e.g. Zeevat (2004) for Dutch). They are therefore also called **speech act particles**.

For IaDs and IoDs, it is now easy to show that speech act related particles or other speech act related elements (as for instance *please*) pattern with plain imperatives in allowing the full range of particles or other speech act related modifiers, while IaDs pattern with conditionals in not allowing either (that is, the imperative conjunct behaves like a conditional antecedent in not allowing speech act related elements, whereas the second conjunct behaves more like the consequent in sometimes allowing for certain speech act particles). Insertion of speech act related elements into IaD-imperatives leads to a loss of the conditional reading in favour of speech act conjunction.

Culicover and Jackendoff (1997) discuss this contrast between IoDs and IaDs with the example of *please*, showing that English IoDs, but not IaDs tolerate its insertion, cf. (1). In (2), I parallel the examples with German *bitte*.

- |     |    |                                                     |      |
|-----|----|-----------------------------------------------------|------|
| (1) | a. | Sit down, <b>please</b> , or I'll call the police.  | IoD  |
|     | b. | Sit down, <b>please</b> , and I'll call the police. | *IaD |
| (2) | a. | Setz dich <b>bitte</b> , oder ich rufe die Polizei. | IoD  |

- b. Setz dich **bitte**, und ich rufe die Polizei. \*IaD

The behaviour of IaDs is mirrored by conditionals (cf. (3a))<sup>1</sup>, whereas IoDs pattern with plain imperatives (cf. (3b)).

- (3) a. If you sit down, (#please), I will call the police.  
 b. Wenn du dich (#bitte) hinsetzt, werde ich die Polizei anrufen.
- (4) a. Sit down, please!  
 b. Setz dich, bitte!  
 sit.IMP you.ACC.RFL please  
 ‘Sit down, please!’

Dutch often employs speech act particles in plain imperatives, because otherwise they come out as highly impolite commands. In IaDs, they result completely unacceptable though. E.g. *even* is indicating that the requested action is not very costly, turning a plain command into a request.<sup>2</sup>

- (5) a. Hang de was even buiten  
 hang.IMP the laundry PRT outside  
 ‘Hang the laundry outside.’ (implying: it does not cost much to do so)  
 b. hang de was (\*even) buiten en het begint te regenen  
 hang.IMP the laundry outside and it starts to rain  
 ‘Hang the laundry outside and it will start raining.’

In the following, I will look at some devices that are used to express emphasis of the respective request, command, wish, etc. in plain imperatives. They are likewise possible in IoDs, but not in IaDs.

Han (1998:173f) observes that imperatives, but not IaDs, allow for *do*-support:

- (6) a. Do open the Guardian.  
 b. \*Do open the Guardian, and you’ll find three misprints on every page.

Again, we can add that conditionals pattern with IaDs, while IoDs pattern with plain imperatives.

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<sup>1</sup>If (3a) is acceptable at all, it even seems to be the case that the speech act related element in the antecedent causes the conditional to get the same reading as the speech act conjunction. This draws on the fact that obviously, in a couple of languages, conditional antecedents can be used as substitutes for imperatives, cf.(ia) and its German translation (ib). This is mentioned in Boogaart and Trnavac (2004), and has also been pointed out to me by Jürgen Lenerz (p.c.).

- (i) a. If you please sit down!  
 b. Wenn du dich jetzt bitte hinsetzen würdest. . .

So far, I’m not sure what to make of this observation. In contrast to true imperatives, the constructions in (i) have the flavour of elliptic sentences as if they were to be followed by something like *that would be good/better* (for instance, they do not seem to allow for a lower boundary tone).

<sup>2</sup>Boogaart and Trnavac (2004) discuss related examples showing that overt subject pronouns result marginal in Dutch IaDs as well, while being acceptable in plain imperatives.



- (7) a. #If you do open the Guardian, you'll find three misprints on every page.  
 b. Do open the Guardian, or you'll never know what's going on in the world.

Culicover and Jackendoff (1997) report a related observation, namely that tagging is ungrammatical in IaDs (cf. (8a)), just as in conditionals (cf. (8b)). In contrast to that it is fully acceptable in IoDs (cf. (8c)), and, of course, in plain imperatives (cf. (8d)).

- (8) a. Sit down, **will you**, and I'll call the police. \*IaD  
 b. #If you sit down, will you, I will call the police.  
 c. Sit down, **will you**, or I'll call the police. IoD  
 d. Sit down, will you.

A related mechanism can be observed in Georgian (p.c. Lela Marisa), which expresses emphasis on an imperative (used to convey a strict obligation or very intense request) by doubling of the imperativized verb. An IaD is immediately forced into a (in the respective case pragmatically unobtainable) speech act coordination:

- (9) (#iqavi,) iqavi tavaziani da is shen gamogiqenebs.  
 (#be.IMP) be.IMP nice and he you take-advantage-of.DECL  
 'Be nice and he'll take advantage of you.'

The data considered so far suggests that IoDs can indeed perform a speech act as typical for plain imperatives. IaDs on the other hand pattern with conditionals in not tolerating any speech act modifying elements within their first conjunct/the antecedent.

## 11.2 Evidence from the Syntactic or Semantic Side

### 11.2.1 Binding Properties

Culicover and Jackendoff (1997) point out that IaDs allow for surprising binding data. Quantifiers in the second (declarative) conjunct may bind pronouns in the first conjunct. Again, the data is the same in German.

- (10) a. Sei nett zu ihm<sub>i</sub> und [jeder Politiker]<sub>i</sub> hilft dir.  
 be.IMP nice to him and each politician helps you  
 'Be nice to him<sub>i</sub> and each politician<sub>i</sub> will help you.'  
 b. Schreib ihm<sub>i</sub> auf, was du tust, und [kein Projektleiter]<sub>i</sub> ist lange  
 write him up, what you do, and no project leader is long  
 sauer.  
 angry  
 'Write up for him what you are doing, and no project leader will be  
 angry for a long time.'

Again, these are paralleled by conditionals. (cf. von Stechow and Iatridou 2002).

- (11) a. Wenn Du nett zu ihm<sub>i</sub> bist, hilft dir jeder  
 if you nice to him are.2PSGIND, help.3PSGIND you every  
 Politiker<sub>i</sub>.  
 politician  
 ‘Every politician will help you if you are nice to him.’
- b. Wenn du ihm<sub>i</sub> aufschreibst, was du tust, ist kein Projektleiter<sub>i</sub>  
 if you him write-up, what you do, is no project leader  
 lange sauer.  
 long angry  
 ‘No project leader will be angry for a long time if you write up for him  
 what you are doing.’

In these cases, the quantifier seems to outscope the antecedent, binding the pronoun within the latter. But note that this still does not give the right reading for (11b). At least under a naive stative account that treats negative indefinites like *kein Projektleiter* as negative existential quantifiers, wide scope for *kein Projektleiter* would lead us to expect a reading as in (12a). What we actually get, though, is (12b).<sup>3</sup> It is already less unexpected under a dynamic approach that could well assume negation to be situated in the second conjunct/consequent, while extracting the indefinite part of the DP. For a solution in terms of homogeneity, cf. von Stechow and Iatridou (2002).

- (12) a.  $\neg(\exists x)[\text{projectleader}'(x) \ \& \ \text{write-up-for}'(c_A, x) \rightarrow \text{not-angry-at}'(x, c_A)]$   
 b.  $(\forall x)[\text{projectleader}'(x) \ \& \ \text{write-up-for}'(c_A, x)] \rightarrow \text{not-angry-at}'(x, c_A)]$

For the moment, it should suffice to say that, again, IaDs pattern with conditionals in allowing binding for quantifiers from the second into the first conjunct. Furthermore, we observe the same surprising interpretation for negative quantifiers ((10b) is interpreted as (12b), just like (11b)).

In contrast to IaDs and conditionals, non-conditional conjunctions allow for binding relations from the first into the second conjunct. Dynamic approaches capture this by evaluating the second conjunct in the environment created by the first.<sup>4</sup> Quantifier binding in non-conditional conjunctions is thus restricted to the inverse directionality as IaDs are.

- (13) a. Kein Bauer<sub>j</sub> schlägt ab und zu einen Esel und  
 no farmer beat.3PSGIND every now and then a donkey and  
 sein<sub>i</sub> Sohn verzeiht es ihm<sub>i</sub>. <sup>ok</sup>(i = j)  
 his son forgive.3PSGIND it him  
 ‘No farmer<sub>i</sub> beats a donkey every now and then and his<sub>j</sub> son would

<sup>3</sup>I'm indebted to Uli Sauerland (p.c.) for first having pointed this out to me.

<sup>4</sup>But see Geurts (1999:124) arguing against such a non-classical notion of conjunction with examples in which pronominal resolution goes the other way round (his examples (4a-c)):

- (i) a. Yes, the doctor warned him, but Tom kept out.  
 b. He looks at me and John goes out of his mind.  
 c. He lied to me, and John was my friend!

forgive him.'

- b. Sein<sub>i</sub> Sohn schenkt ihm<sub>i</sub> ab und zu einen Esel und  
 his son give.3PSGIND him every now and then a donkey and  
 kein<sub>j</sub> Bauer freut sich darüber. \*(i = j)  
 no farmer be-happy.3PSGIND about-it  
 'His<sub>i</sub> son gives him<sub>i</sub> a donkey every now and then, and no farmer<sub>j</sub> is  
 happy about it.'

In contrast to IaDs, IoDs do not allow for binding relations from the second conjunct into the first.

- (14) a. Schick ihm<sub>i</sub> einen Arbeitsbericht, oder [jeder Projektleiter]<sub>j</sub>  
 send.IMP him a report or every project-leader  
 glaubt du bist faul. \*(i = j)  
 thinks you be.2PSGIND lazy  
 'Send him<sub>i</sub> a report or every project leader<sub>j</sub> thinks you are lazy.'
- b. Schreib ihm<sub>i</sub> alles auf, was du gemacht hast, oder [kein  
 write.IMP him everything up what you done have or no  
 Projektleiter]<sub>j</sub> glaubt, daß du fleißig bist. \*(i = j)  
 project-leader thinks that you be.2PSGIND eager  
 'Write up for him what you have done, or no project leader thinks you  
 are eager.'

Quantifier binding from the first into the second disjunct seems marginally possible.

- (15) a. ?Schick jedem Projektleiter<sub>i</sub> einen Arbeitsbericht, oder er<sub>i</sub>  
 send.IMP every project-leader a report or he  
 verpetzt dich beim Professor.  
 report.3PSGIND you to-the professor  
 'Send a report to every project leader or he reports you to the profes-  
 sor.'
- b. ?Schick keinem Projektleiter<sub>i</sub> eine Stinkbombe, oder er<sub>i</sub> feuert  
 send.IMP no project-leader a stink-bomb or he fires  
 dich.  
 you  
 'To no project leader<sub>i</sub> send a stink bomb, or he<sub>i</sub>'ll fires you.'

This seems to be largely the same as with ordinary disjunctions, though, which behave analogously to non-conditional conjunctions.

Crucially for our investigation, IaDs can be shown to pattern with conditionals and contrast with ordinary conjunctions. IoDs do not behave like conditionals but more like ordinary coordination structures.

### 11.2.2 NPI Licensing

As noted by Bolinger (1967) and Davies (1986), IaDs can contain NPIs, just like conditionals. Plain imperatives<sup>5</sup> and IoDs can not. (The examples are taken from

<sup>5</sup>Under an appropriate intonation, namely as a threat, (16c) (and likewise (17c)) is possible after all. But note that this is characterized by a high boundary tone at the end of the sentence,

Han (1998).)

- (16) a. Come *any* closer, and I'll shoot.  
 b. If you come *any* closer, I will shoot.  
 c. \*Come *any* closer.  
 d. \*Come *any* closer, or you won't see anything.

The same facts hold for other languages, e.g. German. The examples in (17) translate those in (16) respectively.

- (17) a. Komm *auch nur* einen Schritt näher, und ich schieße.  
 come.IMPSG even only one step closer  
 b. Wenn Du *auch nur* einen Schritt näher kommst,  
 if you even only one step closer come.2PSGINDPRES  
 schieße ich.  
 shoot.1PSGINDPRES I  
 c. \*Komm *auch nur* einen Schritt näher!  
 come.IMPSG even only one step closer  
 d. \*Komm *auch nur* einen Schritt näher, oder du  
 come.IMPSG even only one step closer, ar you  
 siehst nichts.  
 see.2PSGINDPRES nothing

Again, IaDs pattern with conditionals, and IoDs with plain imperatives.

### 11.3 Quantificational Subjects

Han (1998) notes that in English, quantificational subjects are possible in plain imperatives, but are excluded from IaDs:

- (18) a. Nobody help her!  
 b. \*Nobody help her, and she will fail.

We may add that again, IoDs pattern with plain imperatives and contrast IaDs:

- (19) Nobody help her, or she'll never learn to do it herself.

The quantifier data is not always straight-forward in German, but the contrast seems to carry over at least partly.

- (20) a. Geh ja keiner in das Zimmer!  
 go.IMPSG PRT nobody in the room  
 'Nobody go into the room!'

---

thus marking an ellipsis. It can only be filled by an “*and Declarative*” as in (16a), rendering that particular use of plain imperatives parallel to IaDs (cf. Franke (2005) for an analogous argumentation).

- b. \*Geh keiner in das Zimmer und wir werden nie wissen,  
 go.IMPSG nobody into the room and we will never know.INF  
 was drinnen ist.  
 what inside be.3PSGINDPRES  
 (roughly: %‘Nobody go into that room, and we will never know what  
 is inside.’)
- c. Geh ja keiner in das Zimmer, oder ihr  
 go.IMPSG PRT nobody into the room, or you.2PPL  
 bekommt alle keine Weihnachtsgeschenke.  
 get.2PPLINDPRES all no Christmas-presents  
 ‘Nobody go into the room, or you all won’t get any Christmas presents.’
- (21) a. Mach einer das Fenster auf.  
 make.IMPSG someone the window up  
 ‘Someone open the window.’
- b. ?Mach einer das Fenster auf und die Polizei  
 make.IMPSG someone the window up and the police  
 ist schneller da, als wir schauen können.  
 be.3PSGPRESIND faster here, than we look.INF can  
 ‘Someone open the window and the police shall be here in an instant.’
- c. Mach einer das Fenster auf, oder ich ersticke.  
 make.IMPSG someone the window up, or I suffocate  
 ‘Someone open the window, or I will suffocate.’

Nevertheless, at least the Southern variant involving plural agreement allows the quantificational element *wer* ‘someone’ in IaDs (*jeder* ‘everyone’, *keiner* ‘no one’ being likewise excluded).

- (22) a. Gebts mir mal wer einen Schraubenzieher!  
 give.IMPPPL me.DAT PRT someone a screwdriver  
 ‘Someone give me a screwdriver!’
- b. Gebts mir mal wer einen Schraubenzieher, oder ich  
 give.IMPPPL me.DAT PRT someone a screwdriver, or I  
 krieg das Ding nie auf.  
 get the thing never open  
 ‘Someone give me a screwdriver or I’ll never get the thing open.’
- c. Gebts mir wer einen Hammer in die Hand und ich  
 give.IMPPPL me.DAT someone a hammer in the hand and I  
 schlag mir den Nagel blau.  
 beat me.DAT the nail blue  
 ‘Someone hand me a hammer and I’ll beat my nail blue.’

Han’s solution for IaDs does not say anything as to why the quantificational elements should be excluded in that construction. Unfortunately, at the moment, there is not much I could add to that. Nevertheless, the fact that some examples are acceptable after all in German, and maybe even in English (some speakers liked the translation of (20b) under a truly conditional reading) does not allow one to turn it into a strong case for the IaD imperatives being pseudo-imperatives.

The problem of restrictions on quantificational subjects and its possible exceptions (cf. (22c), (21b)) in IaDs has to be left for further research.

## 11.4 Positive, Negative and Neutral Interpretations

Clark (1993) pointed out that at least some IaDs allow for **positive**, **negative** and **neutral interpretations**, distinguishing as to whether the imperative is meant as an incentive to carry out the described action or not.

- (23)
- a. Geh einen Schritt nach hinten und wir haben alle mehr Platz.  
go.IMP one step to back and we have all more space  
'Take a step backwards and we all have more space.'
  - b. Geh einen Schritt nach hinten und du fliegst die Treppe runter.  
go.IMP one step to back and you fly the stairs down  
'Take a step backwards and you'll fall down the stairs.'
  - c. Schlag die Zeitung auf und du findest 5 Tippfehler pro Seite.  
open.IMP the newspaper PRT and you find 5 typos per page  
'Open the newspaper and you find 5 typos on each page.'

While an utterance of (23a) is most likely meant as a request to take a step backwards, (23b) is clearly meant as a warning not to. (23c) is most likely completely neutral as to whether one should open the newspaper or not. The respective interpretation in a given context is only dependent on whether the consequence is taken to be desirable or not.

IoDs, on the other hand, only allow for a positive usage.<sup>6</sup> Clark (1993) claims that the imperative is always meant as a request to be complied with, backed by a consequence that is invariably negative<sup>7</sup>. Therefore, the first disjunct of the IoD in (24b) can never get a negative interpretation, e.g. as a warning not to go home, backed up by a positive consequence that would get lost otherwise.

- (24)
- a. Hau ab oder ich schrei laut um Hilfe.  
go away or I scream loud for help  
'Get away from here or I'll scream for help!'
  - b. #Go home or I'll make you a nice dinner.  
≠ Stay! (Because,) if you don't go away, I'll make you a nice dinner.

Since Clark assumes that only a small subset of IaDs differs from IoDs in containing pseudo-imperatives, he has to assume a pragmatic process blocking the negative interpretation for cases like (24b). Franke (2005) likewise offers an extensive discussion based on such a diversification.

I will slightly depart from Clark's (1993) conception, who takes neutrality as 'neutral for the speaker' and requires that in those cases the speaker is quasi echoing

<sup>6</sup>This has recently been challenged by Franke (2005), who claims that there are also examples of truly neutral IoDs. But cf. Section 14 for arguments against this view.

<sup>7</sup>Although the basic observation as to the difference between IaDs and IoDs is correct, I will show in 13.1.2 that this view does not generalize to a larger class of related phenomena.

some contextually salient source that favours the action described by the imperative. imperative. Clark (1993) employs Wilson and Sperber's (1988) relevance theoretic treatment, according to which imperatives always express that something is potential and desirable. But utterances can be used in an ordinary truth-conditional, non-echoic usage (called *descriptive*), or alternatively, in an echoic way (called *interpretive*). With respect to imperatives, the latter are used both to account for neutral and negative usages, ascribing the judgement 'potential and desirable' to someone other than the speaker.<sup>8</sup> For me, *neutral readings* are purely conditional in that neither the speaker, nor any other contextually salient source has to be taken responsible for judging the action in question as desirable.

A clear indication for the existence of neutral readings consists in the possibility of forming sequences of IaDs with mutually contradictory imperatives.

- (25) **Mißtraue** einem Menschen, **und** die deutlichsten Anzeichen der Treue werden geradezu Zeichen der Untreue sein, **traue** ihm, **und** handgreifliche Beweise der Untreue werden zu Zeichen einer verkannten, wie ein von den Erwachsenen ausgesperrtes Kind weinenden Treue. (Musil, *Tonka*)  
(‘Mistrust a person and the most obvious signs of his faithfulness will turn into signs of his unfaithfulness, trust him, and the clearest signs of his unfaithfulness will turn into signs of an unrecognized faithfulness that is crying like a child locked out by the adults.’)
- (26) **Tell her you love her**, and she'll do anything. **Don't tell her** and you won't get very far.
- (27) (context: What should you say if someone comes from the statal television company and asks if you own a television set?)  
**Say no** and he'll go away for a while. **Say yes** and he will order you to pay. Over and over again. [http://the\\_japanfaq.cjb.net](http://the_japanfaq.cjb.net)

Such sequences are impossible with IoDs, or rather, they result just as contradictory as the corresponding plain imperatives (cf. (28)). Consider (29) which should be an alternative way of rendering (27):

- (28) #Tell her you love her. Don't tell her.
- (29) a. #**Sag ja**, **oder** der Typ kommt immer wieder. **Sag nein**,  
say.IMP SG yes, or the guy comes always again.  
**oder** du mußt zahlen.  
say.IMP SG no, or you must pay  
# '**Say yes, or** he'll come over and over again. **Say no, or** he will order you to pay.'

Neither in English nor in German does this provide an alternative way to express (27).

<sup>8</sup>The same kind of echoic treatment is also taken to account for irony. I think that these usages are fundamentally different, but will not go into a discussion.

Consequently, it has to be maintained that IaDs can be truly neutral, whereas IoDs cannot.

## 11.5 Conclusion

In this section we have seen that IaDs differ from IoDs in that the former are more similar to true conditionals, whereas the latter are more similar to plain imperatives. Imperatives in IoDs are assigned a proper, imperative specific speech act type, imperatives in IaDs are not. These differences are evidenced by insertion of speech act related elements, licensing of NPIs, quantifier binding and possibilities of positive, negative and neutral interpretation.



## Chapter 12

# Explaining IaDs

So far, we have established that IaDs are interpreted truly conditional. Consequently, we still need an answer to the two questions in (11) (repeated here as (1)).

- (1) a. Where does the hypotheticality come from?
- b. Where does the imperative semantics go?

Drawing on the fact that many *LS and*-constructions get generic interpretations, Culicover and Jackendoff (1997) have assumed that they all contain a generic operator and that at some contextual level the first conjunct constitutes the restrictor, the second conjunct the nuclear scope.

$$(2) \quad \alpha \ \& \ \beta \rightsquigarrow \text{Gen} [\alpha][\beta]$$

This provides an ad hoc stipulation as an answer to (1a), but does of course not offer a solution to (1b). Furthermore, it falls short of the fact that for all types of *LS and*-constructions we find two types of conditionals: Some are indeed generic (e.g. (3a)), but others are predictions about particular developments of the actual utterance situation (e.g. (3b)).

- (3) a. Open the Guardian and you find three misprints on every page.
- b. Order one more beer and I'm leaving.

In the following, I'll present and discuss various solutions that have been developed after that seminal first overview, and that try to answer both questions in (1) under consideration of the various interpretations possible for IaDs (or *LS and* in general).

### 12.1 Imperatives vs. Pseudo-Imperatives

As we have already seen in Section 1, the finding that most speech act types as assigned to imperatives involve some kind of directivity is often explained by assuming that imperatives are inherently directive in their semantics (e.g. Han (1998), Zarnic

(2002), van Eijck (2000), Mastop (2005), ...). Leaving aside the problems I have mentioned in connection with functional inhomogeneity (FIP) (cf. Section 1.3), this is obviously problematic with respect to IaDs. Even if we grant a hypothetical interpretation of the first conjunct, no obligation, wish of the speaker, or the like should come into play. What is needed is rather the plain, unmodalized proposition ((5) vs. (6)):

- (4) Come in time and you'll get a seat.
- (5)
  - a.  $\not\approx$  If I want you to come in time, you'll get a seat.
  - b.  $\not\approx$  If you are obliged to come in time, you'll get a seat.
  - c.  $\not\approx$  If I order you to come in time, you'll get a seat.
- (6) If you come in time, you'll get a seat.

It has therefore been assumed that the forms involved in the conditional readings are not true imperatives, but rather **pseudo-imperatives** with a poorer semantics than what an imperative would contribute. For example, Han (1998) assumes that the directive feature is defective in pseudo-imperatives, conveying only the second person subject feature. Clark (1993) who originally coined the term *pseudo-imperatives* has a slightly more complicated story, assuming that also most of the IaD cases involve true imperatives, reserving pseudo-imperatives for a somewhat vaguely restricted subset of IaD cases (cf. the special properties of English imperatives discussed below).

In order to explain the conditional readings, an approach along these lines only has to come up with an appropriate story for how the first conjunct of a coordination can get interpreted hypothetically.

Treating IaDs in terms of pseudo-imperatives seems to be justified by the existence of other *LS and*-constructions as introduced in (3). Conditional *and* has been shown to be possible with *declarative and declarative* (cf. (7a)), and *NP and declarative* (cf. (7b)).

- (7)
  - a. You drink another can of beer and I'm leaving.
  - b. One more can of beer and I'm leaving.
  - c. Drink another can of beer and I'm leaving.

Here, a declarative conjoined with a declarative and a DP conjoined with a declarative assume conditional readings (for a discussion of the whole spectrum of possible combinations of clause types that also takes into account interrogatives and explores the clause types resulting for the respective combinations cf. Gärtner and Schwager (2004)). Apart from the fact that (7b) has to rely on the context to supply the information as to what kind of event involving a beer the speaker has in mind, the examples in (7) all mean the same. This seems to favour an approach that somehow assimilates the first conjuncts of at least (7a) and (7c), the most straightforward assimilation being of course to the proposition *you drink one more beer* (in fact, in Section 12.3.2 I will argue for a different assimilation). Nevertheless, already at that

point, the fourth type of *LS and* should raise some suspicion against the assimilation between pseudo-imperatives and simple propositions. *LS and* occurs likewise with *declarative expressing a modalized proposition and declarative* (cf. (8)).

(8) You only have to order another beer and I'm leaving.

The strongest evidence for the existence of pseudo-imperatives alongside 'normal' or 'true' imperatives would of course be constituted by data that would show them to differ in grammatical properties. A good part of the work on IaDs is in fact dedicated to show precisely this (Han 1998, Clark 1993), and the data adduced encompass lexical restrictions, twofold restrictions on the subject, negation, and restriction on temporal reference in English.

While I won't be able to say anything insightful on the last phenomenon, I will show in Section 12.1.2 that most of the alleged differences cannot be maintained, the putative differences in grammaticality can easily be reduced to differences in compatibilities with various speech act types.

### 12.1.1 Defective directivity

Han (1998) assumes that imperatives are usually interpreted as propositions that are not realized in the actual world (encoded by a feature [*irr*]) and should express directivity (encoded by a feature [*dir*]). She does not really say how the [*dir*]-feature is to be interpreted, apart from the fact that it ensures second person interpretation of the subject. Let's assume furthermore that it constrains the usage of the sentence to being used in a directive speech act (if it is used in a speech act)<sup>1</sup>. 'Normal' imperatives as in (9a) are now paralleled by cases as in (9b), which differ only in that their *dir* feature is defective.

- (9) a.  $\llbracket \text{Go}^{[dir, irr]} \text{ home!} \rrbracket^{c,s} = dir(irr(\text{go.home}'(x)))$   
 b.  $\llbracket \text{go}^{[dir^*, irr]} \text{ home} \rrbracket^{c,s} = dir^*(irr(\text{go.home}'(x)))$

In these cases, the defective directive feature *dir\** still contributes second person reference, but not directivity.

Han assumes that plain imperatives, IoDs and what seem to be IaDs in at least German and Modern Greek (which are argued to behave more like plain imperatives with respect to grammatical properties) contain *dir*, while IaDs in English contain *dir\**. Consequently, English IaDs contain pseudo-imperatives, which immediately answers our question (1b), as to where the semantics of the imperative goes - the crucial part simply has not been there right from the start. In order to answer the first question (1a), IaD like constructions with full-imperatives (e.g. German, Modern Greek) are analyzed as instances of modal subordination (cf. Roberts 1989). That is, the imperative is given, and makes salient a set of worlds with respect to which the second conjunct is interpreted. The salient set of worlds is arguably the

<sup>1</sup> Adding this restriction might be necessary to allow for microphone tests with imperatives and the like.

set of worlds in which the imperative is made true. That is, IaDs like (10a) behave analogously to (10b).

- (10) a. A tiger comes in and he{’ll eat, eats} you first.  
 b. A tiger would come in. He {\*eats, would eat, ???will eat} you first.

But notice that in normal instances of modal subordination, the subordinated material is crucially modalized as irrealis as well and does not allow for *will* as an auxiliary, let alone indicative. Both are generally possible for IaDs, though.

Apart from this difference to other cases of modal subordination, it is not clear to me how the proposal should constrain the occurrence of such defective *dir\** features to precisely the first conjuncts of IaDs. Why couldn’t they for example occur in embedded imperatives, thus obviating Han’s (1998) explanation that imperatives cannot be embedded because of their inherent directivity (which would not allow for embedding)? And why couldn’t they occur in IoDs, giving rise to purely conditional disjunctions? And what blocks them from occurring in plain imperatives?

But apart from these theoretical insecurities, I clearly disagree with Han’s (1998) motivation for the existence of pseudo-imperatives. She claims that imperatives in the first conjunct of IaDs (thus, English IaDs), differ from plain imperatives, imperatives in the first disjunct of IoDs and imperatives in languages with only apparent IaDs (thus, German, Modern Greek and Korean *imperative-then* constructions). The differences are seen in different lexical restriction holding for true imperatives, but not English IaDs, in generic subjects being available in English IaDs, but not true imperatives, and finally non-second person marking and past reference being possible in English IaDs, but not in true imperatives.

In the following, I will show that the differences as claimed for pseudo-imperatives vs. imperatives are better linked to independent pragmatic factors that are no different for German from what is observed for English.<sup>2</sup> This solves a somewhat puzzling situation that German is correctly claimed to pattern with English with respect to the difference between IaDs and IoDs, but, despite that, all of a sudden is claimed to differ from English in having true imperatives in IaDs as well.

### 12.1.2 No need for pseudo-imperatives

#### Lexical Restrictions

Various authors have claimed that IaDs cannot contain true imperatives because they allow for imperativization of predicates that cannot form acceptable plain imperatives (cf. Ibañez (1977), Han (1998)). Han (1998:(296)) gives the following examples (grammaticality judgements hers), and argues that (11b) translated to German is ungrammatical (cf. (11d)). This should show us that (i) IaDs do not contain true imperatives in English, and (ii) IaDs do contain true imperatives in German.

<sup>2</sup>I didn’t have an opportunity to check the case of Modern Greek.

- (11) a. \*Be 7ft. tall.  
 b. ?Be 7ft. tall, and you can play in the NBA.  
 c. \*Sei 2m groß!  
 be.IMP<sub>SG</sub> 2m tall  
 d. \*Sei 2m und du spielst in der NBA.  
 be.IMP 2m and you play.2PSG<sub>INDPRES</sub> in the NBA

I don't agree with either (i) or (ii). On the one hand, the fact that (11a) is rather marginal in English only depends on it being marginal on the prototypical usage for imperatives (namely, requesting or commanding; cf. Section 1).<sup>3</sup> Used for another speech act type (e.g. as a wish one utters to oneself about a person one has not seen yet, e.g. one's partner in a blind date, or also as a magic spell that is to transform one's addressee in height) they are fully acceptable.<sup>4</sup> These cases that do not seem to involve "directive speech-acts" should rather tell us that the assumption of a *dir*-feature in the semantics of imperatives is highly problematic.

On the other hand, I do not agree with the grammaticality judgments as put forth with respect to German IaDs. (11d) is fully grammatical for me and all other German speakers I have asked about it.<sup>5</sup> Further examples for acceptable IaDs with individual level predicates in German that can hardly be used in commands and therefore require a suitable context to be assigned a speech act type are given in (12). (12b) can both be muttered to oneself or expressed overtly to the other person; (12c) is of course a perfectly normal IaD.

- (12) a. #/okSei reich!  
 be.IMP<sub>SG</sub> rich  
 'Be rich!'  
 b. (on having met the perfect guy at a party): "Und jetzt sei  
 and now be.IMP<sub>SG</sub>  
 bitte auch noch reich!"  
 please also additionally rich  
 'Now you only have to be rich, please...'  
 c. Sei reich und dein Leben ist ein einziger Kampf gegen das  
 be.IMP<sub>SG</sub> rich and your life is a single fight against the  
 Finanzamt!  
 tax-office  
 'Be rich and your life is just one big fight against the tax office!'

<sup>3</sup>A similar position is taken by Davies (1986).

<sup>4</sup>Another usage for its German twin in (11c) that is of course likewise claimed to be ungrammatical due to the same error consists in (hypothetically) suggesting a certain experience:

- (i) Sei du mal 2m groß! Du kannst das doch gar nicht beurteilen!  
 be.IMP<sub>SG</sub> you <sub>PRT</sub> 2m tall! You cannot that <sub>PRT</sub> <sub>PRT</sub> not judge.<sub>INF</sub>  
 'You should make this experience of being 2m tall yourself! You have no idea what that means!'

<sup>5</sup>Further speakers agreeing with my judgements include the (mostly German speaking) audiences of the talks given in Berlin, Mannheim, and Cologne (cf. Schwager (2004a), Schwager (2004d), Schwager (2004c)).

So, we can conclude that apparent restrictions on lexical properties in plain imperatives really only speak about properties of certain speech act types, namely, that for example commanding and requesting requires that the addressee is in control over the action commanded. Such a restriction is absent for wishes and spells, consequently, such usages do not impose any restrictions on the agency of the lexical predicate they combine with.<sup>6</sup>

### Generic Subjects

It has also been remarked at various points (e.g. Han (1998), Clark (1993) for a subset of IaDs), that IaDs differ from plain imperatives and IoD-imperatives in allowing (or even favouring) generic interpretations of the second person subject (cf. (13b) vs. (13a)).

- (13) a. Open the Guardian!  
 b. Open the Guardian and you'll find 5 misprints on every page.

Again, Han (1998) claims that the contrast should be taken as evidence in favour of IaDs containing pseudo-imperatives in English.

Although she does not argue for that in detail, for German it should again mean that we would not find generic subjects in IaDs. This is not borne out, German IaDs are just as likely to be interpreted generically as English IaDs.

<sup>6</sup>But look at a different case as it is presenting itself in Russian. Here, the class of IaD construction does not seem to be homogeneous. Boogaart and Trnavac (2004) report two different types, namely **Conditional Imperatives Constructions** (CIC) and **Conditional Directive Imperative Constructions** (CDIC). Truly hypothetical CICs also allow for counterfactual conditionals, and are more liberal with respect of the predicate employed. Amongst other, CICs, but not CDICs allow for non-controllable events, cf. (i).

- (i) a. \*Očutis' v Moskve i vse budet horošo!  
 happen.to.be.IMP.PFV.2SG in Moscow and all is fine  
 (lit: 'Happen to be in Moscow and all is fine.')
- b. Očutis' on v Moskve on by ee navestil!  
 happen.to.be.IMP.PFV.2SG in Moscow and all is fine  
 'If he had happened to be in Moscow at that time, he would have visited her.'

Moreover, CIC even allow for impersonal verbs which cannot normally be imperativized, cf. (ii) (their (6)).

- (ii) Temnej bčera poran'se, my by ne pošli v park  
 be-dark.IMP.PFV.2SG yesterday earlier we PRT not go.PASTPART to park  
 'If it had been dark earlier yesterday, we would not have gone to the park.'

CICs only allow perfective imperatives, but do not impose any restrictions on the person of the subject. To me, these data (to be found in Boogaart and Trnavac (2004)) suggest that Russian might indeed have a morphological form that is best classified as a pseudo-imperative. Nevertheless, Russian clearly allows for conditional constructions with regular imperatives as well. If anything, we would want data like (ii) to show violation of lexical restrictions to be found with plain imperatives in order to discredit IaD imperatives as pseudo-imperatives morphosyntactically and semantically.

- (14) Mach die Zeitung auf und du findest 5 Tippfehler.  
 make.IMPSG the journal open and you find.2PSGINDPRES 5 misprints  
 ‘Open the newspaper and you’ll find 5 misprints.’

Moreover, despite what has been argued by Clark (1993) and Han (1998), IoDs allow for generic subjects quite as freely.

- (15) In Deutschland gilt echt: mach deine Arbeit so gut du  
 in Germany holds really: do.IMPSG your work as good you  
 kannst, oder sie feuern dich sofort.  
 can.2PSGPRESIND, or they fire.2PPLINDPRES you immediately  
 ‘In Germany it’s just like that: Do your job as good as you can or they’ll  
 fire you immediately.’
- (16) a. Speak at least 6 different languages or you are not a cosmopolitan.<sup>7</sup>  
 b. Hab einen Onkel im Ministerium, oder du  
 have.IMPSG an uncle in-the ministry or you  
 kriegst in diesem Land nie einen Job.  
 get.2PSGPRESIND in this country never a job  
 ‘Have an uncle in the ministry, or you’ll never get a job in this country.’

For example, (15) can be said unproblematically as a comment to someone who has just lost his job, this evidencing the possibility of a generic interpretation for IoDs as well.

I think that there is no general difference with respect to plain imperatives which can likewise get generic interpretations, this being especially common in the case of proverbs that are typically not restricted to the addressee in question.

- (17) Was du heute kannst besorgen, das verschiebe nicht  
 what you today can.2PSGPRESIND do.INF that postpone.IMPSG not  
 auf morgen!  
 onto tomorrow  
 ‘What you can manage to do today don’t postpone until tomorrow!’

These also prove to be generic with respect to the interpretation of other deictic elements. The temporal elements *heute* and *morgen* are not understood as referring to the day of the utterance, but rather to subsequent days (or rather, temporal instants) in general.

Imperatives that are to be understood generically have to be distinguished crucially from multiple speech acts. In these cases, one and the same utterance token is used in more than one context, and consequently, addressee referring pronouns change their reference according to who is reading or listening to the text in question. In many cases, it is unknown to the speaker on producing the token who is going to occupy the role of the addressee on the various subsequent utterance situations. Examples are constituted by texts on answering machines, notes left on doors, or reference to readers in various texts or on the internet. Such texts may of course contain imperatives as well ((18a) to be considered e.g. as a note left on the

<sup>7</sup>This example is taken from Franke (2005).

door; (18b) from a webpage that does not exist anymore).

- (18) a. Wenn Sie mich sprechen wollen,  
if you.2PFORM me speak.INF want.2PSGFORMPRESIND,  
kommen Sie bitte in die Cafeteria.  
come.IMPPL you.2PFORM please in the cafeteria  
'If you want to talk to me, please come to the cafeteria.'
- b. Angelika Kratzer's homepage has moved. You will be forwarded automatically in five seconds, or else click here.

Generic imperatives can be confused with multiple speech acts, since generic usage of 2.p.sg. pronouns always requires the addressee to be included (*impersonal use of a personal pronoun cannot exclude in its reference what its normal (deictic) use would signify*, Kitagawa and Lehrer (1990:742)). The difference can be tested though by substituting descriptions like *whoever is going to read this* or its German equivalent in (19a). If meant as multiple speech acts, the interpretation does not change (cf. (19a)), the generic reading is lost (or changed) though (cf. (19b)).

- (19) a. Wenn Sie, der Sie das hier  
if you.2PFORM who you.2PFORM this here  
lesen, mich sprechen  
read.2PSGFORMPRESIND, me speak.INF  
wollen, kommen Sie bitte in  
want.2PSGFORMPRESIND, come.IMPFORM you.2PFORM please in  
die Cafeteria.  
the cafeteria  
'If you, the person reading this note, want to speak to me, please, come to the cafeteria.'
- b. Wenn du, der du mir zuhörst, eine Onkel im  
if you who you me listen-to.2PSGFORMPRESIND an uncle in-the  
Ministerium hast, dann kriegst du immer  
ministry have.2PSGINDPRES then get.2PSGFORMPRESIND you always  
einen Job.  
a job  
'You who are now listening to me, if you have an uncle in the ministry, then you'll always get a job.'

Generic subjects can be found in plain imperatives and IoDs as well. Consequently, we may conclude that IaDs do not differ from true imperatives in allowing for generic subjects.

### Special properties of English IaDs (Bolinger 1967, Clark 1993)

Three further properties have been put forth as specific to English IaDs at various places to show that their first conjuncts differ from true imperatives. In the following, I will show that two of them can be discarded as evidence in favour of pseudo-imperatives. Neither the data with respect to negation, as put forth by Clark (1993), nor the data for non-second person subjects as put forth by Bolinger



(1967) have stood up to further scrutiny.

**negation** Clark (1993) claims that while most cases of IaDs show the same pattern of negation as plain imperative (namely *don't*, instead of *not*), other instances would require negation with *not*. The data has not been confirmed by further research, neither Han's (1998) nor my own informants accepted them.<sup>8</sup> At that point it might be interesting to compare with another language that is usually argued to distinguish declaratives and imperatives by two different forms of negation (cf. also 6.2.2). Korean declaratives are negated as in (20a), imperatives are negated as in (20b) (cf. Sells 2003).<sup>9</sup>

- (20) a. ka-ci anh-nun-ta  
go-COMP NEG-PROC-DECL  
'(Someone) doesn't go.'
- b. ka-ci mal-ala  
go-COMP IRNEG-IMP  
'Don't go!'
- c. \*ka-ci anh-ala  
go-COMP NEG-IMP

And now, what we find is that negation in IaDs<sup>10</sup> can be both the one that is usually found in imperatives, or the one that is excluded from plain imperatives.

- (21) a. amwukes-to meki-ci mal-ki-man hay-la kulmeyen  
anything eat-COMP IRNEG-NMLZ-only do-IMP then  
ne-nun kwulm-e cwuk-ul.kes.i-ta  
you-TOP starve to death-FUT-DECL  
'Eat nothing at all and you will die of hunger.'
- b. ?amwukes-to meki-ci anh-ki-man hay-la kulmeyen  
anything eat-COMP NEG-NMLZ-only do-IMP then  
ne-nun kwulm-e cwuk-ul.kes.i-ta  
you-TOP starve to death-FUT-DECL  
'Eat nothing at all and you will die of hunger.'

Should we take this as evidence that Korean has pseudo-imperatives? I would not think so. A closer look at the behaviour of Korean negation in Section

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<sup>8</sup>The examples are as follows:

- (i) a. *Clark:ok*/\*My lecturer is a real tyrant. Not show up on time and he would throw you off the course.
- b. *Clark:\*/??* My lecturer is a real tyrant. Don't show up on time and he would throw you off the course.

<sup>9</sup>I ignore the additional complication that declarative type negation can be expressed by a long and a short form. Both involve the same negation element *an* that may not occur in imperatives. Here, I give only the long form which is parallel to the formation of the negation in imperatives.

<sup>10</sup>Generally a somewhat dispreferred option. The reasons for that are not entirely clear to me.

6.2.2 has already shown that it is ultimately sensitive not to the clause-type, but rather to the kind of modal background involved. The negation typical for imperatives also appears with modal verbs expressing deontic necessity, even where they appear in questions.<sup>11</sup>

- (22) a. Nayil phati-ey ka-ci mal-ayakeyss-ta  
tomorrow party-to go-NMLZ IRNEG-should-DEC  
'I should not go to the party tomorrow.'
- b. Nayil phati-ey ka-ci mal-kkayo?  
Tomorrow party-to go-NMLZ IRNEG-INT  
'Should I go to the party tomorrow?'

Therefore, I would rather argue, that IaDs contain true imperatives, but do not come with a deontic ordering source. Consequently, they are compatible with the negation that is normally found in non-deontic contexts.

**non-second person subjects** Bolinger (1967) claimed that IaDs would allow for non-second person subjects, as attested by the possibility to bind first person reflexives (cf. (23a)). But comparison with third person data shows that these are better treated as elliptic utterances; binding of *himself* requires third person marking on the verb, cf. (23b).

- (23) a. Buy myself a new suit, and my wife raises the roof.  
b. Buy\*(s) himself a new suit, and his wife raises the roof.

**past reference** Merely one instance of non-imperative behaviour has been confirmed by further research, namely the fact that IaDs in English can combine with past adverbials, and can be confined to talking about intervals that lie entirely before the speech time. Those cases only allow for generic (or habitual) readings. The contrast from Bolinger (1967) is given in (24), a further example is given in (25).

- (24) a. \*Say one word out of turn in those days.  
b. Life was hard in those days. Say one word out of turn and they'd dock you a week's wages.
- (25) [...] she was like a child, like an infant, always afraid of missing out on something - but give her a taste of it and she drank like a brewer's horse. (T.C.Boyle, *Riven Rock*, p. 23)

So far, this type of past reference in IaDs seems to be idiosyncratic of English. Neither German, nor Korean, nor Modern Greek (cf. Han (1998:177)) allow for past reference.

<sup>11</sup>The examples in (22) (repeating (123) in 6.2.2), are taken from Pak, Portner, and Zanuttini (2004), their (15a,b)).

- (26) Das Leben war hart in diesen Zeiten .... \*Nimm dir  
 the life was hard in those days .... take.IMPSG you.DAT  
 einmal frei, und du warst deinen Job los.  
 once free, and you be.2PSGPPASTIND your job away  
 \*for: '(Life was hard in those days.) Take off only once and you got  
 sacked.'

These cases have to be distinguished both from perfect imperatives as possible both in English and German (cf. (27), an example taken from Culicover and Jackendoff (1997)), but also from past imperatives as found in Dutch and maybe also Tsakhur, as discussed in Section 6.1.1 (cf. (28)).

- (27) a. Have broken another vase, and I'm leaving.  
 b. Hab noch eine Vase zerbrochen, und du siehst mich  
 have.IMP yet-another vase broken, and you see me  
 nie wieder.  
 never again  
 'Have broken another vase and you'll never see me again.'
- (28) Had hed gisteren afgemaakt!  
 have.IMPSGPPAST that yesterday finished  
 'You should have finished it yesterday (you fool)!'

An explanation for (i) why English allows reference to past intervals only for IaDs, but never for plain imperatives or IoDs, and (ii) why this behaviour seems to be confined to English, remains yet to be given.

But maybe the example in (25) is telling after all. It is taken out of an interior monologue of the main character. Consequently, it does not have to be interpreted as prior to the utterance time, but rather as simultaneous to the fictive *now*. Of course, even on such a usage it is impossible for instance in German. It might well be the case though that the differences in temporal reference between German and English are linked not so much to imperatives proper but to the still ill-understood behaviour of deictic elements in interior monologues.

If the past reading for IaD-imperatives really hinges on contexts of interior monologues, it might well be possible that it would - in the same environment - be available for plain imperatives alone. Unfortunately, this is very hard to test because plain imperatives normally don't appear in interior monologues. Banfield (1982) argues that this is due to a lack of an addressee. The IaD-imperative in (25) is obviously only possible because its subject is interpreted generically.

Although I don't know where Clark's (1993) original example (24b) was taken from (or, if invented, what context it was intended for), it might be worth pursuing that the difference between English and other languages with respect to past reference in (IaD)-imperatives could be reduced to an independent difference in the functioning

of temporal reference in interior monologues.

### 12.1.3 Intermediate Conclusion

At that point, we may conclude that exceptional past reference in English imperatives is the only difference between plain and IaD-imperatives that so far (maybe) stands up scrutiny among what has been put up for English, German and Modern Greek. Even if it is still not understood why past reference is possible in English IaD, I have argued in the preceding section that it might be linked to an unrelated property of temporal reference in English interior monologues. Apart from that issue, the overwhelming similarities at the syntax-semantics interface speak against distinguishing pseudo-imperatives as occurring in IaDs and normal imperatives.

I think it is a favourable result that there is no need to postulate pseudo-imperatives. The assumption that imperatives are ambiguous between imperatives and pseudo-imperatives as occurring in IaDs, would lead to a high amount of ambiguity that would not be confined to English or some other extravagant Indo-European languages, but would rather appear as a cross-linguistically wide spread phenomenon. Furthermore, we need not develop mechanisms to confine the occurrence of pseudo-imperatives to the first conjuncts of IaDs.

## 12.2 Stripping off Directivity by Pragmatics or Discourse-Semantics

One way to keep the inherent directivity of imperatives but be spared the ambiguity coming in with the postulation of pseudo-imperatives and likewise to account for the proper distributional restrictions is to assume that the part of the imperative denotation we can not use in conditional cases is stripped off by pragmatics or discourse semantics. Additionally, the mechanism has to explain for the hypotheticality of the first conjunct and the modal subordination of the second conjunct.

The earliest attempt to specify an approach along these lines seems to be Davies (1986). Clark (1993) advocates an approach along these lines in Wilson and Sperber's (1988) relevance theory-framework.<sup>12</sup> Recently, Asher and Lascarides (2003a) employ a specific discourse relation triggered by conjunction between imperatives and declaratives.

Approaches in these terms usually rely on the fact that imperatives are not normally conjoined with declaratives and/or are hard to interpret where the imperative is clearly not issued by the speaker for pragmatic reasons. To my mind, the biggest omission in doing so lies in the fact that the connection of imperatives and other

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<sup>12</sup>Clark's (1993) approach is complicated by the fact that he assumes two subsets of IaDs proper (that is, independently of the additional possibility of speech act conjunction): One contains true imperatives and is treated along these relevance-theoretic lines, the other contains pseudo-imperatives which are subject to construction specific rules. As I have argued above, his criteria for distinguishing the two classes of English IaDs are not convincing.

*LS and*-constructions is ignored. For example, why should declaratives conjoined with declaratives so often be forced to give rise to conditional readings?

Furthermore, the strategy has the clear advantage of avoiding the ambiguity brought in by postulating the existence of pseudo-imperatives semantically distinct from imperatives. It remains slightly mysterious though, why languages should so often employ imperatives in order to then strip off part of their semantics. Likewise, what has been called the *semantic map*<sup>13</sup> between imperatives and conditionals remains unaccounted for. As observed in Boogaart and Trnavac (2004) it is not only imperatives that are used as conditional antecedents. Sometimes conditional antecedents are used with directive force as well:

- (29) Wenn Du bitte mal einen Schritt zur Seite gehst!  
 if you please PRT one step to-the side go.2SG.IND.  
 'If you could take a step aside, please.'

This can maybe be taken as an indication that there is rather something in the semantics triggering the kind of usage we find, encouraging thus not to strip off the semantics but use it to predict and constrain possible usages of imperatives.

In the following, I'll take a short look at a very elaborate pragmatic solution to IaDs in terms of discourse relations.

#### Asher & Lascarides on IaDs

Asher and Lascarides (2003a) distinguish between imperatives that are actually 'commanded' and imperatives that are not commanded. Among the latter, we find a set as inhomogeneous as containing at least IaDs (cf. (30a)), recipes (cf. (30b)), and advice (cf. (30c)).

- (30) a. Smoke 20 cigarettes a day and you'll die at the age of 50.  
 b. A: How do I make lasagne?  
 B: Chop onions and fry them with mince and tomatoes, boil the pasta, make a cheese sauce, assemble it, and bake in the oven for 30 minutes.  
 c. Go to the traffic light, then turn right.

Non-commandedness of imperatives always depends on what role the imperative is to play with respect to the surrounding discourse. That is, it depends on the discourse relation that is inferred to integrate the imperative into the SDRS representing that discourse.

In Asher and Lascarides's (2003a) framework imperatives are normally interpreted as changing the worlds taken to be possible to worlds that make the imperative true (cf. Section 3.1.3 for discussion). That's what in their framework being commanded (or, an imperative's occurring in a veridical position) amounts to. For the cases of imperatives that intuitively do not change the world in the described sense, it has to be assumed that they relate to the surrounding discourse via a dis-

<sup>13</sup>A technical term borrowed from Haspelmath (2005), Boogaart and Trnavac (2004)

course relation that is non-veridical at the respective position. That demotes the effect of the imperative.

For IaDs we would want to use the relation of **Def-Consequence**. This is also used to attach (31b) to a preceding sentence (31a).

- (31) a. John came home at 5pm.  
b. So, we could finish the shelves that night.

But as it stands, the axiom for the discourse relation **Def-Consequence** can only combine declaratives, consequently, it has to be modified as in (32b) in order to also cover consequences of imperatives as expressed by IaDs (**Def-Consequence<sub>r</sub>**). (> stands for *If A then normally B*; ! and | stand for clause type imperative and declarative respectively.)

- (32) a. Semantics of **Def-Consequence**:  
 $(w, f) \llbracket \text{Def-Consequence}(\alpha, \beta) \rrbracket_M(w, g)$  iff  $(w, f) \in V_M[K_\alpha > K_\beta]$   
 b. Axiom on **Def-Consequence<sub>r</sub>**:  
 (i)  $\text{Def-Consequence}_r(\alpha, \beta) \Rightarrow (\alpha :! \wedge \beta :|)$   
 (ii)  $(\text{Def-Consequence}_r(\alpha, \beta) \wedge \alpha :! \delta K'_\alpha) \Rightarrow (([\delta K'_\alpha] \top) > K_\beta)$

What this says is that under normal conditions, the result state of the action expressed by the imperative makes the conjoined declarative true. According to (32bi), conjoining an imperative with a declarative is a monotonic cue for inferring *Def-Consequence<sub>r</sub>*. Sometimes, if the consequence is desired, we can additionally infer the meta-talk relation *Explanation\** which in contrast to *Def-Consequence<sub>r</sub>* is veridical. Consequently, the imperative plays a dual role in these cases: Not only does it result as the antecedent of the conditional expressed by the two arguments of *Def-Consequence<sub>r</sub>*, but it is also commanded.

As it stands, the proposal overgenerates. The conjunction of an imperative with a declarative is taken as a monotonic cue for the discourse relation that forms a conditional and is left non-veridical. Consequently, cases of speech act conjunction as in (6) (one of which is repeated here as (33)) are targeted as well.

- (33) a. Geht schon mal nach Hause, und ich räume hier noch ein  
 go.IMPPL already PRT to home, and I tidy here still a  
 bißchen auf.  
 bit up  
 'You (all) go home, I'll do some cleaning up here.'  
 b. ≈ Ich erlaube euch, schon nach Hause zu gehen, und ich  
 I allow you.2PPL, already to home to go, and I  
 verspreche euch, hier noch ein bißchen aufzuräumen.  
 promise you.2PPL here still a bit up-INFMK-tidy  
 'I allow you to go home already, and I promise you to do some cleaning  
 up here.'

On the other hand, analogous mechanisms would have to be postulated for covering the other instances of *LS and*, as given in (34) (As I remarked in the beginning, this can be expected to constitute a problem for a pragmatic (or discourse-semantic) approach to IaDs.).

- (34) a. You drink another beer and I am leaving.  
 b. Another beer and I'm leaving.  
 c. You only have to order another beer and I'll leave.

Since the cue constituted in the imperative being conjoined with the declarative, and the operation relied on an imperative to be stripped off, similar mechanisms would have to be doubled. It is not entirely clear to me how the discourse relation can look into the proposition as to target the complement of the modal in the first conjunct of (34c). Furthermore, I don't quite see how conjunction of a declarative with a declarative should be treated as a cue for inferring *Def-Consequence<sub>r</sub>*.

A further concern is the repeat of the imperative achieved by additional inference of the veridical relation *Explanation\**, whenever the consequence is positive. I don't see how this should deal with more complicated cases involving pronoun binding.

- (35) Be nice to him and no politician will let you starve.

Repeating only the imperative does not give the desired reading. Nevertheless, since imperative repeat is motivated by positive evaluation of the consequence, for these cases we would somehow want a repeat to take place. But that would rather have to be along one of the lines as proposed in (36):

- (36) Be nice to a/every/the salient politician!

Consequently, I think that the repeat relations are at a fundamentally different level (e.g. part of the (maybe invited) reasoning of the addressee) and should not surface as an entry in the SDRS constructed.

Last but not least, I think that we should rather take serious the fact that so many languages allow for imperatives in the first conjuncts of these constructions. It would then be interesting, if the conditionals expressed by IaDs are in any interesting way reminiscent of the ingredients we have seen in the semantics of imperatives. The solution I'll be proposing in the end (cf. Section 12.3.2) tries to do exactly that. But first, I'd like to look at another solution in terms of underspecification.

## 12.3 Employing Underspecification

### 12.3.1 Imperatives as sentence radicals

In a sequence of talks, Manfred Krifka (Krifka 2004c, Krifka 2004b, Krifka 2004a) has sketched interesting approaches to both IaDs and IoDs (also relying on a strategy of diversification). In the following, I want to take a brief look at his account for

IaDs.

Krifka assumes that root clause imperatives normally consist of a sentence radical that comes with an animacy restriction and is to be combined with an illocutionary operator. The addressee restriction on the subject of imperatives is only brought in by an illocutionary operator as for example COMMAND.

- (37) a. *show up late*:  $\lambda x_{\text{animated}}.[\text{show-up-late}'(x)]$   
 b.  $\lambda F[\text{COMMAND}[F(\text{addressee})]]$

Alternatively, imperatives can also act as restrictors of a generic operator. (38a) is mapped onto the formula in (38b).

- (38) a. Show up late, and you'll all lose our jobs.  
 b.  $\text{GEN}(x, i) [\text{show-up-late}'(x:\text{animated}) \text{ in } i][\text{lose-job}'(c_A) \text{ in } i]$

I think that this is problematic in various respects. Krifka wants to account for the fact that many IaDs only get generic interpretations. Consequently, the subject of the antecedent is not restricted to second person. But, in order to capture the meaning of (38a), it also has to bind the second person pronoun in the consequent. This is not expressed by the formula in (38b) (it only says that typically, when someone shows up late, in such a situation the addressee loses the job). This is a reflex of the fact that the possibility of a generic interpretation of second person pronouns (or, there being bound by a generic operator) is entirely independent from the possibility of a generic interpretation for the imperative subject in an IaD. In (38a), both the imperative subject and the addressee referring pronoun in the second conjunct have to be bound by the generic operator. A to my mind natural solution would thus be to translate both the subject of the imperative and the addressee referring pronoun in the second conjunct as variables with a second person restriction, but allow for a generic operator to bind variables that are marked as second person.<sup>14</sup>

Moreover, reflexives are still second person (cf. (39)) in IaDs.

- (39) Praise yourself/\*himself and none will respect you/\*him.

Last but not least, a lot of IaDs make concrete predictions about the actual addressee. Therefore, the subject of the imperative should not always be bound by a generic operator whenever a (purely) conditional effect is to be obtained (cf. (40)).

- (40) Drink one more beer and I'll leave.

So, it seems that the addressee restriction has to be truly part of the imperative radical already.

On the other hand, the animacy restriction does not seem necessary. Whatever is treated as an addressee, has to be conceived of as animate. But this is not

<sup>14</sup>For variable binding under feature (mis)match, cf. von Stechow (2003).



restricted to imperatives or speech acts typical for imperatives, as shown by two equally possible and equally probable interactions with one's printer (cf. (41)).

- (41) a. Druck endlich mein File aus, du verdammtes Ding!  
 print.IMPMSG finally my file out, you damn thing  
 'Print my file, you damn thing!'
- b. Wenn du verdammtes Ding nicht endlich mein File  
 if you damn thing not finally my file  
 ausdrückst, kriege ich einen Schreikrampf.  
 print-out.2PSGINDPRES get.1PSGPRESIND I a screaming-fit  
 'If you don't print my file now, you damn thing, I'll immediately get a  
 screaming fit.'

Therefore, it seems that, on the one hand, Krifka's proposal is not specific enough with respect to the invariant second person restriction, whereas on the other hand, it is not general enough with respect to the types of IaDs to be found.

I think that Krifka makes a very important observation, though, when mentioning that the mapping on the restrictor of the generic operator is triggered by deaccenting of the first conjunct. He mentions that this is likewise the case with other instances of *LS and*:

- (42) a. You drink another bottle of beer and I am leaving.  
 b. John comes home drunk again and I'm leaving.

For these, we could probably likewise assume a covert generic operator (Although, (42a) would not normally be seen as a case of genericity. It rather seems to talk about what are taken to be possible futures by the speaker. Consequently, it rather expresses some sort of metaphysical necessity.). But note that *LS and* could also occur with *sufficiency modals* (cf. von Stechow and Iatridou 2005a). In that case, we cannot simply let the proposition expressed by the first conjunct restrict a covert genericity (or other necessity) operator. Before doing so, we would have to get rid of the modal (*only*) *has to*. What we want as a semantics for (43) is not (43a), but (43b).

- (43) You only have to say that again and you'll never see me again.  
 a.  $\square$  [have-to-say-that-again' $c_A$ ], never-see-again' $c_A, c_S$ ]  
 b.  $\square$  [say-that-again' $c_A$ ], never-see-again' $c_A, c_S$ ]

Consequently, Krifka's solution of letting the imperative sentence radical constrain a generic operator is not general enough to cover all cases of IaDs, let alone carry over to the other cases of *LS and*.

In the following, I will elaborate a solution that relies on the same strategy of connecting the deaccentuation of the first conjunct to mapping onto the restrictor. But it tries to take into account the rest of the *LS and* data by assuming that the necessity operator needed to get the generic (or metaphysical necessity) reading is not added to the construction, but is already part of the first conjunct. Together with

the imperative semantics I have proposed in Section 6, this immediately provides us with an explanation for why imperatives are good candidates for first conjuncts of *LS and*-constructions, manifesting itself as the cross-linguistic wide spread phenomenon of IaDs.

### 12.3.2 Turning imperatives into conditional operators

In contrast to the expectations in connection with pseudo-imperatives, no real differences are to be found between the strings that can constitute IaD-imperatives and plain imperatives. Furthermore, imperativity does not seem to be a crucial marker of the left conjunct of *LS and*, this being a problem for the pragmatic approaches (cf. Section 12.2) and the particular approach in terms of underspecification as proposed by Krifka (cf. Section 12.3.1).

What I will try in the following is to integrate imperatives in a more general analysis of *LS and* as a conditional construction.<sup>15</sup> I will try to show that the underspecified, but modal semantics I have been proposing for imperatives in Section 6 can be integrated straightforwardly into the semantics of the construction, fitting well with actual restrictions observed on the type of conditionals expressed.

In Section 8, I have argued that the analysis of imperatives as modal operators naturally extends to cases of conditioned imperatives as in (44):

(44) If you run into Adrian, tell him about the submission deadline.

The analysis relies on the fact that, in the framework as proposed in Section 5.2, conditionals constitute modal sentences in which the modal base (or the ordering source, cf. 7) is further restricted by the proposition as given in the *if*-clause. It has been argued at various points that such a mapping is triggered rather by information structural processes than by strictly syntactic mechanisms (cf. von Stechow 1994). In the following I want to argue that *LS and* comes with a special intonation contour that triggers mapping of the entire proposition embedded under a modal operator in the first conjunct into the restrictor of the modal operator.<sup>16</sup>

Let's first consider information structural partitioning into domain and restrictor as occurring with overt modal verbs. A famous example stems from Halliday (1967) who observes the following sign attached to an escalator, cf. (45a). Just like its German equivalent (enriched by explicit information as to the location) (45b), this allows for two different mapping processes<sup>17</sup>, and is ambiguous between the two

<sup>15</sup>This chapter is closely related to joint work with Hans-Martin Gärtner, presented as Gärtner and Schwager (2004).

<sup>16</sup>This might be a crude simplification, and it might even amount to treating something in terms of structure that should really be treated in terms of pragmatic resolution of an anaphoric element. von Stechow (1994) argues at length that the apparent link between topicality and domain restrictions is only an epiphenomenon to both topical material and a variable assumed to constitute the domain restrictor being dependent on anaphoric resolution through the context. The solution for IaDs I'm proposing in the following should easily be rewritable to conform to this pragmatic view on domain restrictions.

<sup>17</sup>For the sake of explicitness, I assume that the distinction of restriction and nuclear scope

readings in (47).<sup>18</sup>

- (45) a. Dogs must be carried.  
 b. Auf der Rolltreppe müssen Hunde getragen werden.  
 on the escalator must dogs carried get  
 'Dogs must be carried on the escalator.'
- (46) a.  $\Box[\text{dog}'(x) \ \& \ \text{on-this-escalator}'(x)(e) \ ][\text{carried}'(x)(e)']$   
 b.  $\Box[\text{on-this-escalator}'(e) \ ][\text{dog}'(x) \ \& \ \text{carried}'(x)(e)]$

The first (unmarked and most likely intended) reading, stems from deaccenting *dogs*, which causes them to be treated as topical and to be mapped onto the restrictor. The second reading is obtained by accenting *dogs* and consequently mapping them onto the nuclear scope. Under standard assumptions of existential closure (cf. Diesing 1992), for these LFs, we get truth conditions as in (47):

- (47) a.  $(\forall w' \in f(w))[\exists x \exists e(\text{dog}'_{w'}(x) \ \& \ \text{on-this-escalator}'(x)(e))][\text{carried}'_{w'}(x)(e)]$   
 b.  $(\forall w' \in f(w))[\exists e(\text{on-this-escalator}'(e))][\exists x [\text{dog}'(x) \ \& \ \text{carried}'_{w'}(x)(e)]]$

Now, consider the imperative. According to the semantics in (176), it is a modal operator very much like *must*. Consequently, we would expect the same readings to be possible. And indeed, it seems to be the case that in addition to examples that unambiguously map indefinites onto the nuclear scope of the quantifier (e.g. (48a)), others also favour mapping of indefinites into the restrictor. (48b) favours a reading that has the indefinite in the restrictor of the modal quantifier.

- (48) a. Kauf dir einen Hund!  
 buy.IMP you.DAT a dog  
 'Buy yourself a dog!'
- b. Überleg dir eine Trennung gut!  
 consider.IMP you.DAT a separation well  
 'If you consider a separation, consider it well.'

Now consider the *LS and*-construction in (49a). It seems to be a conjunction of two root sentences, tied together as one intonatory unit. This contrasts with ordinary conjunctions of root sentences (e.g. the speech act conjunctions discussed higher up), that allow or even require a low boundary tone<sup>19</sup> on the end of the first conjunct. For IaDs, a low boundary tone is impossible. Consequently, a low boundary tone results in ungrammaticality if the binding relation requires an IaD interpretation.

- (49) a. Come in time and you'll get a seat.  
 b. Sei nett zu ihm<sub>i</sub> (L%) und jeder Politiker<sub>j</sub> wird dir  
 be.IMP2SG nice to him and every politician will you.DAT  
 helfen. (\*i = j)  
 help.INF

manifests itself at LF, but nothing hinges on that.

<sup>18</sup>The proper treatment of events is neglected here. A refinement according to e.g. Eckardt (1998) should be straightforward.

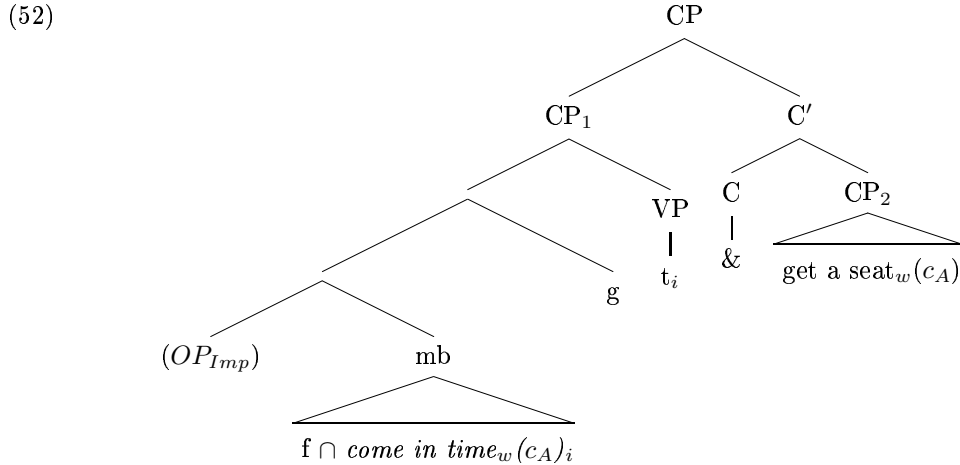
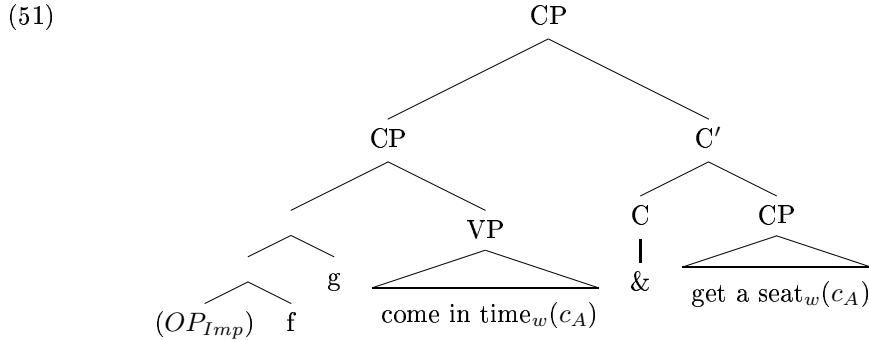
<sup>19</sup>Low boundary tones are indicated as L%. This follows Pierrehumbert and Beckman (1988).

‘Be nice to him and every politician will help you.’

The structure of a typical IaD as in (49a) looks as in (50).

$$(50) \quad \llbracket [_{CP} OP_{Imp} \text{ come-in-time}'(c_A)(e)(w)] \ \&P \ \text{and} \ [_{CP} \text{ get-a-seat}(c_A)(e)(w)] \rrbracket$$

Consider now the information structurally guided splitting into domain vs. restrictor. I want to argue that this leads to deaccenting of the entire material in the first conjunct. In analogy to the deaccented indefinite *dogs* in the unmarked interpretation of (45a), the deaccented material is mapped onto the restrictor. But this constitutes the entire complement proposition of the imperative operator. Consequently, the map proceeds as indicated in tree (52):



The restrictor mapping movement does not create a binder for the trace, consequently, the trace can be abstracted over at the level of  $CP_1$  in order to make it compatible with  $C'_2$ . The denotation of  $\llbracket CP_1 \rrbracket^{c,s}$  is given in (53). *LS and* is not interpreted.<sup>20</sup> Consequently,  $CP_1$  is applied to  $C'_2$  which gives (54).

$$(53) \quad \lambda Q \lambda w. O(cg_F(c) \uplus \lambda w'. \text{come-in-time}'(c_A, w'), g, w) \subseteq Q$$

$$(54) \quad \lambda w. O(cg_F(c) \uplus \lambda w'. \text{come-in-time}'(c_A, w'), g, w) \subseteq \text{get-a-seat}'(c_A)$$

<sup>20</sup>Note that this is very plausible due to the fact that it can often be substituted for by *then*, or even left out completely while still retaining the conditional interpretation.

Basically, what happens is that the modal operator does not get applied to its argument (in our example the proposition *that the addressee comes in time*), but this proposition is used to restrict the set of worlds with respect to which the imperative (viz., necessity) is to be evaluated.<sup>21</sup>

Let us recollect the ingredients of the analysis so far. The construction conjoins two full CPs. The first conjunct contains a necessity operator and its complement proposition. Due to a lack of a boundary intonation, the entire material in this complement proposition is interpreted as topical and therefore mapped onto the restrictor of the modal operator. *LS and* is interpreted as empty and therefore, the first CP (which after abstracting over the trace in order to avoid type mismatch), can be applied to its sister node C' which (due to the emptiness of *LS and*) denotes the proposition expressed by the second conjunct. That is, the construction is assumed to rely on an interplay of

- a lack of boundary intonation,
- the semantically vacuous *LS and*, and
- the presence of a necessity operator in the first conjunct.

Thinking of the other cases of *LS and*, it is maybe not immediately clear where the necessity operator comes from. But consider the contrast in (55) for English *declarative and declarative* (DaD).

- (55) a. You come in time and you'll get a seat.  
 b. ???You are coming in time and you'll get a seat.

Franke (2005) argues at length that the first conjuncts of DsDs cannot be subsumed under any of the generally assumed usages of English Simple Present. For the moment, I would assume that it either encodes genericity or habituality, or maybe also stereotypical expectation with respect to the future course of events. All of these correspond to covert necessity operators that are compatible with English Simple Present and do not allow for Progressive. For the construction in question, it immediately gives us the right reading.<sup>22</sup> For *NP and declarative* (NPaD), I would like to argue that they have to be analysed as elliptical anyway. At this point, I refrain from further speculations as to their character.

The account makes two pleasant predictions, in that *LS and*-constructions display two features that are also built into the imperative semantics, suggesting that the latter is indeed one possibility to arrive at the semantics of the construction.

<sup>21</sup>This mechanism is highly reminiscent of a proposal made by Gärtner and Endriss (ta) and Ebert, Endriss, and Gärtner (ta) for verb-second relative clauses.

<sup>22</sup>Although English behaves nicely in that respect, other languages do not necessarily confirm the hypothesis. For example, Polish distinguishes between imperfective and perfective aspect; it uses imperfective aspect for expressing habituality and genericity. Nevertheless, in DaDs, we only find perfective verbs. I could imagine that in these cases the need to express completion of the action overrides imperfectivity as expressing genericity. It would be interesting to test Bulgarian that expresses both habitual occurrence of perfective events and closedness of intervals characterized by habitually occurring events, cf. Comrie (1976).

Firstly, it has often been noticed that IaDs can never express epistemic conditionals, but always express metaphysical conditionals (cf. Condoravdi (2002) for the distinction). Consequently, the (purely) epistemic conditional (56a) cannot be rendered by the IaD in ?? (cf. Bolinger (1967)).

- (56) a. If you are John Smith this letter is for you.  
 b. #Be John Smith and this letter is for you.

This intuitive distinction is confirmed by the fact that IaDs allow for binding relations possible in metaphysical (cf. (57b)) but not epistemic conditionals (cf. (57c)).

- (57) a. Be nice to his<sub>i</sub> secretary and every senator<sub>i</sub> will help you.  
 b. If you are nice to his<sub>i</sub> secretary, every senator<sub>i</sub> will help you.  
 c. \*If he<sub>i</sub> is already there, every speaker<sub>i</sub> will give you a handout.

The ban on (purely) epistemic conditionals<sup>23</sup> squares well with the fact that plain imperatives never express epistemic necessities.

Secondly, *LS and*-constructions are inappropriate for reasoning or arguing, in a way, whatever a speaker states by using an *LS and*-construction has to go accepted or some sort of meta-discussion has to start. I would say that this is highly reminiscent of the authority condition. E.g., if a speaker talks about his own stereotypes, it is very hard to argue with him that he is mistaken.

But, of course, the account is not unproblematic either.

It is one of its unpleasant predictions (and I'm indebted to Manfred Krifka (p.c.) for having pointed this out to me) that we would certainly expect that *must* could also function as the necessity operator required in the first conjunct of *LS and*. Nevertheless, this is clearly impossible.

- (58) You must come in time and you'll get a seat.

Furthermore, it is not entirely clear how the sufficiency modal *only have to* works to achieve the correct interpretation for the *LS and*-construction.

- (59) *only must*  $\alpha$  &  $\beta \approx$  If  $\alpha$ ,  $\beta$ , and not more than  $\alpha$  is needed to  $\beta$ .

<sup>23</sup>Despite the contrast in (56) as observed by Bolinger (1967), some conditionals that express properties of the actual *hic & nunc* in the antecedent (usually a property of epistemic conditionals) can be rendered as IaDs after all. (i) gives a German example that was accepted by most though not all informants.

- (i) Hab jetzt das Herz-As in der Hand und ich kann das Spiel vergessen.  
 have.IMP now the heart-ace in the hand and I can the game forget  
 'If you have the ace of hearts in your hand right now, I have to fold.'

Independently of how good such examples actually are, they bear an intuitive difference as to (56). While the latter does indeed express pure epistemic necessity, (i) seems to involve a strong subjective or stereotypical component as well. Intuitively, this is again reminiscent of what we observed for plain imperatives (rendered there in terms of OSA (the *principle of ordering source affirmation*)). So far, I do not know how to make this intuition precise.

( $\alpha$  is least likely to (necessarily) cause  $\beta$ )

A second problem is easy to see if we compare for a moment the analysis with what I have been doing in Section 8. There, conditional antecedents were used to restrict the modal background of imperatives. Intuitively, we would thus expect that IaDs could express the same. But this is clearly not born out. (60a) can never mean (60b).

- (60) a. Verlaß dein Haus und du nimmst einen Schirm mit.  
leave.IMP your house and you take an umbrella with  
'Leave your house and you take an umbrella with you.'
- b. Wenn du dein Haus verläßt, nimm einen Schirm mit.  
if you your house leave, take.IMP an umbrella along  
'If you leave your house, take an umbrella with you.'

Therefore, we have to assume severe restrictions on the ordering sources appearing in IaDs as opposed to those appearing in plain imperatives. Interestingly enough, it seems to be precisely those which we took great pains to rule out for the case of plain imperatives, namely e.g. stereotypes of the speaker.

As it stands, the restrictor mapping hypothesis seems to cover the data, but it also overgenerates quite a bit. Furthermore, it requires some maybe not completely intuitive assumptions in order to make it carry over to DaDs and NPaDs.

## 12.4 Outlook on *only* and *even*

As I have pointed out at the end of the preceding section, the restrictor-mapping-hypothesis makes the incorrect prediction that neutral necessity modals like *must* should appear as the conditional operator in *LS and*-constructions. But, (61a) only hardly gets a conditional reading (cf. Krifka 2004c), and it seems completely impossible for its German translation in (61b).<sup>24</sup>

- (61) a. You must come in time and you'll get a seat.  
b. Du mußt pünktlich kommen, und du kriegst einen  
you must in-time come.INF, and you get.2PSGPRESIND a  
Sitzplatz.  
seat

Nevertheless, we have seen at various points that some necessity modals can appear in IaDs after all, namely those expressing sufficiency:

- (62) a. You only have to come in time and you'll get a seat.  
b. Du mußt nur pünktlich kommen und du hast einen Sitzplatz.

<sup>24</sup> Apart from the reading that arises from treating *must* as part of the antecedent proposition and is equivalent to (i):

(i) If you are obliged to come in time, then you'll get a seat.

An interesting parallel to these cases has to be pointed out for IaDs with imperatives in Korean. Strictly speaking, Korean does not have true IaDs, since it does not use conjunction to express the conditional relation between the imperative and the declarative. Instead, it employs two root clauses the second of which is preceded by *kulemyen* ‘then’, the element which also occurs as introducing the consequent of a conditional. Han (1998) considers these constructions, but claims that Korean does not have truly conditional imperatives. All apparent instances of IaDs<sup>25</sup> would actually consist in issuing an imperative and modally subordinating the consequent as given in the following declarative (e.g. (63), her (312a)). She points out that sequences as in (64) (her (312d)), where the imperative is clearly not meant as an incentive to fulfill the respective action (that is, it cannot be understood as a command, request or wish), are unacceptable. For a language with truly conditional IaDs, such sequences are, of course, perfectly acceptable.

- (63) Sue-eykey cenwhahayla.kulemyen Sue-ka cohahal-kesita.  
 Sue-to call-IMP then Sue-NOM happy-FUT-DECL  
 ‘Call Sue. If you do, she will be happy.’
- (64) \*Kamki-ey kelyela. kulemyen myechil tongan kosayngchal-kesita.  
 flu-at catch-IMP then days during miserable-FUT-DECL  
 (intended: ‘Catch the flu. If you do, you will be miserable for days.’)

Shin-Sook Kim (p.c.) has pointed out to me that these constructions get immediately acceptable, when modified by a minimizer *-man*, which is roughly equivalent to ‘only’.<sup>26</sup>

- (65) Curry-man mek-ki-man mek-ela kulemyen ne-nun cwuk-ul.kes.i-ta  
 curry-only eat-NMLZ-only eat-IMP then you-TOP die-FUT-DECL  
 ‘Eat only the curry [intended: without the rice], and you’ll die.’

Given that, Korean imperatives seem to resemble English or German *must*, in requiring a minimizer in order to be able to express the conditional relation.

A tempting solution might be to bring the Korean data together with the observation that pure necessity modals are unacceptable for expressing *left-subordination* in conjunctions, and assume that the conditionality effect crucially relies on such

<sup>25</sup>In the case of Korean thus of the form *imperative. then declarative*

<sup>26</sup>Interestingly enough, the focus particle has to associate at least with the verb, and may also target the entire VP. Association with any other constituent under narrow focus results unacceptable. (V- (R1) vs. VP-focus (R2) in (ii) is disambiguated by intonation.)

- (i) Curry-lul po-ki-man ha-ela kulemyen ne-nun cwuk-ul.kes.i-ta  
 curry-Acc see-NMLZ-only do-IMP then you-TOP die-FUT-DECL  
 R1: ‘Only LOOK at the curry and you’ll die.’ (You don’t even have to eat it.)  
 R2: ‘Look at the curry and you’ll die.’ (You don’t have to do anything else.)
- (ii) \*Curry-man mek-ki-man mek-ela kulemyen ne-nun cwuk-ul.kes.i-ta  
 curry-only eat-NMLZ-only eat-IMP then you-TOP die-FUT-DECL  
 (intended for: ‘Eat only the curry [intended: without the rice], and you’ll die.’)



an operation of minimization. This would also be warranted by the fact that, in German, we often find *schon* ‘already’ in the second conjunct of IaDs or other *LS and*-constructions. This element is also used to mark sufficiency in conditionals.

- (66) a. Paß eine Minute nicht auf und schon hast  
 pay-attention.IMPSG one minute not to and already  
 du eine Tomate im Gesicht.  
 have.2PSGPREIND you a tomato in-the face  
 ‘Don’t pay attention for a moment and you’ll get a tomato in your  
 face.’
- b. Schon wenn du mich anrufst, wäre ich  
 already if you me call.2PSGPREIND be.1PSGSUBJII I  
 zufrieden.  
 content  
 ‘Already if you call me, I’d be happy.’
- c. Wenn du mich anrufst, wäre ich schon  
 if you me call.2PSGPREIND, be.1PSGSUBJII I already  
 zufrieden.  
 content  
 ‘Already if you call me, I’d be happy.’

von Fintel and Iatridou (2005a) compare what they call *causal conjunctions* with sufficiency modals in purpose clauses.

- (67) a. You only have to go to the North End to buy good cheese.  
 b. You only have to go to the North End and you’ll buy good cheese.

The interesting difference they point out is that while sufficiency modals in purpose clauses only seem to encode a necessary precondition, causal conjunctions seem to express an automatic effect ((67a) is closer in meaning to (68) than to (67b)).

- (68) You only have to go to the North End and it is possible for you to buy good cheese.

This is also reflected in the name “causal conjunction”, the assumption being that there is a causal relation between the first and the second conjunct. This is also the intuition that underlay the earliest closer investigation of these cases (*‘Imperative’ conditions are limited to those whose consequences are the automatic result of the condition.*, Bolinger (1967:344)). A recent analysis along these lines has been given in Franke (2005) (cf. Section 14 for discussion).

An alternative I had sketched at previous occasions (Schwager 2004d, Schwager 2004c) would amount to using the second conjunct as a designated goal (in the sense of von Fintel and Iatridou (2005c)), and arrive at the following structure:

- (69) If you want to buy good cheese, you only have to go to the North End.

One problem with such an analysis is that the information structure is reversed. Normally, domain restrictions are assumed to be topical (cf. 12.3.2). But it is

very hard to interpret the second conjunct of an IaD as topical. Either, the entire conjunction provides new information (cf. (70)), or, the first conjunct is interpreted as topical (cf. (71)).

- (70) A: How does one ever get in?  
 B: Don't worry, usually it's easy. Come in time and you'll have a seat.
- (71) a. A: Ein Onkel im Ministerium wär schon sehr  
 A: an uncle in-the ministry be.3PSGSUBJII PRT very  
 praktisch!  
 practical  
 A: It would be nice to have an uncle in the ministry!
- b. B: Was um alles in der Welt soll ich mit einem Onkel  
 B: what for everything in the world shall I with an uncle  
 im Ministerium?  
 in-the ministry  
 B: 'What am I to do with an uncle in the ministry?'
- c. A: Naja, hab einen Onkel im Ministerium und du  
 A: PRT have.IMPSG an uncle in-the ministry and you  
 hast immer einen Job!  
 have.2PSGIMPPRES always a job  
 A: 'Well, have an uncle in the ministry and you'd always have a job.'

Daniel Hole (p.c.) has pointed out to me that such an unexpected topic-focus structure with respect to what counts as restrictor and what as nuclear scope is very similar to the behaviour of particles marking Chinese conditionals (cf. Hole (2004)). Given that, it should maybe not trouble us too much. For a general argumentation that the link between domain restrictions and topicality is far less tight than has often been assumed, cf. von Stechow (1994).

Another problem lies in the fact that *LS and*-constructions differ from anankastic conditionals and purpose clauses in that the latter only promise relevant preconditions for the action in question, whereas the former claim that the consequences are automatically coming about, ((69) and (67a) vs. (67b)).

As tempting as it is to draw on the presence of sufficiency markers and a notion of automatic consequence to get to a satisfactory semantic analysis of IaDs (or *LS and* in general), there is one issue that has not been taken notice of so far. Namely, first conjuncts of *LS and* can not only contain minimizers, but allow for maximizers as well. Consequently, IaDs and other *LS and*-constructions can also express *even if*-conditionals.

- (72) Ruf ihn um MITTernacht an und er ist nicht  
 call.IMPSG him at midnight to and he be.3PSGINDPRES not  
 sauer.  
 angry  
 'Call him at MIDnight and he won't be angry.'

Parallel cases are possible with declaratives (cf. (73a)), or also overtly modalized first conjuncts.<sup>27</sup> In the case of overt modalization, we find possibility instead of necessity.

- (73) a. Ach, den Hans rufst du (sogar) um MITTernacht an  
 INTJ the Hans call.2PSGPRESENTIND you (even) at midnight to  
 und er ist nicht sauer.  
 and he be.3PSGPRESENTIND not angry  
 ‘Well, John you can even call at midnight and he is not angry.’
- b. Du kannst ihn sogar um MITTernacht anrufen und er  
 you can.2PSGPRESENTIND him even at midnight call.INF and he  
 ist nicht sauer.  
 be.3PSGPRESENTIND not angry  
 ‘You can even call him at midnight and he won’t be angry.’

In the face of these examples we should recall that the conditional analysis in the framework of Angelika Kratzer (1978, 1991) allows for both necessity and possibility modals to constitute the operators of conditional clauses. Should we therefore assume that these are of the form in (74a), and that the possibility of expressing them as IaDs as in (74b) would point to true possibility interpretations of imperatives? The conditionals would then come out as in (74a).

- (74) a.  $\alpha$  and  $\beta \rightsquigarrow (\alpha, \beta)$   
 b.  $\text{even}(\diamond[[\text{you call him at midnight}]] \lll [[\text{he is not angry}]] \rrr)$

Without going into discussion of the semantics of the focus sensitive particle *even* I will assume that it contributes the presupposition that its complement proposition is the most unlikely under its alternatives to be true. As usually (cf. Rooth 1985), alternatives are computed for the slot that is marked as focus, but it is determined by pragmatics what counts as an alternative to that. In our case, a reasonable set of alternatives would be *{If you call him in the morning, he is not angry; If you call him at lunch time, he is not angry;...}*. The meaning we intuitively get from (74a) is thus something like *If you call him at midnight, he won’t be angry, and that would have been the most likely time to make him angry if you called him. (Consequently, you can call him any time without making him angry.)*. But let’s now look at what we get from (74a). This says that *It is possible that he is not angry if you call him at midnight, and that’s the unlikeliest time for a possibility that he is not angry. (Consequently, at all times it is possible that you call him without making him angry.)*. Compared to the intuitive meaning we were looking for, this proves too weak; the intuitive reading compares propositions of the form in (75a),

<sup>27</sup>NPs seem to be excluded though.

- (i) a. #Ein Anruf um MITTernacht und er ist nicht sauer.  
 a call at midnight and he be.3PSGPRESENTIND not angry
- b. #Sogar ein Anruf um MITTernacht und er ist nicht sauer.  
 even a call at midnight and he be.3PSGPRESENTIND not angry

whereas the predicted reading compares propositions of the form in (75b).

- (75) a.  $(\forall w \in CG : \text{you call him at } t \text{ in } w)[\text{he is not angry at the moment } t' \text{ following } t]$   
 b.  $(\exists w \in CG : \text{you call him at } t \text{ in } w)[\text{he is not angry at the moment } t' \text{ following } t]$

Consequently, (74b) cannot be treated as possibility conditionals. This does not pose a problem for the IaD-mapping analysis as such, but it thoroughly challenges the operator mapping analysis for *LS and*-constructions in general. Intuitively, we would still want a necessity operator, but what we find overtly is a possibility operator.

So, for these *even if*-conditionals, the second conjunct poses neither a goal that can be achieved by the action mentioned in the first conjunct, nor, more generally, something that is caused by the action mentioned in the first conjunct. Rather, these cases express that the action specified in the first conjunct fails to alter the state expressed in the second conjunct, and they presuppose that this action is least likely to leave it the same (that is, the alternative that is most likely to change it) (cf. von Stechow (1991) for the semantics of *even*). In analogy to the positive, negative and neutral interpretation, we find both cases where permanence of the second conjunct is preferred or not:

- (76) a. Call him at MIDnight and he won't be angry.  
 b. Call him from the aSYlum and he would not budge an inch to help you.

But note that not all *even if*-IaDs express permanence of a state. Some of them do contain result or causation after all:

- (77) Call him at MIDnight and he would help you. ( $\rightarrow$  *He would always help you.*)

Going back to the causation analysis, intuitively, we would have to allow for the combinations in (78).

- (78) a. even action *LS and* state = even NOT CAUSE (action)(NOT state)  
 b. (only) action *LS and* change = CAUSE (action)(change)  
 c. even action *LS and* change = even CAUSE (action)(change), or  
 even action *LS and* change = even NOT CAUSE (action)(NOT change)

So far, I don't know how to derive this and will thus leave it for future research.

In contrast to the attempts I have been discussing in this section that draw directly on a causation relation, the restrictor-mapping analysis proposed in 12.3.2 carries over to the *even if*-IaDs.

The insatisfactory part is that it cannot be generalized to *even if-LS and*-constructions with overt possibility modals, and it fails to account for the absence of *LS and* with

necessity modals in English and German, and unminimized imperatives in Korean. I conclude that this has to await further research.

## 12.5 Conclusion

None of the approaches put forth for IaDs so far is entirely satisfactory. Despite the fact that it is not completely intuitive and overgeneralizes quite a bit as well, the restrictor mapping approach I have proposed in 12.3.2 takes care of all IaDs and most other *LS and*-constructions. In order to cover overt possibility modals as well, we would have to allow for a somewhat daring syntactic translation process.



## Chapter 13

# Analysing IoDs

As with IaDs, also with IoDs we have to observe that they do not correspond to what one might expect for an imperative to mean in coordination with a declarative. Neither are they equivalent to speech act correction (cf. (1a)), an otherwise frequent interpretation for disjunction between two speech acts, cf. Section 1), nor are they equivalent to alternatives between speech acts or obligations, in the sense that either the one or the other holds, as suggested by (1b) (but cf. Section 13.2 for discussion of an approach that takes something like that as the starting point for a speech act algebraic analysis).

- (1) Don't be late or you'll miss the first slot.
- a. Don't be late. Or (no, don't bother), you'll miss the first slot.
  - b. Either, I tell you not to be late, or, I assert that you'll miss the first slot.

At that point we should pause for a moment and consider the behaviour of disjunction in general. Recent literature on **free choice or** has shown that it is maybe a mistake to equate natural language disjunction with truth-functional *or* of classical propositional logic with its truthtable as displayed in (2).

$\vee$	A	B
1	1	1
1	1	0
1	0	1
0	0	0

It has been debated at least since Kamp (1973) that surprisingly, permission sentences like (3) seem to entail both of their disjuncts (cf. (4)). This is of course unexpected if *or* is to be interpreted as  $\vee$  (cf. (5)).

- (3) You may take an apple or you may take a pear.
- (4) a. (3)  $\models$  You may take an apple.

- b. (3)  $\models$  You may take a pear.  
 (5)  $A \vee B \not\vdash A$ ;  $A \vee B \not\vdash B$

The surprising free choice entailment does not necessarily hold for (3). Under a purely descriptive reading, it is easily cancelled.

- (6) You may take an apple or you may take a pear, but I don't know which.

Nevertheless, as Zimmermann (2000) points out, free choice readings are not confined to performative contexts. Epistemic *may* in (7) allows for the same entailments and can again be cancelled by denying that one knows which of them is the case (cf. (9)) (unless we are dealing with speaker epistemic modality).

- (7) Ede may be in Berlin or he may be in Frankfurt.  
 (8) a. (7)  $\models$  Ede may be in Berlin.  
       b. (7)  $\models$  Ede may be in Frankfurt.  
 (9) Ede may be in Berlin or he may be in Frankfurt, but I don't know which.

Various solutions have been put forth in the literature, to be distinguished most prominently into semantic and pragmatic approaches. **Pragmatic approaches** stick to the interpretation of natural language disjunction as  $\vee$  and *may/might* as an existential quantifier, and try to treat the free choice effect in purely pragmatic terms (cf. Schulz 2003, Aloni 2005). In contrast to that, **semantic approaches** propose an alternative semantics for either disjunction or possibility modals or both (Zimmermann 2000, Aloni 2002, Geurts ta).

A most recent discussion has been given by Zimmermann (2005b, 2005a), who argues for a semantic solution along the lines of Geurts (ta).

Both types of approaches still have some teething problems. Without going into further detail, I will follow the insights presented by Zimmermann (2005b) and settle for a semantic solution.

A very welcome side effect of assuming non-classical disjunction in general lies in the fact that it invalidates disjunction introduction. That is, from  $A$  we may no longer conclude  $A$  or  $B$ . This might be hard to swallow for those trained long enough in classical logic, but it seems to meet almost everyone else's intuitions about natural language disjunctions. Above all, it meets one's intuitions when it comes to disjoined imperatives. It has been pointed out by Alfred Ross (1944) that from (10a) one could not conclude (10b). In contrast to that very clear-cut intuition, a classical analysis for disjunction would lead us to assume that this was possible.

- (10) a. Post this letter!  
       b. Post this letter or burn it!

This is known as **Ross' paradox**, and has frequently been used as a strong argument against propositional treatments of imperatives or other performatives (cf.



Seegerberg 1990, van Rooy 2000, Asher and Lascarides 2003a). We will see in a moment that the non-classical semantics for disjunction automatically avoids Ross' paradox.

## 13.1 IoDs and Non-Classical Disjunction

### 13.1.1 Non-classical disjunction

Zimmermann (2000) proposes to analyse natural language disjunction as conjunction of the two disjuncts embedded under speaker epistemic possibility.<sup>1</sup> Consequently, (11a) translates as (11b).

- (11) a. Shin-Sook may hand in this year or Shin-Sook may hand in next year.  
 b. I take it to be possible that Shin-Sook may hand in this year, and I take it to be possible that Shin-Sook may hand in next year.

Resorting to the rather uncontroversial principle of **self-introspection** (an agent knows what he knows), the epistemic modals can be stripped off to give us (12). This embodies the desired free choice reading.

- (12) Shin-Sook may hand in this year, and Shin-Sook may hand in next year.

For the deontic case, we have to rely on the speaker's being an authority on the respective conversational background (e.g.  $P = \textit{being a possibility with respect to } c_S \textit{'s commands}$ ) (Zimmermann (2000:286f)), which renders the *authority principle* applicable. The relevant definitions from 6.3.1 are repeated in (13).<sup>2</sup>

- (13) a. **Authority on a property  $P$ :**  
 $\forall w \in Bel_{c_S}(c_W), \forall x : w \in P(x) \leftrightarrow c_W \in P(x)$   
 b. **The Authority Principle**  
 If the speaker is an authority on  $P$  in  $c$ , then, for any  $x$ :  
 $Bel_{c_S}(c_W) \cap P(x) \neq \emptyset$  implies  $Bel_{c_S}(c_W) \subseteq P(x)$ .

Assuming again that the speaker is an authority over his commands, the free choice effect falls out for the deontic case as well.

<sup>1</sup>The syntactic difference between reduced and fully outspelled disjuncts is shown to be irrelevant, since both constructions can give rise to free choice readings. This does not hold for explicit performatives and opaque verbs (cf. Forbes 2003) which still pose a puzzle for the free choice literature. Consider the contrast in (i).

- (i) a. I allow you to take an apple or a pear. FC  
 b. I allow you to take an apple or I allow you to take a pear. no FC

Nevertheless, for modals the equivalence holds relatively unproblematically. Therefore, I will follow Zimmermann (2000) (likewise: Geurts ta) in always expanding the disjuncts.

<sup>2</sup>Cf. also 7 for an application.

- (14) a. I take it to be possible that you may call me after lunch, and I take it to be possible that you may call me at midnight.  
 b. (by me being an authority on what I allow you to do, and (14a)): You may call me after lunch, and you may call me at midnight.

Furthermore, Zimmermann (2000) points out that disjunctions are also subject to two principles of well-formedness of lists. One is *closure* which says that a list is exhaustive (that is, it mentions all possibilities there are) (at least as long as it is produced with falling intonation). The other is *disjointness*, which requires that the single items on the list have an empty overlap relation with each other (the precise nature of the relation depending on the kind of domain one is talking about, e.g. identity for individuals, set intersection for propositions, ...).

Apart from the free choice reading for both epistemic and deontic possibilities, it is also predicted correctly that *but I don't know which*-follow-ups block free choice readings: they simply block application of the authority principle, thus we are left only with the information that the speaker takes both possibilities to be possible - which is exactly as it should be.

As it stands, the proposal requires one to assume epistemic modalization of the individual disjuncts. This is hard to defend for disjunctions of imperatives that are well-known to normally resist embedding under epistemic operators.<sup>3</sup>

- (15) #Go maybe home.

Furthermore, as noted by Zimmerman himself, his approach makes an unwanted prediction with respect to necessity statements. All of a sudden, we predict the analogon to the free choice effect (both disjuncts are entailed), for disjunctions of necessity statements as well:<sup>4</sup>

- (16) a. You must do *A* or you must do *B*.  
 b.  $\diamond_e \square_d A \wedge \diamond_e \square_d B$

By authority (the speaker is an authority on his commands), if  $Bel_{c_S} \cap \square p \neq \emptyset$ , then *p*. Consequently, from (16) we may conclude that both  $\square_d A$  and  $\square_d B$ . But this is of course not what is expressed by (16). (For discussion of further problems with this particular use of authority, cf. Section 6.3.1.)

Geurts (ta) proposes a refinement of the analysis that departs from Zimmermann's (2000) analysis in two crucial points: overt modals may constitute the modalization required by the disjunction, and, the relevant modalization is restricted neither in force, nor in type of background. In Geurts's (ta) formulation, disjunction comes with two underspecified modals that can each either merge with an overt modal, or else be interpreted as epistemic necessity by default (cf. Geurts

<sup>3</sup>For recent discussion cf. Veltman (2005). See also the discussion in Sections 8 and 9.

<sup>4</sup>Here and in the following *e* and *d* as subscripts to modal operators indicate epistemic and deontic modality respectively.

(ta:9)).<sup>5</sup> Consequently, if a coordinand is overtly modalized, this can either count as the modalization required by the disjunction, or, alternatively, it can be assumed to be part of the proposition embedded under a covert epistemic necessity modal.

Consequently, any disjunction statement  $\alpha$  or  $\beta$  is of the form in (17):

$$(17) \quad M_1 P_1 \wedge M_2 P_2 \qquad M_1, M_2 \in \{\diamond, \square\}$$

Furthermore, it is assumed that each modal has to be interpreted with respect to (contextually identified) parts  $C_1, C_2$  of a contextually given background which can be either epistemic (the **Common Ground**,  $CG$ ), or deontic (the **Permissibility Sphere**,  $PS$ ). Thus, the overall result looks as in (18).

$$(18) \quad C_1 M_1 P_1 \wedge C_2 M_2 P_2 \qquad M_1, M_2 \in \{\diamond, \square\}$$

Zimmermann's (2000) conditions of exhaustivity and disjointness are reformulated as two principles that govern the individuation of the parts of the background with respect to which the individual disjuncts have to be evaluated respectively.<sup>6</sup>

- (19) a. **Exhaustivity**  $CG \subseteq (C_1 \cap P_1) \cup (C_2 \cap P_2)$   
 b. **Disjointness**  $C_1 \cap P_1 \cap C_2 \cap P_2 = \emptyset$

Again, exhaustivity requires that the entire background is covered by the union of the single propositions expressed by the coordinands; disjointness requires that the propositions have an empty intersection on the background (that is, disjunction is taken to be exclusive semantically).

Applying this to some concrete examples shows immediately that we get the right predictions. Let's first take a look at free choice readings for deontic possibility and their blocking by *but I don't know which*. Geurts (ta) argues that the sentence in (20) is ambiguous. The overt deontic possibility modals could either constitute the modalization as required by the disjunction (cf. (20a)), or, they could be embedded under covert modals of epistemic necessity (cf. (20b)). The latter reading is strongly favoured in case of a follow up *but I don't know which*, which renders salient the common ground as the contextually given background.<sup>7</sup>

- (20) You may hand in today or you may hand in tomorrow.  
 a.  $D_1 \diamond \textit{you hand in today} \wedge D_2 \diamond \textit{you hand in tomorrow}$

<sup>5</sup>Cf. Kratzer (1978) for an analogous information that this is the default modality for overtly unmodalized conditionals.

<sup>6</sup>From the way of how these restrictions are formulated it should be obvious that we will have to depart from the bracketing of modals with their conversational backgrounds as assumed in the framework of graded modality (introduced in Section 5.2). In order to unify the account for modals and imperatives with the proposal for non-classical disjunction, we have to assimilate the analysis of modality a bit to the treatment of modal operators as propositional quantifiers as advocated e.g. in Geurts (1999).

<sup>7</sup>Note that this is somewhat sloppy, strictly speaking, we would have to distinguish between speaker epistemic modality and the common ground as the only epistemic background taken into account in Geurts (ta). I'll ignore this for the moment.

- b.  $C_1 \sqcap [D_1 \diamond \textit{you hand in today}] \wedge C_2 \sqcap [D_2 \diamond \textit{you hand in tomorrow}]$   
 (... *but I don't know which.*)

Consider now the individuation of the involved background variables. We have assumed that the overt modals in (20) are interpreted deontically. Consequently,  $D_1$  and  $D_2$  are parts of the permissibility sphere. For (20a), they have to meet the requirements in (19a) and (19b). By the semantics of the two disjuncts, we get  $D_1 \cap \textit{you hand in today} \neq \emptyset$  and  $D_2 \cap \textit{you hand in tomorrow} = \emptyset$ . It can be assumed that  $D_1 = D_2 = PS$ , because no parts of  $PS$  are rendered salient for independent reasons, and it is easy to make sense of exhaustivity and disjointness under such a scenario. Exhaustivity tells us that the entire permissibility sphere is covered by these two options, so the addressee has to hand in either today or tomorrow ( $PS \subseteq (PS \cap \textit{you hand in today}) \cup (PS \cap \textit{you hand in tomorrow}) = PS \subseteq (\textit{you hand in today} \cup \textit{you hand in tomorrow})$ ). And from disjointness we learn that he can't hand in both today and tomorrow (which is most likely excluded for independent reasons as well). But from that it follows that indeed both handing in today and handing in tomorrow have a non-empty intersection with the permissibility sphere and are thus genuinely permissible. Thereby, we have derived the free choice reading we were after.

Now, consider (20b). Here, the requirements do not apply with respect to  $D_1$  and  $D_2$ . Consequently, no partitioning is necessary, and again,  $D_1 = D_2 = PS$ . But they constrain the assignment to  $C_1$  and  $C_2$  in the following way. From the individual disjuncts, we know that  $C_1 \subseteq PS \cap \textit{you hand in today} \neq \emptyset$ , and that  $C_2 \subseteq PS \cap \textit{you hand in tomorrow} \neq \emptyset$ . But now, assuming that  $C_1 = CG$  or  $C_2 = CG$  would violate disjointness. Consequently,  $C_1$  and  $C_2$  have to be proper subsets of  $CG$ ; the most salient subsets that also obey exhaustivity are of course the intersections of  $CG$  with the complement of the respectively other disjunct-proposition. So,  $C_1 = CG - (PS \cap \textit{you hand in tomorrow} \neq \emptyset)$ , and  $C_2 = CG - (PS \cap \textit{you hand in today} \neq \emptyset)$ . This says that it is either the case that the addressee is allowed to hand in today, or that he is allowed to hand in tomorrow. As expected, from that we may neither conclude the one nor the other. The free choice reading has been cancelled in favour of the epistemic uncertainty as expressed by *but I don't know which*-follow ups.

Before applying the framework to imperatives, a side remark might be appropriate as to the assimilation of possibility and necessity statements resulting from the assumptions introduced above. Geurts framework predicts that (21a) comes out the same as (21b). Both express that the entire background is covered by the two disjunct propositions by exhaustivity. Note that this seems to be correct for the epistemic cases. Indeed, it is very hard to detect a difference between (21b) and (21a):

- (21) a. It may be here, or it may be there.  
 b. It must be here, or it must be there.

Nevertheless, on first glance the predictions are too strong for permissions. (22b) clearly requires that the addressee takes either an apple or a pear. (22a), however, seems to allow for the addressee not to take anything as well.

- (22) a. You may take an apple or you may take a pear.  
 b. You must take an apple or you must take a pear.

I think the contrast is only apparent though and really stems from the fact that (22a) is more likely to be used when it is already presupposed that one of the alternatives is going to be fulfilled because the addressee himself wants to do so (e.g., for (22a) it might be settled that he wants to take a piece of fruit). So, the common ground is already settled that one alternative is going to be performed. A good context might also be *If you want to take some fruit, . . .* from the speaker himself, or a preceding question *What kind of fruit can I take?* In all these cases, (22b) would be odd. Not taking anything should still be okay after (22a), but it is clearly prohibited after issuing (22b). Consequently, exhaustification for (22a) might proceed with respect to a *PS* that is restricted to one alternative being fulfilled.

We are now ready to apply the framework to IoDs.

### 13.1.2 IoDs as modalized disjunctions

Example (23) constitutes a typical case of an IoD, consisting of an imperative disjoined with a declarative. In the following, I will show that Geurts's (ta) analysis for disjunctions can be extended naturally to capture the interpretation of such constructions.

- (23) Don't be late or you'll miss the first slot.

I want to argue that they are largely parallel to an overtly modalized construction as in (24):

- (24) a. Du mußt pünktlich sein, oder du kriegst keinen  
 you must in-time be.INF or you get.2PSGPRESIND no  
 Sitzplatz.  
 seat  
 'You have to be in time, or you won't get a seat.'  
 b. You have to come at eight, or you won't get any food.

IoDs differ from such overtly modalized disjunctions in two aspects.

On the one hand, (23) has as its modal in the first disjunct an imperative. Imperatives are special in not allowing epistemic modalization on top of them. Consequently, we only get the reading that the imperative operator is indeed the modal taken into account by the disjunction. In contrast to that (24a) allows for both the possibility that *mußt* 'must' is the modal fusing with the covert underspecified modal that is introduced by disjunction, or that this covert modal is interpreted itself as epistemic necessity (stacked on top of overt *mußt*) (likewise for *have to* in

(24b)).

On the other hand, despite expectation maybe, due to the imperative semantics that orders the worlds in the common ground, both modal elements are evaluated with respect to the same background in (23), which allows a straightforward application of Geurts's (ta) framework.<sup>8</sup> In contrast to that, (24) seems to mix a deontic background in the first disjunct with an epistemic background in the second. But I do not think that this is indeed the case. Due to the approach in terms of graded modality, it is well possible to also assume for the overt necessity modal in (24) that it is interpreted with respect to what is taken as possible, which is then ordered according to speaker commands or speaker preferences just as with imperatives. Cf. Frank (1996), for a view that indeed all expressions of deontic modality are to be evaluated with respect to some epistemic background as well. Sentences that target the behaviour of the particular agent always contain information about the speech situation, properties of the agent himself, etc. that could not be included in a purely deontic background (cf. Frank 1996).<sup>9</sup> Consequently, they are best evaluated with respect to an epistemic background (e.g. the Common Ground) that is ordered by the respective deontic ordering source.

Recall the imperative semantics as proposed in 6.3.3 (repeated here as (25)).

- (25)  $\llbracket OP_{Imp} \rrbracket^{c,s} = \lambda f \lambda g \lambda t \lambda P \lambda w. (\forall w' \in O(cg_F(c) \uplus f, g, c_T, w)) [P(t)(w')]$ ,  
 defined only if
- a.  $\neg(t < c_T)$  *cf. 6.1.1*
  - b.  $g \neq \emptyset$  is *preference-related* *cf. 6.2.1/6.3.2*
  - c.  $f, g \in AUTH'(c_S)(c)$  *authority, cf. 6.3.1*
  - d. for the precontext  $c'$  of  $c$ ,  
 $CG(c') \subseteq \lambda w. (\exists w' \in Bel'_{c_S}(c'_T)(w)) (\exists w'' \in Bel'_{c_S}(c'_T)(w)) [\neg P(t)(w')$   
 $\& P(t)(w'')]$  *epistemic uncertainty (EUC), cf. 6.3.2*
  - e.  $c_S$  affirms  $g$  *ordering source affirmation (OSA), cf. 6.3.2*

We have to note that, as it stands, this cannot be combined with the propositional anaphor treatment of modality as advocated in Geurts (1999), and applied in Geurts

<sup>8</sup>On first glance this seems to allow for a simplification with respect to the proposal as put forth originally (cf. Schwager 2004b). Unfortunately, we will see in a little while that this is not the case.

<sup>9</sup>But maybe the argument should really be extended to generic subjects as well. Since IoDs of the kind we have been discussing so far always take into account non-optimal worlds as well, at least a distinction between background and ordering source is needed for what seem to be "purely" deontic sentences on first glance as well. (i) cannot be rendered as (ia), but should most likely be rendered along the lines of (ib).

- (i) Don't kill or you go to jail.
  - a. According to what the law says, either you do not kill or you go to jail.
  - b. It comes closes to the law that you don't kill, but if you do kill, it comes closes to what the law says that you go to jail.

(ta). By the semantics of disjunction, we know that (23) has to come out as an instance of (18) (repeated here as (26)).

$$(26) \quad C_1 M_1 P_1 \wedge C_2 M_2 P_2 \qquad M_1, M_2 \in \{\diamond, \square\}$$

By the fact that imperatives cannot be embedded under epistemic operators, we know that  $P_1$  has to be the argument of the imperative modal operator, that is to say, that the imperative modal operator itself constitutes the modal element seen by the disjunction and may never part of its complement proposition. This immediately accounts for the performative effect of IoDs. Since IoDs amount to conjunctions of full matrix clauses, the effect of an IoD on the context amounts at least to execution of  $\mathcal{J}(\phi)$ .<sup>10</sup>

In the second disjunct, either *will* encodes epistemic necessity with respect to the future, or it is just temporal and, therefore, we infer a silent epistemic necessity modal. Ignoring temporal information for the moment,  $P_2$  comes out as *you miss the first slot* in either case. The modal operator  $OP_{Imp}$  has to be evaluated with respect to (an optimal) subset of  $CG$ , hence  $C_1$  has to be a subset of  $CG$ . The observation is that the second disjunct is interpreted epistemically as well (or maybe this is triggered by the background chosen for the first clause), therefore, descriptively  $C_2 \subseteq CG$  as well. For (23), the ingredients thus look as in (27a). By its semantics, the imperative expresses necessity of *that the addressee is not late* ( $P_1$ ) with respect to a set of optimal worlds within  $CG$ , and the second conjunct expresses necessity of *that the addressee misses the first slot* with respect to some (other) part of  $CG$  (determined by the covert epistemic modal).

$$(27) \quad \begin{array}{l} \text{a. } C_1 \square P_1 \wedge C_2 \square P_2 \\ \text{b. } P_1 = \textit{you are not late} (\lambda w.\textit{not-late}'(c_A, w)) \\ \quad P_2 = \textit{you miss the first slot} (\lambda w.\textit{miss-first-slot}'(c_A, w)) \\ \text{c. } C_1 \subseteq CG, C_2 \subseteq CG \end{array}$$

It is evident that by disjointness,  $C_2$  has to be a proper subset of  $CG$ . And it would seem natural to assume  $C_1$  to be constituted by the set of optimal worlds  $O(cg_F(c), g, c_T, w)$  as evocated by the imperative. Clearly, this does not allow us to account for the meaning of (23). Setting  $C_1 = O(cg_F(c), g, c_T, w)$  allows for two possibilities of individuating  $C_2$  ( $\subset CG$ ).

$$(28) \quad \begin{array}{l} \text{a. } \text{In the optimal worlds, you are not late, and in the other worlds, you miss the first slot.} \\ \text{b. } \text{In the optimal worlds, you are not late, and in the worlds, where you are late, you miss the first slot.} \end{array}$$

Looking at the diagram in 13.1, we can immediately see that (28a) describes a wrong reading, and (28b) does not meet the exhaustivity requirement. (28a) would mean

<sup>10</sup>By distributivity of  $\mathcal{J}$  with respect to *speech act conjunction*, for any  $\phi, \psi$  and  $c$ ,  $\mathcal{J}(\phi \wedge \psi)(c) = \mathcal{J}(\psi)[(\mathcal{J}(\phi)(c))]$ .

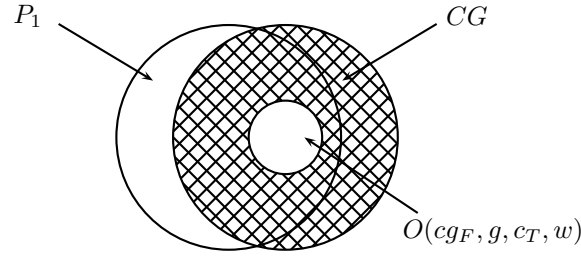


Figure 13.1:  $CG, P_1 = \text{the addressee is not late}, O(cg_F(c), g, c_T, w)$ .

to set  $C_2 = CG - O(cg_F, g, c_T, w)$ . Intuitively, we would expect this to be a possible reading of (23). Both disjointness and exhaustivity are obeyed with. This says that all non-optimal worlds (the entire hashed area of  $CG$ ) are worlds in which you miss the first slot, in particular, also worlds  $w' \in P_1 \cap (CG - (O(cg_F(c), g, c_T, w)))$  (a world where the addressee is in time but does something else which is not optimal). Unfortunately, this is not a possible reading for the sentence.

The other possibility (28b) sets  $C_2$  to  $\overline{P_1}$ , the complement of  $P_1$ . While this seems to be the reading we want, it fails exhaustivity ( $CG \subseteq (C_1 \cap P_1) \cup (C_2 \cap P_2)$ ). The part of non-optimal worlds in which the addressee is not late is covered neither by  $O(cg_F(c), g, c_T, w) \cap P_1$  nor by  $\overline{P_1} \cap P_2$ . Consequently, not all of  $CG$  is covered.

Therefore, in order to get the right reading, we have to set  $C_2 = \overline{P_1}$ . But the only way to obey exhaustivity is to ignore the effect of the preference ordering as expressed by the imperative on the partitioning. To capture this effect on the discourse, the semantics of the imperative has to be split as in (29). The complement proposition of the imperative operator is said to be possible<sup>11</sup>, and necessary with respect to the optimal worlds as computed for the imperative.

$$(29) \quad \llbracket \phi^g ! \rrbracket^{c,s} = (CG \cap \llbracket \phi \rrbracket^{c,s} \neq \emptyset) \ \& \ (O(cg_F(c), g, c_T, w) \subseteq \phi)$$

So, the imperative  $\phi!$  expresses that  $\phi$  is possible, and that it is preferred according to some contextually salient ordering source  $g$ . For the evaluation of exhaustivity and disjointness, the preference part has to be ignored. The only part visible is really  $C_1 \cap \phi \neq \emptyset$ , and  $C_1$  can consequently be set to  $CG$ . The solution to (23) is recaptured in (30).

$$(30) \quad \begin{array}{l} \text{a. } (C_1 \diamond P_1 \wedge O(cg_F(c), g, c_T, w) \square P_1) \wedge C_2 \square P_2 \\ \text{b. } P_1 = \text{you are not late } (\lambda w. \text{not-late}'_w(c_A)) \\ \quad P_2 = \text{you miss the first slot } (\lambda w. \text{miss-first-slot}'_w(c_A)) \\ \text{c. } C_1 = CG, C_2 = CG - P_1 \end{array}$$

<sup>11</sup>This is a weaker version of Zarnic (2002) strategy to let an imperative  $\phi!$  assert that  $\phi$  is not the case and request that  $\phi$  is done.



So far, this comes as an *ad hoc*-stipulation to capture the right reading for (23). In a way, it repeats the problem arising from interpreting imperatives as necessity with respect to the deontic background as in the original version Schwager (2004b). Franke's (2005) criticism that the fact that it was easily amended should not make us forget the stipulative character of the amendmend carries over immediately to the new clothing of the problem. In the following I will take a short glance at disjunctions of graded and non-graded epistemic modals and argue that the apparent stipulation is most likely related to a more general effect after all.

Geurts's (ta) original data include only non-graded modality. Let's take a look at graded cases in the realm of epistemic modality.

- (31) a. Höchstwahrscheinlich kommt Hans persönlich, oder  
 most-proably come.3PSGINDPRES Hans in-person, or  
 er schickt seine Tochter.  
 send.3PSGINDPRES he his daughter  
 'Most likely John will come himself, or he'll send his daughter.'
- b. Höchstwahrscheinlich kommt Hans persönlich, oder  
 most-proably come.3PSGINDPRES Hans in-person, or  
 sonst schickt er seine Tochter.  
 else he send.3PSGINDPRES his daughter  
 'Most likely John will come himself, or else he'll send his daughter.'

In both cases, the background is *CG*, on which the adverbial in the first coordinand induces some ordering according to plausibility. In principle, the modalization in the second coordinand (*will*) is compatible with expressing the same kind of graded epistemic necessity. And the preferred interpretation for (31a) is indeed that the set of most plausible worlds within *CG* is partitioned as to those worlds in which Hans comes himself and those in which he sends his daughter. And now consider (31b). Here, the adverbial *sonst* 'else' seems to indicate that there is some switch in background. Intuitively, this says that in the most plausible worlds Hans comes in person, but that in the worlds where he does not (these being less plausible worlds), he will send his daughter. This is exactly the effect we have found with imperatives. Again, it does not mean that he sends his daughter in all less-plausible worlds (irrespective of his own coming). The second background is again constituted by the intersection of the entire (unordered) background with the complement of the proposition expressed in the first coordinand.

For the moment, I will put forth the following hypothesis on the still ill understood effect of *oder sonst* 'or else':

- (32) *oder sonst*-effect  
*oder sonst* 'or else' serves to indicate an asymmetry between the disjuncts in plausibility or preference and forces a switch in background.
- a. A typical switch in background is from the set of optimal worlds within a background to taking into account the entire set again.
- b. Crucially for the constraints of exhaustivity and disjointness, if the

backgrounds considered in the two conjuncts stand in a subset relation, exhaustivity has to be calculated with respect to the largest set involved.

- c. For exhaustivity/disjointness, being a necessity with respect to an optimal subset contributes to the calculation being a possibility with respect to the entire set under consideration.

Reconsidering IoDs, there, the ‘*oder sonst*’-effect comes into play automatically because the second disjunct shows the wrong modalization for being evaluated with respect to the same set of optimal worlds. Consequently, no overt *or sonst* is needed in order to induce the switch in background.

In case of disjunctions of two imperatives (cf. (33a)), we find the same effect of carrying on with respect to the same background as in (31a). The set of worlds in *CG* optimal to some considerations of proper behaviour in the given situation is partitioned so as to contain both worlds in which he is called and worlds in which he is written an email. At least for the German example involving *oder sonst* ‘or else’ it is quite obvious to me that here again some asymmetry is at play, in that case, loosening the ordering somewhat in order to take into account a second best set of worlds. The most likely interpretation to me is that the shift is done roughly in the sense of *and if you don't like that*.

- (33) a. Call him or write him an email!  
 b. Ruf ihn an, oder sonst schreib ihm eine Mail.  
 call.IMP him to, or else write.IMP<sub>SG</sub> him an email  
 ‘Call him, or else write him an email.’

So far, I could only offer speculations as to the precise nature of inhomogeneous backgrounds and the ultimate nature of *oder sonst/or else*. But it should have become clear that the split assumed for the background calculation is most likely not an *ad hoc*-stipulation to get the semantics of IoDs right, but seems to be reflected systematically in the ‘*oder sonst*’-effect.

At this point, we might ask ourselves what Geurts’s (ta) analysis would predict with respect to various other combinations of imperative disjuncts with other modalized propositions. Introducing imperatives into his framework leads us to expect a lot of other combinations of imperatives with overtly or covertly modalized declarative disjuncts. Classical IoDs (like (23)) proved to be combinations of imperatives with epistemic necessity. The table in (34) gives an overview of what possible combinations we have to look at in the following, which of them are to be found (*empirical*), and if the theory principally allows them (under the reading we get) (*prediction*). The modal operators indicated correspond to surface modality, whereby lack of overt modalization is already assumed to be equivalent to  $\Box_e$ . The particular readings that are available and predicted respectively are discussed one by one in the following.

<b>1<sup>st</sup></b>	<b>2<sup>nd</sup></b>	<b>empirical</b>	<b>prediction</b>
IMP	$\square_e$	<i>ok</i> (cf. (23))	<i>ok</i>
IMP	$\diamond_e$	<i>ok</i> (cf. (35))	<i>ok</i>
(34) $\square_e$	IMP	* (cf. (46))	*(backward anaphora)
$\diamond_e$	IMP	<i>ok</i> (cf. (49))	<i>ok</i>
$M_d$	IMP	no clear evidence (?)	unexpected (diff. backgrounds)
IMP	$M_d$	no clear evidence (?)	unexpected (diff. backgrounds)

Let's first consider cases that are followed by epistemic possibility instead of epistemic necessity.

(35) Apply in time for your visa, or you might get into trouble.

The framework predicts two readings, depending on whether *might* constitutes the modalization required by the disjunction, or whether there was an epistemic modal on top of it. The latter case immediately leaves us with the desired reading. (35) is interpreted in perfect analogy to (23). (Cf. (36);  $P_1 = \textit{you apply in time}$ ,  $P_2 = \textit{you might run into trouble}$ .)

(36)  $(CG \cap P_1) \neq \emptyset \wedge O(\textit{cg}_F(c), g, c_T, w) \subseteq P_1 \wedge (CG - P_1) \subseteq P_2$

This implies (thanks to exhaustivity that together with disjointness governs the identification of  $C_2$ ), that all worlds in  $CG$  are either such that you apply in time, or such that they do not exclude that you run into trouble.

The theory of modalized disjunctions does not do anything to exclude that the overtly present possibility modal *might* could itself constitute the modal element required by disjunction (cf. (37a)). By exhaustivity, (35) would then be predicted to get the same reading as (37b), namely as predicting secure trouble for the case of non-compliance.

(37) a.  $(C_1 \cap P_1 \neq \emptyset) \wedge (O(\textit{cg}_F(c), g, c_T, w) \subseteq P_1) \wedge C_2 \diamond P_2$   
 b. Apply in time for your visa, or you'll get into trouble.

Since the second modal expresses possibility, disjointness does not force us to constrain its background  $C_2$  to a subset of  $CG$ . Consequently, running into trouble is said to be a life possibility. Such a reading is hardly available, though. I do not think that this is a problem for the theory. Rather, I would assume that an interpretation along these lines is excluded due to a principle of **Maximize Coherence** (cf. Asher and Lascarides (2003b) for an elaboration). Consider the overt paraphrase of the putative reading with *might* itself as the modal operator:

(38) #You can and should apply in time for your visa, and it is possible that you run into trouble.

Consequently, I would want to say that while not excluded in principle, the reading is unavailable for its incoherence.

Geurts' framework requires that the modals in both disjuncts are evaluated with respect to one and the same background. According to my analysis, imperatives come out as necessity with respect to a particular part of the common ground. Consequently, imperatives are predicted to combine naturally with epistemic modals, or other imperatives of course, but not with truly deontic modals.

Indeed, it seems to be the case, that imperatives followed by deontic modals require these to be embedded under covert epistemic necessity modals. Consider first IMP or  $\Box_d$ .

- (39) a. Hand in today, or you must pay 500 Euro.  
b. Send the paper in by email, or (else) you have to hand it in personally.

Consider e.g. (39a). Intuitively, what this means is that the addressee should hand in today, and if he does not hand in today is under an obligation to pay 500 Euro. This is exactly what is predicted for the structure in (40). (39b) behaves analogously.

$$(40) \quad (C_1 \cap P_1 \neq \emptyset) \wedge (O(cg^F(c), g, w, c_T) \subseteq P_1) \wedge (C_2 \Box_e \Box_d P_2)$$

What about possibility (IMP *or*  $\Diamond_d$ )? Intuitively, we would expect that also for possibility modals following imperatives, a covert epistemic necessity modal has to be stacked on top. The construction would then turn it into an instance of  $\Diamond_e$  *or*  $\Box_e(\Diamond_d p)$ .

- (41) #Hand in today, or you may register tomorrow.

Indeed, this seems to be the only possible reading for (41), and it says that the addressee is advised to hand in today, and told that if he does not do so, he would be allowed to register the following day. Given that permissions are normally perceived as something positive, this results pragmatically strange. (Cf. the discussion on the negative bias of the second disjunct in IoDs.)

Despite the putative mix of background, it seems that an unembedded reading for deontic *may* is available under modification with *else* and *also*. In the case of (42), we get something close to a free choice reading. The solution Geurts offers to the free choice problem is to let deontic modals directly play the role of the modal required by disjunction, instead of introducing a higher covert necessity modal. Consequently, in order to derive the right reading for (42), we would have to allow for *may* to constitute the modal of the second disjunct.

- (42) Hand in today, or else you may also register tomorrow.

The example has a similar flavour as the one involving second best worlds for a second imperative in (33b). The intuitive reading for that is something like *I'd advise you to hand in today, but you may also register tomorrow.*, meaning that registering tomorrow is a genuine possibility, not depending on the behaviour of the addressee. The structure has to be roughly like (43).

- (43)  $(CG \cap \text{you hand in today} \neq \emptyset) \wedge (O(\text{cg}_F(c), g, c_T, w) \subseteq \text{you hand in today})$   
 $\wedge ((CG \cap D) \cap \text{you register tomorrow} \neq \emptyset)$

This should be straightforward, apart from  $D$  that is restricting the second background. Intuitively while the *else* has taken us back from optimal worlds to the entire set of  $CG$ , deontic *may* has to confine our attention to the permissibility sphere. I indicate this by intersection of  $CG$  with  $D$ . If the *oder sonst*-hypothesis is correct (cf. (32)), exhaustification proceeds with respect to  $CG \cap D$  and is only possible if  $O(\text{cg}_F(c), g, c_T, w) \subset (CG \cap D)$ . Note that this predicts that there are no further permissible options apart from handing in today and registering tomorrow.

Now we have to turn to the cases with imperatives in second disjuncts. Since imperatives influence the individuation of backgrounds as epistemic possibility, we would immediately predict that both epistemic and deontic *must* should be awkward due to backward anaphora. Consider Geurt's original argumentation with respect to (44).

- (44) #It must be here, or it may be there.

Geurts points out that (44) is awkward, because the descriptive content of the second disjunct is needed to determine the background of the first conjunct, resulting in an instance of backward anaphora. In order for disjointness and exhaustivity to be obeyed with, the assignment to the background variables would have to be as follows.

- (45)  $C_1 \square \text{it is here} (= P_1) \wedge C_2 \diamond \text{it is there} (= P_2)$   
 a.  $C_2 = CG; C_2 \cap P_2 \neq \emptyset$   
 b.  $C_1 \subseteq P_1; C_1 \subseteq CG; C_1 = ?$   
 c.  $CG \subseteq (P_2 \cup C_1)$  by exhaustivity, therefore:  $C_1 = CG - P_2$

This immediately carries over to the cases with necessity in the first disjunct and imperatives in the second, and the prediction that they should be awkward is indeed born out. The examples in (46) seem strange.

- (46) a. #You must eat porridge, or get yourself some fruit.  
 b. #Du mußt deinen Porridge essen, oder sonst kauf dir  
 you must your porridge eat.INF or else buy.IMPSG you.DAT  
 wenigstens ein bißchen Obst.  
 at-least a bit fruit  
 c. #Du wirst müde sein, oder schau noch ein bißchen fern.  
 you will tired be.INF, or watch.IMPSG still a bit tv  
 (intended: 'You'll be tired, or watch tv for a while.')

The last case we have to take into account involves epistemic or deontic possibility in the first disjunct followed by an imperative in the second.

In principle, at least epistemic possibility should be fine. Nevertheless, some examples are pretty awkward.

- (47) Du könntest müde sein, oder trink noch ein bißchen Wein  
 you could tired be.INF or drink.IMPSG still a bit whine  
 mit uns.  
 with us  
 (roughly: '#You might be tired, or drink some more whine with us.')

I think that these are odd for independent reasons again, namely due to there being a contrast that is not expressed. Consider the paraphrase involving *and*, which is likewise strange. A corresponding paraphrase with *but* is perfectly acceptable.

- (48) a. #Du könntest müde sein, und wenn du nicht müde  
 you could tired be.INF, and if you not tired  
 bist, trink noch ein bißchen Wein mit uns.  
 be.2PSGPREIND, drink.IMPSG still a bit whine with us  
 ('#You could be tired, and if you are not tired, drink some more whine  
 with us.')
- b. Du könntest müde sein, aber wenn du nicht müde  
 you could tired be.INF, but if you not tired  
 bist, trink noch ein bißchen Wein mit uns.  
 be.2PSGPREIND, drink.IMPSG still a bit whine with us  
 'You could be tired, but if you are not tired, drink some more whine  
 with us.'

Whatever explains the markedness of (48a), should also explain the markedness of (47). I assume that a good theory of *but* should account for that. In other cases, the contrast seems to be weaker (*und* 'and' is not as bad in (49a) as it is in (48a)). And indeed, the disjunction variant is a lot better (49b).<sup>12</sup> An acceptable English example is given in (49c).

- (49) a. Hans könnte schon aufgeräumt haben, <sup>ok</sup>aber/?und wenn er  
 Hans could already up-tidy.PSTPRT have, but/and if he  
 nicht aufgeräumt hat, mach du's.  
 not up-tidy.PSTPRT have.3PSGPREIND, do.IMPSG you-CL  
 'It could be the case that Hans has already cleaned up, but/and if he  
 hasn't, you should do it.'
- b. Hans könnte schon aufgeräumt haben, oder sonst  
 Hans could already up-tidy.PSTPART have.INF or else  
 mach du's.  
 do.IMPSG you-CL  
 'Hans could already have cleaned up, or else do it yourself.'
- c. You boss may be in Oxford, or else you have to call him.

The last case we have to take into account consists in deontic possibility modals followed by imperatives in the second disjunct ( $\diamond_d$  or IMP). Embedding the deontic modal under covert epistemic necessity should be excluded for the same reason that we have seen above. Consequently, these cases are predicted to involve mixed

<sup>12</sup> *sonst/else* is clearly required here. So far, this does not straightforwardly relate to what I have said about background switching devices in (32).

backgrounds and should therefore come out as awkward. (50) does indeed seem pretty strange.

- (50) #Du darfst Porridge essen, oder kauf dir ein bißchen Obst.  
 you may porridge eat.INF or buy.IMP SG you.DAT a bit fruit  
 (#‘You may eat porridge, or buy yourself some fruit.’)

Strangely enough, adding *or else/oder sonst* the examples improve quite a bit.

- (51) a. You may eat porridge, or else get yourself some fruit.  
 b. Du darfst Porridge essen, oder sonst kauf die etwas  
 you may porridge eat.INF or buy.IMP SG you.DAT a bit  
 Obst.  
 fruit

In that case, the epistemic modal verb *may* seems to get evaluated with respect to the set of optimal worlds in *CG* that also constitute the background for the imperative. Intuitively, the reading we get should be described as in (52).

- (52)  $(CG \cap D) \cap \text{you eat porridge} \neq \emptyset \wedge (CG - \text{you eat porridge})$

At the moment, I don’t know enough about the possibilities of interpreting deontic modals and the nature of the switch induced by *oder sonst*, to give an account for why we arrive at precisely this structure. Nevertheless, it seems that the analysis for IoDs in terms of modalized disjunctions makes favourable predictions as to the cases of IoDs as discussed in the literature, and its similarities and differences to other instances of disjoined modalized propositions.

Going back to the original observations that IoDs differ from IaDs in always evoking a performative effect, we have already noted in passing that this is naturally accounted for by the analysis.

The first conjunct expresses the same proposition (plus presuppositions). By assuming that  $\mathcal{J}(\phi \wedge \psi)(c) = (J)(\psi)[(J)(\phi)(c)]$ , Clark’s (1993) observation that there are not negative IoDs is immediately accounted for. The first coordinand of IoDs always performs a speech act as typical for a plain imperative.<sup>13</sup> Consequently, (53a) can never be interpreted as expressing (53b), which is as desired.

- (53) a. Leave, or I’ll make you a nice dinner.  
 b. Stay! I’ll make you a nice dinner.

Franke (2005) complains that this is really only one of a twin pair of major questions associated with IoDs, and that, consequently, only part of the phenomenon is explained in Schwager (2004b) (the same part as I have been answering here). He claims I fail to account for the infelicity of data as in (54) (under the assumption

<sup>13</sup>This immediately falls out from the semantic object computed and the way the context update function  $\mathcal{J}$  is defined, given that we assign it distributivity with respect to (some sorts of) conjunctions of full clauses.

that being kissed was unconditionally desirable), and puts phrases the full problem of IoDs as in (55):

(54) #Make me some tea, or I'll kiss you.

(55) The NEG-OR-Problem  
The basic task in connection with pseudo-imperatives is to explain (i) why there are no negatively interpreted IoDs and (ii) why IoDs with a positively connoted second disjunct are pragmatically infelicitous.

I did indeed not talk about the second part (ii) of the problem, because I think that this pertains to yet another level of grammar and thus analysis (as is indicated by Franke himself), which to my mind means that the two problems can be studied fruitfully in isolation from each other. Consequently, I still prefer to treat (i) in connection with free choice readings for other modal elements, and would suggest to study (ii) in connection with acceptable discourse relations in conjunctions and disjunctions.

Given that the imperative expresses preference by its very semantics a follow up by a positive consequence of non-compliance expresses a contrast to the first part of the utterance. Therefore, the resulting constructions are odd. But this is just as what can be observed for neutral conjunction (*and*) between somehow “conflicting” declaratives.

(56) I'd like to go to bed early today. {#And, <sup>ok</sup>But} then I won't finish my chapter on IoDs.

I assume that whatever analysis is to explain the contrast in (56) should carry over to explaining why there are no IoDs with positively connoted second coordinands. And indeed, the insightful suggestions made in Franke (2005) pertain to a far more general theory of utterance goals.

So, I still think that modalized disjunction makes correct predictions for all cases of IoDs that have been discussed so far. Furthermore, it automatically gets around Ross' paradox in giving the right reading for disjoined imperatives. Testing the approach with respect to further predictions showed that those are mostly correct, ruling out a lot of possibilities that are indeed unacceptable. Where the explanations are not entirely straightforward, it seems that this relied more on the still highly insufficient understanding of discourse structuring elements like *else*, *also* and *but*.

Letting chronology take precedence over what is custom, in remainder of this section on conditional imperatives, I will briefly comment on two proposals that have been put forth partly in reaction to earlier versions of my proposals for both IaDs and Iods (cf. Schwager 2004a and Schwager 2004b).



## 13.2 Remarks on a speech act algebraic alternative

Manfred Krifka has proposed an alternative solution to IoDs in terms of a speech act algebra (cf. Krifka 2004c, Krifka 2004b, Krifka 2004a).

As we have seen at various points, speech acts cannot normally be disjoined (cf. Section 3.1.1), that is, apart from usages as correction, we cannot really make sense of disjoined speech acts. Let's now assume that IoDs are genuine instances of speech act disjunction. While this is a more than ill understood concept, speech act conjunction is quite well understood and amounts to subsequent performance of the conjoined speech acts. Krifka now argues that it is easy enough to define *speech act negation* in terms of conjunction and negation in analogy to the case of truth-functional connective  $\vee$  that can be defined in terms of  $\wedge$  and  $\neg$  according to one of the laws of De Morgan.

$$(57) \quad A \text{ OR } B \equiv \neg(\neg A \wedge \neg B)$$

Krifka proposes to define speech act negation as *the speaker indicates that the effects of the negated speech act are not operative in the context* (Krifka (2004c)). Negating a conjoined speech act means that *the speaker indicates that the effects of A or the effects of A' are not operative in c. In particular, if the addressee acts as if the effects of A were still operative in c, then the effects of A' are not operative.* (Krifka (2004c:9)).

Furthermore, Krifka relies on the familiar duality of permitting and commanding (stated for speech acts here), and assumes the same for promising and threatening:

$$(58) \quad \begin{array}{l} \text{a. } \neg\text{PERMIT } \neg Q = \text{COMMAND } Q \\ \text{b. } \neg\text{PROMISE } \neg Q = \text{THREAT } Q \end{array}$$

Let's now have a look at his application to a typical IoD (Krifka (2004c:(188))).

$$(59) \quad \text{Go away or I call the police!}$$

This amounts to saying that *the speaker refuses to carry out the following conjoined speech act: Speaker permits addressee to stay here and speaker promises hearer not to call the police.* (Krifka (2004c:(117))) By de Morgan's law and speech-act theoretic equivalences we can show why it gets expressed as a disjunction of a command and a threat as in (59):

$$(60) \quad \begin{array}{l} \neg[\text{PERMIT}[\text{stay}'(c_A)]] \ \& \ \text{PROMISE}[\neg\text{call-police}'(c_S)] \\ \approx \neg[\text{PERMIT}[\text{stay}'(c_A)]] \ \& \ \text{PROMISE}[\neg\text{call-police}'(c_S)] \quad \text{De Morgan} \\ \approx \text{COMMAND}[\neg\text{stay}'(c_A)] \ \text{OR} \ \text{THREAT}[\neg\neg\text{call-police}'(c_S)] \\ \quad \quad \quad \text{SA interdefinabilities} \\ = \text{COMMAND}[\text{go-away}'(c_A)] \ \text{OR} \ \text{THREAT}[\text{call-police}'(c_S)] \\ \quad \quad \quad \text{semantic equivalences} \end{array}$$

$$(61) \quad \text{I refuse to do the following: PERMIT that you stay and then PROMISE that}$$

I don't call the police.

I don't think that this is strong enough, as it stands. Note the following.

If a conjoined speech act is negated, that is, if speaker refuses to make a conjoined speech act, then at least one of the conjuncts is negated. [...] The speaker indicates that either the effects of A or the effects of A' are not operative in c. In particular, if the addressee acts as if the effects of the A were still operative in c, then the effects of A' are not operative.

$[\neg (A \ \& \ A')](c)$ : Already the  $c' = A(c)$  is not granted, therefore  $[\neg A(c)]$ . But if addressee reacts as if  $A(c)$  were granted, then definitely the further modification by A' cannot be granted:  $[\neg A'(c')]$  (Krifka 2004c)

Applying this to the negated conjoined speech act in (59), we can conclude that the speaker refuses to give both a permission to stay and a promise not to call the police. And, in particular, if the addressee behaves as if a permission to stay had been granted, then it is clear that the speaker is not giving a promise that he won't call the police.

I do not think that this is entirely correct though. Krifka assumes that already the first speech act is not granted. But I would assume that this is incorrect for IoDs. Even if the addressee does not comply with the imperative, I would assume that the command has been given, that is, the speech act is enacted. So the speaker is committed to have given the command, irrespective of what the hearer does. For example, for (62), the speaker could not exculpate himself by saying that he had never granted that the command in the first disjunct was really given, nor could he claim not to have given the command to stab, in case the addressee defects on the command and the speaker himself verifies his threat to shoot.

(62) Stab him, or I'll shoot you.

Moreover, it is not entirely clear how to interpret the paraphrases of what is going on. But if as suggested by the passage I am quoting above, not complying with the first speech act only means that the second speech act cannot be granted, then the account comes out to weak. What we would rather want is that in the case of non-compliance, the threat is actually given. Otherwise, we fail to distinguish between possible vs. secure evil.

(63) a. Apply in time for your visa or you get into trouble.  
b. Apply in time for your visa or you might get into trouble.

In both cases, the speaker would be unwilling to grant a promise that the hearer is not getting into trouble in case he does not follow his advice (or obey his command).

Additionally, it is to be noted that we would have to allow for an extremely wide conception of PROMISE, COMMAND, PERMIT and THREAT, in order to cover natural instances of IoDs. Alternatively, we would have to introduce more pairs of duals. I do not see though what could be the relevant pairs for e.g. the case

in (64). The first disjunct seems to be something like a request, maybe even an imploration - covering that by *COMMAND* (which is still required to be the dual of *PERMISSION*) seems problematic. The second disjunct is more a statement than a threat, given that the proposition is a negative prospect for the speaker himself, not for the addressee. I cannot think of a proper dual to that.

(64) Please call him or he won't talk to me for weeks.

In addition to these technical worries, the approach does not link up straightforwardly to other usages of disjunction, which I take to constitute a favourable consequence of my approach in terms of modalized disjunctions.

Taking it all together, I do not think that resorting to speech act disjunction as defined in terms of negation and conjunctions is a promising way to go.

### 13.3 Conclusion on IoDs

An account for IoDs that makes use of the non-classical analysis for disjunction as proposed in Geurts (ta) allows for an elegant solution of the phenomenon of IoDs. They come out as a natural form of disjunction statements in natural languages. The non-classical disjunction has the additional advantage of obviating Ross's paradox.

I believe to have shown that a speech act algebraic solution as proposed by Manfred Krifka does not get us so far, and also seemingly makes some unwanted predictions. In the following, I will discuss Michal Franke's work as yet another alternative proposal to conditional imperatives. It is partly a reaction to the prior version of my analysis for IoDs as presented in Schwager (2004b) and deals critically with several aspects of my analysis.

I will argue though that the (refined) version of the modalized disjunction analysis for IoDs makes better predictions than the proposed alternative especially due to the semantics Franke has chosen for plain imperatives, and that his proposal for IaDs does not get us any further.



## Chapter 14

# Remarks on pseudo-imperatives in terms of sufficiency and necessity

In his MA thesis, Michael Franke gives an interesting discussion of both IaDs and IoDs, also adopting the fundamental assumption that they differ most significantly in that the imperative performs a proper speech act in IoDs, but need not do so in IaDs (note, that this slightly deviates from what I have argued for in Section 12, namely that they never do).

Although he explicitly steps back from giving an analysis for plain imperatives, I'll first have to discuss the assumptions he is making in that respect because they crucially pertain to his solution for both IaDs and IoDs.

I will then discuss his analysis of IaDs, showing that despite initial elegance it does not go much further than giving us a restatement in the chosen framework. Furthermore, it fails to take into account the cases of *even if*-conditionals as discussed in Section 12.4.

In the remainder, I will discuss his solution to IoDs, which offers interesting insights into the behaviour of disjunction in general. In the end, I do not think that it is superior to the account I have chosen to pursue. On the one hand, I will argue that the arguments given against my proposal are not really critical. On the other hand, I will show that Franke's (2005) analysis itself relies on an assumption about imperative semantics that makes wrong predictions, at one point also for IoDs. The insightful discussion of possible discourse relations between various IoD and other disjuncts pertains to the pragmatic side of the modalized-disjunction analysis for imperatives as well and should therefore be taken as a starting point to a better understanding of the possibilities to individuate the respective backgrounds for the modals contained in the disjuncts.

### Franke's imperative semantics

Franke crucially assumes that semantic interpretation maps imperatives onto non-propositional objects. The argument given is that imperatives can never be used to describe the world and that this should be reflected in their semantic denotatum. As I have argued in Section 3.3, this is far less convincing than usually taken to be.<sup>1</sup> Alternatively, he assumes that imperatives denote actions, which (explicitly for the time being) is taken as a crucially non-propositional semantic primitive. An important consequence of this is that the natural language elements *and* and *or* as occurring in IaDs and IoDs are crucially not the familiar truth-functional connectives. The equivalent of propositional  $A \rightarrow B$ , namely that an action  $\alpha$  results in  $\phi$ , is called a **result statement** and is written as  $[\alpha]\phi$ , likewise an **anti-result statement** consists in the abstinence from performance of  $\alpha$  resulting in  $\phi$  and is written as  $[\neg\alpha]\phi$ .

Furthermore, Franke gives credit to the fact that the class of pragmatic uses of imperative sentences is *vaguely or possibly ill-defined* (Franke (2005:10)) by introducing the cover term of **directives**. I think that that is actually a major weak point of the proposal. As it is defined, it is equivalent to “speech act type assignable to imperatives”, and thus comprises a wide variety of things, including e.g. wishes and permissions (cf. Section 1). Without taking this into account, the study proceeds by interpreting *directive* utterances as being of the form  $\nabla_G\alpha$ , the impact of which can be modelled by necessity statements. I do not really understand the role of the modelling relation, nor can I see how this could be extended to a more general conception of the semantics pragmatics interface, but the claim is as follows:

We say that action  $\alpha$  is necessary for the achievement of goal  $G$  if all ways that the actual world can turn out to be where  $G$  is true are such that  $\alpha$  has been performed. Let  $Ex(\alpha)$  be a proposition that is true in all worlds where  $\alpha$  has been performed, then  $\nabla_G\alpha$  is true iff  $G \rightarrow Ex(\alpha)$  is true in all ways the actual world turns out to be in a fixed and finite amount of time. (Franke (2005:31))<sup>2</sup>

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<sup>1</sup>For an imperative like (4) it is clear that it will never be used to describe the world. This then should be reflected in a semantic denotatum. (Franke (2005:28)). But imagine his example (4) (= *Close the window!*) in a context like (i):

- (i)     A: How can I best avoid to catch a cold?  
           B: Close the window!  
           B': You should close the window.

To me, it seems less trivial than generally assumed to show that this is non-descriptive, and therefore non-propositional, let alone, that it is any less propositional than the alternative answer in B'.

<sup>2</sup>This is subject to a weakness Fernando (2005a) criticizes about von Stechow and Iatridou's (2005c) analysis for anancastic conditionals: means to achieve a goal cannot be distinguished from properties independently characterizing all the worlds in which the goal is performed. E.g., in a context where it is known that everyone who has taken a PhD throws a party to celebrate, it should be possible to issue the imperative *Throw a party!* in virtue of the goal *obtaining a PhD*.

It is now claimed that the goal is either instantiated by some sort of question or purpose clause (as with advice or recommendation, cf. Section 6.2.4), or, for a plain imperative, that it is set to *that the addressee's actions comply with the speaker's wish*. But note that this runs into a problem. Franke himself credits Darrin Hindsill for having pointed out to him that the proposed necessity statement is too strong for rendering (1a), since it does not entail (1b).

- (1) a. If you want to go to Haarlem, take the A-train.  
b. If you don't take the A-train, you don't go to Haarlem.

Consequently, Franke concludes that an optimality presumption has to be added to the goal clause. Nevertheless, this strikes me as incorrect for plain imperatives. Here, we do not want to lose the entailment relation between (2a) and (2b).

- (2) a. I command you the following: Close the window!  
b. If you don't close the window, you don't obey me.

While the necessity semantics I assign to imperatives seems to be somewhat similar to the necessity statements modelling directive utterances as assumed by Franke, necessity with respect to a designated goal (cf. (1a)) and necessity with respect to what comes closest to what the speaker wants or commands (cf. (2a)) are kept apart under the account for imperatives in terms of graded modality. Consequently, the entailment relations come out as desired.<sup>3</sup> We will have to keep in mind that these assumptions about the goal are highly problematic when it comes to the analysis of IoDs.

Before taking to the respective analyses of IaDs and IoDs, Franke points out the contrast I have also been talking about in Section 12.3.2 and labels the observation the **Pairing Hypothesis** (cf. (4)).

- (3) a. You only have to be blond and nobody likes you.  
b. You have to be blond or nobody likes you.  
c. ?You have to be blond and nobody likes you.  
d. ?You only have to be blond or nobody likes you.
- (4) **Pairing Hypothesis:** Natural language conjunction *and* pairs naturally with expressions of sufficiency, but not with expressions of necessity. In contrast to that, natural language disjunction *or* pairs naturally with expressions of necessity, but not with expressions of sufficiency. (Franke (2005:34))

Furthermore, he also makes the following observation:

- (5) **Bias Puzzle:** Sufficiency statements are unbiased and only require results,

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<sup>3</sup>Of course, it has to be admitted that the question of how to account for modals expressing necessity with respect to designated goals has still not been solved entirely satisfactory in the literature on anankastic conditionals. Nevertheless, any account for teleological modal bases should carry over to my treatment of imperatives.

but necessity statements are intentionally biased and require anti-results which are construable as quasi-goals in the given context of use.

Unfortunately, it is not clear if it is only taken to hold for sufficiency and necessity as expressed by IaDs and IoDs respectively, or if it is meant as a more general observation about natural language expressions. In the former case, it is of course a mere description of the fact that can instead be accounted for by the speech act character of disjuncts. In the latter case, it does not seem to be correct. In both (6a) and (6b), no difference in bias is to be detected as to whether playing scrabble is something desirable or not.

- (6) a. If Carl comes, we play scrabble.  
b. We play scrabble only if Carl comes.

In the following I will take a look at how the proposed imperative semantics is used to account for IaDs and IoDs in terms of necessity and sufficiency.

### Sufficiency for IaDs

For IaDs, Franke likewise acknowledges the insights in Culicover and Jackendoff (1997) that they constitute instances of *LS and*. This means that the construction has the same characteristics as reported there. Franke states them as in (7).

- (7) Characteristics of *LS and*:  
(i) neither conjunct is asserted, (ii) the second conjunct is interpreted as a result of the first, and therefore, (iii) the overall impact is a conditional assertion.

This ensures that IaDs are interpreted as  $\text{Ass}([\alpha]\phi)$  in Franke's notation, but it does of course not do anything in order to explain to us why this would be so. If I understand him correctly, *LS and* is taken to come from the lexicon with precisely these characteristics.<sup>4</sup>

Then, it seems that two different things are done at a time. On the one hand, Franke tries to answer why in IaD interpretation (if available) is preferred to a speech act interpretation. The second conjunct normally does not provide a goal with which to instantiate the slot opened up by the first speech act, consequently, the statement results less coherent. Implicitly, this seems to rely on a principle like **Maximize Coherence** as put forth in Asher and Lascarides (2003a). Nevertheless, it is not clear to me why the second conjunct should not normally provide a goal

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<sup>4</sup>Remember that Culicover and Jackendoff (1997) stipulate a generic operator that somehow gets to take the first conjunct as a restrictor, and the second as its nuclear scope. Not only do we lack an explanation of how this is to come about, it also fails to account for the cases involving predictions with respect to the future (cf. (i)):

- (i) You order one more beer and I'm leaving.



for the first. Franke says normally, because at other points he argues that the distinction between IaDs and speech act disjunction should not be drawn as sharp as I have done. For him, (8a) still contains a conditional statement; given that the second conjunct represents a suitable goal for the directive expressible by the imperative, the entire thing is interpreted as the speech act conjunction in (8b)

- (8) a. Mow the lawn, please, and I'll give you 100 pounds.  
 b.  $\text{DIR}(\text{you mow the lawn}) \ \& \ \text{ASSERT}([\text{you mow the lawn}] \text{I give you 100 pounds}) = \nabla_{\text{I give you 100 pounds}}(\text{you mow the lawn}) \ \& \ \text{ASSERT}([\text{you mow the lawn}] \text{I give you 100 pounds})$

Note that this is highly reminiscent of the discourse relation REPEAT as employed by Asher and Lascarides (2003a). Consequently the arguments given against their proposal in Section 12.2 also carry over to this analysis. I would not want to exclude that for cases like (8a) we indeed get a conditional interpretation for the second speech act, namely that the promise is only given for the case that the lawn gets indeed mown. But I would prefer to interpret this as an ordinary case of modal subordination as is found in connection with lots of other phenomena (Roberts 1989, Geurts 1999). Not only does this spare us gradual distinctions between “pure” IaDs and speech act conjunctions, it also captures the lack of asymmetry between necessity and sufficiency modals to be observed with other instances of IaDs. (8a) can easily be rendered as (9), without losing the conditionality of the following assertion.

- (9) You must mow the lawn, please. (#And) I will give you 100 pounds.

It is far from clear to me why inserting *and* results much worse in that case, but it clearly shows that the declarative can be conditionalized on compliance with the obligation given in the preceding sentence in the absence of *LS and* as well.

On the other hand, it seems that Franke tries to account for the general infelicity of (10). I can somehow see that the same explanation that would explain for the general dispreference of speech act coordination as an interpretation for *LS and*-candidates also accounts for the dispreference of speech act conjunction interpretations with necessity modals. Nevertheless, I am not entirely convinced by his solution of excluding necessity modals from appearing in *LS and*-constructions.

- (10) #You have to be blond and nobody likes to.

As it stands, it remains unclear to me how *LS and* results in mapping “ $\alpha$  and  $\phi$ ” onto  $[\alpha]\phi$ . Furthermore, we should keep in mind that this all happens at a sub speech act level. Consequently, imperatives, declaratives and NPs as observed in *LS and*-constructions are all of a different type.  $[\alpha]\phi$  was explicitly defined for  $\alpha$  an action term, though. Given the non-propositional nature of imperatives Franke insists on, it is not clear to me how the account can be generalized to the other instances of *LS and* as discussed by Culicover and Jackendoff (1997).

I also do not think that the decision between speech act conjunction and IaD is a matter of maximization of coherence. I would rather assume that it is explicitly encoded by the intonation of the conjunction, as described in Section 12.3.2.

Last but not least, I don't know what the exact interpretation of  $[\alpha]\phi$  is to be, and therefore, how (if at all) it would account for those cases of *LS and* that did not express sufficiency but constituted *even if*-conditionals and could also be expressed by possibility modals. To me it seems that these cases contradict the second characteristics of *LS and*, which is the crucial one though to obtain the translation into a result statement.

Taking this together, for the case of IaDs, I do not think that Franke's approach can get us any further than what we have seen so far.

### IoDs in terms of goal resolution

One of Franke's (2005) initial concerns is to explain the impossibility of (i) negative interpretations for imperatives in IoDs, and (ii) the infelicity of positively evaluated propositions as the second disjunct of an IoD.

He considers it a decisive weak point that in Schwager (2004b) I only try to account for the first question, but fail to address the second.

Franke likewise proposes to reduce IoDs to a more general phenomenon of disjunctions. But for him, the coordination applies at the speech act level. He calls this type of disjunction *right-coordinating*, *explanatory 'or'* and abbreviates this as *RCE or*. *RCE or* is translated as follows:<sup>5</sup>

- (11) *RCE or* translates to speech act coordination of the form  $\text{SPEECHACT}(\sigma(\alpha)) \ \& \ \text{ASSERT}([\neg\alpha]\phi)$  such that the conjoined assertion corroborates the first speech act.

According to (11), the classical IoD example in (12a) is thus interpreted as in (12b). Here, the goal  $G$  is instantiated to be the special goal proposition  $\Gamma$  as occurring in commands ( $\Gamma$  refers to the goal of complying with the speaker's wishes; but  $G$  could also be instantiated otherwise.)

- (12) a. Close the window or I will kill you.  
 b.  $\nabla_{\Gamma}[\text{close the window}] \ \& \ \text{ASSERT}([\neg[\text{close the window}]] \ || \ [\text{I kill you}])$

Further instances of *RCE or* that do not have directives as first conjuncts are exemplified e.g. by (13) (Franke's examples (45a,b)):

- (13) a. It is probably a good idea to invite Jason as well or Janet will be sad all night.  
 b. You have to show your member's card at the entrance or the doorman will refuse you.

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<sup>5</sup>In contrast to *LS and*, for *RCE or*, it is of course natural that they can combine both modalized propositions and imperatives, because most likely, at speech act level, these differences in semantic type should be invisible.

Let's see how this accounts for the two questions as related to missing negative interpretations of IoDs and lack of positively evaluated second disjuncts in imperatives. (14) is odd under the assumption that having a dinner prepared by the speaker is unconditionally desirable.

- (14) Leave or I'll make you a nice dinner.

From *RCEor* and the principle of no negative interpretation (cf. (15)), it immediately falls out that there are no negative cases of IoDs. That is, the imperative is used as if it was a plain imperative, and plain imperatives are never subject to negative interpretation. Consequently, (14) can never be interpreted as a request to stay.

- (15) No negative interpretation

If an imperative sentence *A* is associated with a directive speech act *Dir*( $\chi$ ) out of context, then there are not contexts in which *A* is associated with *Dir*( $\neg\chi$ ). (Franke (2005:20))

From *RCEor* it also follows that the conditional assertion has to provide corroboration of the speech act it is conjoined with (in that case, the directive to close the window). This is achieved no matter how one resolves the goal variable associated with the imperative.

- (16) a.  $\nabla_{\Gamma}(\llbracket\text{leave}\rrbracket) \ \& \ \text{ASSERT}(\llbracket\neg\llbracket\text{leave}\rrbracket\rrbracket \llbracket\text{I make you a nice dinner}\rrbracket)$   
 b.  $\nabla_{\text{Ikissyou}}(\llbracket\text{leave}\rrbracket) \ \& \ \text{ASSERT}(\llbracket\neg\llbracket\text{leave}\rrbracket\rrbracket \llbracket\text{I make you a nice dinner}\rrbracket)$

Irrespective of whether the goal is set to the general proposition of pleasing the speaker, or to a specific proposition of getting a nice dinner, the conditional assertion can only provide an incentive not to leave under the given scenario.

As I have said, Franke is right in stating that I do not explicitly tackle the second part of why there are no IoDs with positively biased second disjuncts (cf. already the discussion in 13.1.2).

Again, I would like to point out that the corroboration restriction does not come from *RCEor*. Rather, it is already part of the particular type of speech act conjunction that ends up as a part of *RCEor* according to (11). Given that getting a 100 pounds is desirable, (17a) is just as weird as its *RCEor*-twin in (17b).

- (17) a. ?Close the window, and I hereby assert that I will give you a 100 pounds if you don't.  
 b. ?Close the window or I'll give you 100 pounds.  
 c. I hereby command you to close the window, and I hereby assert that I will give you 100 pounds if you don't.

Note that a comparable case with an explicit performative as the first conjunct fares indeed better (cf. (17c)). I would like to argue that this depends on the imperative that requires the addressee to affirm the ordering source. If there is

no imperative, he can feel free to distance himself from his own command (as for example a cruel boss might) and tempt his addressee to defect by making him an offer for the case of non-compliance. Consequently, speech act coordinating *and* allows for other discourse relations instead of corroboration (e.g. neutral connection in (17c)), but the imperative requires the speaker to somehow stand behind the imperative, consequently, for IoDs he cannot defeat them.

Having discussed Franke's (2005) proposal it is time to turn to the the arguments he puts forth against my proposal.

Franke argues that there are some instances of *RCE or* that do not come out correctly under the modalized disjunction analysis. Consider (18).

(18) I'll call Jane tomorrow or she'll be sad.

Franke argues correctly that under the modalized disjunction analysis this should be interpreted as both conjuncts expressing necessity with respect to distinct parts of the epistemic background. Consequently, it means something like "either I call Jane tomorrow, or (if I don't call her tomorrow) Jane will be sad". While it does indeed allow for this reading, according to Franke, the preferred reading is one of speech act conjunction as in (19):

(19) PROMISE([I'll call Jane tomorrow] ) &  
 ASSERT([I don't call Jane tomorrow] ][she'll be sad] )

Translating the example to German, it seems unacceptable to me under the indicated reading, and like remarks have been made by native speakers asked about these examples. In a way this would also be expected for the speech act conjunction corresponding to (19). Asserting or promising that I will call Jane tomorrow amounts to excluding all possibilities in which I don't. But now, the conditional assertion has the form of an indicative conditional, and it is well known that indicative conditionals require the antecedent to be compatible with the common ground. Consequently, (19) would be predicted to be unfelicitous as a speech act conditional. This fits well with the feelings my informants have about (18) understood along the lines of an *RCE or*. It does not fit with Franke's intuitions though. So if he is indeed right about the reading being available, something would have to be said about indicative conditionals or the semantics of promises and assertions in general.

Another counterargument to my approach is constituted by the alleged existence of neutral IoDs. Franke claims that the approach I am advocating cannot handle neutral (that is to say truly conditional) IoDs as exemplified by (20).

(20) Speak at least 6 different languages or you are not a cosmopolitan.

Since giving the imperative requires some ordering source according to which speaking at least 6 different languages would come out as a necessity, we would indeed not expect a truly conditional reading. Nevertheless, Franke claims that there is one and he derives it by instantiating the goal of the directive speech act to the

proposition expressed in the second. Consequently, the *RCEor*-construction in (20) is mapped to (21):

- (21)  $\nabla_{\llbracket \text{you are a cosmopolitan} \rrbracket} (\llbracket \text{speak at least 6 languages} \rrbracket) \& \text{ASSERT}(\lceil \neg \llbracket \text{you don't speak at least 6 different languages} \rrbracket \rrbracket \llbracket \text{you are not a cosmopolitan} \rrbracket \rceil)$

As he himself states, this amounts to conjoining twice the same conditional proposition, but I agree with him that this should not necessarily be taken to predict infelicity. Nevertheless, I don't think that this is ultimately correct.

On the one hand, consider the test on neutral conditionality I have proposed in 11. While neutral IaDs allowed for sequencing containing contradictory imperatives, supposedly neutral IoDs still have a contradictory flavour to them:

- (22) a. #Speak at least 6 languages or you are not a cosmopolitan. Don't speak more than 5 languages or you are a snob.  
 b. Speak more than 5 languages and you are a cosmopolitan. Don't speak more than 5 languages and you are a normal human being.

In contrast to that, making the goals explicit in terms of purpose clauses does indeed render the sequence acceptable as well. (Conditionals are of course fine as well.)

- (23) To be a cosmopolitan, speak at least 6 languages. To be a normal human being, don't speak more than 5.

Given the contrast in (22), I conclude that there are no truly neutral IoDs, and given the acceptability of (23) which seems to be the most straight-forward candidate for expressing (21), I conclude that (21) cannot be the right analysis for (20).

So, I would want to say that the analysis in terms of modalized disjunction (assuming e.g. the speaker's judgment of society's standards as an ordering source) makes correct predictions for (20) after all.

Given that the counterarguments against the analysis in terms of modalized disjunction are not decisive, it remains to be appreciated about my account along the lines of Geurts (ta) that IoDs (or *RCEor*) are naturally integrated into an analysis of disjunctions in general.

Putting it all together, I want to stress that amongst other things Franke's (2005) approach provides a lot of valuable insights into the relationship between the individual disjuncts. This should be taken into account when refining the possibilities of resolving the background variables in the approach of modalized disjunctions I have been proposing. Nevertheless, I do not think that the particular imperative semantics in terms of a goal introduced by the directive is ultimately helpful for the analysis of IoDs. Nor do I find myself convinced by his arguments against my analysis of *RCEor* as a particular constellation of modalized disjunction. Doing so is certainly also in line with my more general scepticism against building speech acts into the denotation of imperatives (cf. Section 3.1).



## Chapter 15

# Conclusion

In this part, I have introduced imperatives in coordination with declaratives that assume conditional readings (IaDs, *imperative and declarative*); IoDs, *imperative or declarative*), and have shown that both constructions are part of more general phenomena. IaDs form part of what is known as *left subordinating and* (*LS and*) for conjunctions, and, maybe surprisingly, IoDs ultimately came out as instances of ordinary disjunctions.

I have elaborated on the fact why I am convinced that IaDs and IoDs are fundamentally different, in that IaDs are truly conditional, whereas the first coordinand of an IoD performs a speech act as could be assigned to a plain imperative as well.

I have discussed three types of solutions of how one could approach these imperatives in non-canonical usages. I have argued that there is a lack of motivation for postulating pseudo-imperatives, since IaD-imperatives only differ in construction specific parameters from plain imperatives, but do not show independent differences. I have also argued that pragmatic approaches miss the generalization to other instances of *LS and*. Consequently, I have argued in favour of semantic underspecification.

For IaDs, I have compared three possible solutions, showing how much of the data each could handle. The approach I have put forth in Section 12.3.2 could at least handle all the cases involving imperatives, and all-but one of other *LS and*-types. Nevertheless, it has also been shown to overgenerate quite a bit. Ultimately, I have to say that IaDs still await a satisfactory explanation.

For IoDs, I have argued that the most promising solution lies in assuming modalized conjunction along the lines of Geurts (ta).

Last but not least I have added a couple of remarks on an alternative approach that has been put forth by Franke (2005), partly taking as a starting point an older version of my proposal for IoDs (cf. Schwager (2004b)). Nevertheless, in the end, neither for IaDs nor for IoDs do I consider his analyses more promising.





## Part IV

# Afterthoughts



# Chapter 16

## Afterthoughts

### 16.1 A Puzzle about *for example*

In the preceding sections I have tried to show that imperatives are often used to issue obligations and requests, but sometimes also to give advice or express wishes. Only under special contextually specified circumstances and under overt modification can they come to express permissions. Consequently, approaches that link the clause type *imperative* to necessity in semantics seem to be on the right track (e.g. Asher and Lascarides 2003a, Mastop 2005, Schwager 2005). An imperative  $\phi!$  is taken to constrain accessible future courses of events to  $\phi$ -courses, which is the correct generalization for most utterances of an imperative  $\phi!$ .

In this chapter, I will provide evidence that the semantics of imperatives is better captured in terms of possibility after all. Nevertheless, imperatives are interpreted as exhaustive possibilities unless this is blocked explicitly, and therefore, the default reading for imperatives is still necessity. It will be argued that overt modifiers like *for example* block exhaustification and thus preserve the possibility reading. Elements of that kind will be called *antiexhaustifiers*. For the moment, I confine my attention to German.

Let us first take a look at the crucial data. Imperatives can be modified by *zum Beispiel* ‘for example’, especially if they are used to give advice.

- (1) Kauf zum Beispiel keine Zigaretten!  
buy.IMP for example no cigarettes  
‘For example, don’t buy any cigarettes.’

Example (1) is ambiguous. As an answer to a question as in (2a), it can be paraphrased as in (2b); as an answer to (3a), as in (3b):

- (2) a.  $Q_1$ : How could I stop smoking?/ $Q_1$ ’: What do I have to do in order to stop smoking?  
b. One of the things you may not do is buy cigarettes.  $\Box\neg BC(\textit{addressee})$   
( $\rightarrow$  *It is necessary that you don’t buy cigarettes.*)

- (3) a. How could I save money?  
 b. One of the things you could do is not buy cigarettes.  $\diamond\neg BC(\textit{addressee})$   
 ( $\nrightarrow$  *It is necessary that you don't buy cigarettes.*)

So, (1) can either express that *not buying cigarettes* is part of the addressee's obligations/needs, or that *not buying cigarettes* is a possibility to achieve his goal. On the second reading, buying cigarettes is clearly not necessary. A semantics that relies on necessity as I have been arguing for so far fails to account for the reading exemplified in (3). The two variants of (2a) show that the modal force is not automatically determined by the modal force of the question predicate ( $Q_1$  contains possibility,  $Q_1'$  necessity as a question predicate; nevertheless, (1) is interpreted along the lines of (2b) in both cases, that is to say as expressing necessity).

The reading on which (1) is similar to (2b) expresses that buying cigarettes is an **inexhaustive necessity** (that is, one obligation among others). The reading under which (1) is similar to (3b) expresses that buying cigarettes is an **inexhaustive possibility** (that is, one possibility among others).

Before presenting the analysis, it might be useful to take a look at the respective exhaustive counterparts of these modal relations. Example (4) represents **exhaustive possibility**:

- (4) a. Q: What could I possibly do to stop smoking?  
 b. A: Du kannst nur aufhören, Zigaretten zu kaufen.  
 you can only stop, cigarettes to buy  
 'The only possibility you have (to achieve your task)  
 is to stop buying cigarettes.'

Example (4b) expresses that the only possibility for the addressee to stop smoking is not to buy cigarettes anymore. The overt exhaustifier *only* is used to indicate exhaustivity.<sup>1</sup> Consequently, if she wants to stop smoking, it is necessary that she does not buy cigarettes anymore. So, exhaustive possibilities come out as necessities that are not specified with respect to their degree of exhaustivity.<sup>2</sup>

The unmodified necessity modal in (5) allows for an interpretation as **exhaustive necessity**. According to that, given the task of getting into a good university, nothing is necessary apart from having a lot of money. The possibility of B's incredulous question clearly confirms the existence of this reading. However, if a reading of *inexhaustive necessity* is forced by overt *zum Beispiel* 'for example', B's incredulous question is completely incoherent (A's utterance has already indicated that having a lot of money may not be the only requirement to get into a good university).<sup>3</sup>

<sup>1</sup>Maybe it should be argued that the default interpretation for possibility modals is *inexhaustive*, so as not to make them collapse into necessity.

<sup>2</sup>But, again, *inexhaustivity* seems to be the default for necessity modals as well.

<sup>3</sup>Richard Breheny (p.c.) has pointed out yet another problem. For him, the English translation of sentence (5b) allows for a reading of *inexhaustive possibility* (roughly: *something (difficult) is necessary to get into a good university, and one way of saturating the requirement is e.g. to have a lot of money*).

- (5) a. A: Um an eine gute Uni zu kommen, mußt du viel  
 A: in-order-to to a good university to get, must you lots-of  
 Geld haben. B: Echt? **Und das ist alles?**  
 money have. B: really? and that is all?  
 'A: You must have lots of money to get into a good university. B: Really?  
 And that's all?'
- b. A: Um an eine gute Uni zu kommen, mußt du **zum**  
 A: in-order-to to a good university to get, must you for  
**Beispiel** viel Geld haben. B: Echt? **#Und das ist alles?**  
 example lots-of money have. B: really? and that is all?  
 'A: In order to get into a good university, you need lots of money, for  
 example. B: Really? #And that's all?'

Example (5a) shows that an unmodified necessity modal can indeed be interpreted as exhaustive necessity. Nevertheless, this does not seem to be part of the proposition that is asserted. B's addendum in (6), starting with *yes* and hence affirming the proposition expressed by A, suggests to consider this an implicature.

- (6) A: To get into a good university, you must have a lot of money.  
 B: Yes, but there is more to it than that!

Making exhaustive necessity explicit is not so easy though. Adding the exhaustifier *only* results in the sufficiency modal construction (cf. von Stechow and Iatridou 2005b):

- (7) To get into a good university, you only have to have lots of money.

At least on the preferred reading, which involves a teleological modal, this does not express exhaustive necessity. Rather, it represents having enough money as a possibility to achieve the goal of getting into a good university, and at the same time ranks having enough money low on the scale of efforts.<sup>4</sup>

For the moment, I will not have much to say about how exhaustive necessity is encoded. It should suffice to see that there is a contrast between exhaustive

- 
- (i) To get into a good university, you must for example have a lot of money.

Consequently, we encounter the **prejacent problem** familiar from the corresponding cases involving *only* (the corresponding proposition without *only* is not true, cf. von Stechow 1997), cf. (7). Such a reading is not to be expected under my analysis. But so far, I have not been able to verify its existence with other speakers of English. It does not seem to be available for the German case in (5b).

<sup>4</sup>I think that German *nur* 'only' can marginally express exhaustive necessity, provided the modal is not interpreted teleologically:

- (i) a. A: Was muß ich heute tun?  
 What must I today do.INF  
 'What are my tasks for today?'
- b. B: Du mußt nur dein Zimmer aufräumen.  
 you must only room tidy-up  
 'Your only task is to tidy up your room.'

and inexhaustive necessity which can be brought out clearly by the respective (im)possibility of a follow up-question in this regard (cf. (5)).

## 16.2 Diamonds Are a Girl's Best Friend

In order to explain the ambiguity in (1), I will change the semantic contribution of the imperative to possibility. That is, instead of the imperative semantics given in (160) (p. 159; repeated as (8a)), I will use something along the lines of (8b). The presuppositions attached to imperatives remain unaltered, allowing our explanations for the lack of descriptive readings and the deontic version of Moore's Paradox to carry over (cf. 1).

- (8) a.  $\llbracket \text{OP}_{Imp}^{orig} \rrbracket^{c,s} = \lambda f \lambda g \lambda t \lambda P \lambda w. (\forall w' \in O(\text{cg}_F(c) \uplus f, g, c_T, w)) [P(t)(w')]$   
 b.  $\llbracket \text{OP}_{Imp} \rrbracket^{c,s} = \lambda f \lambda g \lambda t \lambda P \lambda w. (\exists w' \in O(\text{cg}_F(c) \uplus f, g, c_T, w)) [P(t)(w')]$

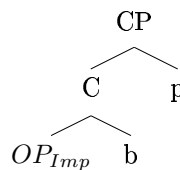
In order to be able to speak about (in)exhaustive possibility/necessity with respect to a background, we have to assume a simple rebracketing for our imperative analysis. So far, the background (as a set of worlds) is not individuated independently from the modal operator, but is described by parameters the modal operator combines with. In order to make the analysis work, I will resort to an analysis of modal operators as propositional quantifiers that relate two sets of worlds (cf. Geurts 1999 for an analysis along these lines in a DRT-framework). The first argument constitutes the background, and, under the analysis of graded modality I have employed, should be identified with the set of optimal worlds in the Common Ground that verify a potentially empty set of additional facts given by  $f$  and are optimal according to the ordering source  $g$ . The second argument is given by the complement proposition that is said to be comtable with or to follow from the background. Possibility and necessity as they would e.g. be expressed by the modal verbs *may* and *must* respectively, are interpreted as in (9) (cf. Geurts 1999).

- (9) a.  $\diamond = \lambda b \lambda p. (\exists w \in b) [w \in p]$   
 b.  $\square = \lambda b \lambda p. (\forall w \in b) [w \in p]$

As in (8b), we equate imperatives with possibility in semantics. A simplified tree corresponding to the rebracketed analysis is given in (10b) (tense and aspect information are abstracted away for the moment).

- (10) a.  $\text{OP}_{Imp} = \diamond (= \lambda b \lambda p. (\exists w \in b) [w \in p])$

b.



$b$  has to describe the set of worlds that corresponds that what should be expressed in more detail as  $O(cg_F(c) \cup f, g, w, c_T)$  (cf. (2) (p.95) and (132) (p.146)), where the presuppositions of *authority* have to be met by both  $f$  and  $g$ , OSA has to be met by  $g$ . I will assume that these requirements have to be spelled out as restricting the value assigned to  $b$  by the variable assignment function  $s$ . As usual, EUC has to be met by  $b$  with respect to the imperative's argument proposition  $p$  (that is,  $CG \cap (Bel_{c_S} \cap \neg p) \neq \emptyset$  and  $CG \cap (Bel_{c_S} \cap p) \neq \emptyset$ ). In the following, I will abstract away from these details.

Exhaustivity and antiexhaustivity can now be treated as modifiers of propositional quantifiers. Both are of type  $\langle\langle st, \langle st, t \rangle \rangle, \langle st, \langle st, t \rangle \rangle$  ( $s$  and  $t$  for worlds and truth values respectively).

Intuitively, exhaustive possibility should express that '*p is possible (w.r.t. background b) and nothing else is possible*'. A word of caution is apposite as to how exhaustivity should be interpreted with respect to properties of propositions (as the one of standing in a certain relation to a background). Zimmermann (2000) has shown convincingly that for domains with the mereological structure of propositions or places (that is, where subparts are of the same kind), exhaustivity can never be computed making use of identity (in the sense of '*x has property P and no y  $\neq$  x has property P*', as it underlies the familiar semantics for exhaustivity according to Groenendijk and Stokhof 1984). It is easy to see that this would run into problems with proper sub- and supersets of  $p$ . If  $p$  is an exhaustive possibility with respect to  $b$ , their intersection is non-empty. But if the intersection  $(p \cap b) \neq p$ , then  $p \cap b$  itself is a  $b$ -possibility, too. Hence, it would falsify that  $p$  is an exhaustive  $b$ -possibility. On the other hand, every proper superset of  $p$  is a  $b$ -possibility as well and would thus equally falsify exhaustivity.

One possibility to compute exhaustivity for such domains is to relativize exhaustivity to relevance. This has been proposed for alternative reasons by van Rooij and Schulz (ta). Under their account,  $p$ 's being an exhaustive  $b$ -possibility would come out roughly as *p is possible w.r.t. b and no other possibility that is equally relevant is possible* (cf. van Rooij and Schulz ta). We could then say that sub-/superpropositions are not equally relevant, which allows us to stick to the standard account relying on identity with respect to a highly constrained set of propositions. For the time being, I will not further pursue this idea.

Alternatively, I will adapt the set-theoretic solution Zimmermann (2000) has elaborated to express exhaustivity of lists of possibilities. He introduces an operator that closes off lists of possibilities  $p_1, \dots, p_n$  to say that these propositions cover the entire background, that is, that their union is a necessity. The semantics for the operator is given in (11). Its equivalence to necessity of the union of  $p_1, \dots, p_n$  is proved in Zimmermann's footnote 22.

$$(11) \quad (\forall q)[q \cap H_c \neq \emptyset \rightarrow [q \cap p_1 \neq \emptyset \vee \dots \vee q \cap p_n \neq \emptyset]] \quad \text{his (24}\kappa'), \text{ p.268}$$

In the following, I want to make use of this by interpreting *being an exhaustive possibility with respect to background b* (in symbols,  $(EXH(\diamond))(b)$ ) as *covering all*

of  $b$ .

Adapting Zimmermann's (2000) condition for single possibilities, the covert exhaustivity operator  $EXH$  modifies the modal operator  $\diamond$  in the following way:

$$(12) \quad EXH(\diamond) = \lambda b \lambda p. \diamond(b)(p) \ \& \ (\forall q \in \diamond(b))[q \in \diamond(p)]$$

This is equivalent to applying Zimmermann's (2000) closure condition to single item lists. Consequently, we obtain the equivalence in (13).

$$(13) \quad EXH(\diamond) (= EXH(OP_{Imp})) \Leftrightarrow \square$$

An adaptation of Zimmermann's (2000) proof to exhaustification of the property of being a possibility as defined in (12) is given in (14).

$$(14) \quad \text{For arbitrary } b \text{ and } p:$$

$EXH(\diamond) \Rightarrow \square$ : for any  $w$  if  $w \in b$ , then  $\{w\} \cap b \neq \emptyset$ , therefore  $\{w\} \cap p \neq \emptyset$ , therefore  $w \in p$ .

For non-empty  $b$  and arbitrary  $p$ :

$EXH(\diamond) \Leftarrow \square$ :  $(\forall w \in b)[w \in p]$ , therefore  $b \cap p \neq \emptyset$ . And if for any  $q$ ,  $\diamond(b)(q)$ , then there is a  $w \in b \cap q$ . But then  $w \in p$ , therefore  $q \cap p \neq \emptyset$ , so  $q \in \diamond(b)$ .

Now, we have to generalize the notion of exhaustivity of a modal relation from possibility to covering also necessity.  $p$  is an *exhaustive necessity with respect to background  $b$*  (in symbols,  $(EXH(\square))(b)(p)$ ) shall be interpreted as *nothing follows from the background  $b$  that does not follow from  $p$* .

$$(15) \quad EXH(\square) = \lambda b \lambda p. \square(b)(p) \ \& \ (\forall q \in \square(b))[q \in \square(p)]$$

Exhaustified necessity ( $EXH(\square)$ ) boils down to identity of background and proposition. The proof for the equivalence is given in (16). This equivalence is as it should be. The deontic background e.g. is described as the set of worlds that verify whatever is commanded (the interesection of all the propositions that are commanded). If only one proposition is commanded, that proposition itself constitutes the deontic background.

$$(16) \quad \text{For arbitrary } b \text{ and } p, EXH(\square)(b)(p) \Leftrightarrow (b = p)$$

$\Rightarrow$ :  $b = p$ , therefore  $b \subseteq p$ , and  $(\forall q \in \square(b))[q \in \square(p)]$ .

$\Leftarrow$ :  $EXH(\square)(b)(p) = \square(b)(p) \ \& \ (\forall q \in \square(b))[q \in \square(p)]$ . So, by the first conjunct and the interpretation of  $\square$ ,  $b \subseteq p$ . Assume  $b \subset p$ . Then  $(\exists w \in p)[w \notin b]$ . Then, it would be the case that  $b \in \square(b)$ , but not  $b \in \square(p)$ . Therefore, it cannot be the case that  $b \subset p$ . Hence,  $b = p$ .

Given (12) and (15), the closure condition can be generalized to the following modifier  $EXH$  of propositional quantifiers  $R$ :

$$(17) \quad EXH(R) = \lambda b \lambda p. R(b)(p) \ \& \ (\forall q \in R(b))[q \in R(p)]$$



A natural interpretation for the antiexhaustifier *zum Beispiel* ‘for example’ is now to assume that it modifies a propositional quantifier by adding that the speaker does not exclude that other propositions than the complement proposition stand in the same relation to the background. It expresses that the negation of the second conjunct of the exhaustivity operator is compatible with the speaker’s beliefs. This is spelt out in (18).

$$(18) \quad zB(R) = \lambda b \lambda p. R(b)(p) \ \& \ \diamond (Bel_S)[\neg(\forall q \in R(b))[R(p)(q)]],$$

where  $Bel_{c_S}$  the speaker’s belief worlds.

So, for instance, if  $p \in (zB(\Box))(\cap \textit{what is commanded})$ , then  $p$  is an obligation, but the speaker does not exclude that there are further obligations independent of  $p$ .

Apart from its presuppositional meaning component, the imperative operator  $OP_{Imp}$  is semantically equivalent to the modal verb *may*. Nevertheless, it differs in its interaction with (anti)exhaustification.  $OP_{Imp}$  combines obligatorily either with overt  $zB$  or with covert  $EXH$  (default). Only after doing so, it behaves like a modal in optionally combining with  $EXH$  or  $zB$ , before applying to background and lexically expressed argument proposition. The possible LF-schemata are given in (19) ( $\emptyset$  indicates the absence of an (anti)exhaustifier at the respective position, options are given in curly braces).

$$(19) \quad \begin{array}{l} \text{a.} \quad [ [ \{ EXH, zB, \emptyset \} [ \{ EXH, zB \} (OP_{Imp}) ] ] b p ] \\ \text{b.} \quad [ [ \{ EXH, zB, \emptyset \} [ \{ must, may, \dots \} ] ] b p ] \end{array}$$

According to (19a), in absence of *zum Beispiel*,  $EXH$  is applied to  $OP_{Imp}$ . Consequently, possibility is turned into necessity (20), yielding the desired necessity reading for plain imperatives.

$$(20) \quad EXH(OP_{Imp}) = \lambda b \lambda p. \diamond(b)(p) \ \& \ (\forall q \in \diamond(b))[q \in \diamond(p)] \quad (\Leftrightarrow \Box)$$

The ambiguity of (1) (repeated here as (21)) relies on the two positions available for  $zB$  with respect to  $OP_{Imp}$  according to (19a).

$$(21) \quad \begin{array}{l} \text{Kauf} \quad \text{zum Beispiel keine Zigaretten!} \\ \text{buy.IMP for example no cigarettes} \\ \text{'For example, don't buy any cigarettes.'} \end{array}$$

If *zum Beispiel* serves as the obligatory modifier of  $OP_{Imp}$ , the imperative expresses possibility. (19a) is instantiated as in (22).

$$(22) \quad [ [ [ \emptyset [ zB OP_{Imp} ] ] b ] \text{ you don't buy cigarettes } ]$$

The complex modal operator is computed as in (23) and applies to the respective propositions as in (24). The reading obtained is the one of inexhaustive possibility as singled out in (3b).

$$(23) \quad zB(OP_{Imp}) = \lambda b \lambda p. \diamond(b)(p) \ \& \ \diamond(Bel_{c_S})[\neg(\forall q \in \diamond(b))[q \in \diamond(p)]]$$

- (24)  $\diamond(B)(\text{you don't buy cigarettes}) \&$   
 $\diamond(\text{Bel}_{c_s})[\neg(\forall q \in \diamond(B))[q \in \diamond(\text{you don't buy cigarettes})]]$ ,  
 for a contextually given background  $B$   
*'It is possible for you not to buy cigarettes, but I don't exclude that you have other possibilities as well'*

The computation for the inexhaustive necessity reading individuated in (2b) is a bit more complicated. Alternatively to the structure in (22), the surface string for (21) can be obtained from (19a) by the instantiation in (25). Here,  $EXH$  applies to  $OP_{Imp}$  and turns it into necessity, and  $zB$  occupies the position of the optional higher modifier.

- (25)  $[[[zB [EXH OP_{Imp}] b] \text{you don't buy cigarettes} ]$

This structure accounts for the reading of inexhaustive necessity as singled out in (2b). Intuitively, it says that  $p$  is an exhaustive possibility (that is a, a necessity) with respect to  $b$ , but that the speaker does not exclude that other propositions (independent from  $p$ ) might have the same property of being an exhaustive  $b$ -possibility. The modal operator is derived as in (26) and applies to the propositions as in (27).

- (26)  $zB(EXH(OP_{Imp})) = zB(\Box) =$  by equivalence in (13)  
 $\lambda b \lambda p. \Box(b)(p) \& \diamond(\text{Bel}_{c_s})[\neg(\forall q \in \Box(b))[q \in \Box(p)]]$
- (27)  $zB(EXH(OP_{Imp}))(B)(\text{you don't buy cigarettes}) =$   
 $\Box(B)(\text{you don't buy cigarettes}) \&$   
 $\diamond(\text{Bel}_{c_s})[\neg(\forall q \in \Box(B))[q \in \Box(\text{you don't buy cigarettes})]]$ ,  
 for some contextually given  $B$ .  
*'it is necessary that you don't buy cigarettes, and I don't exclude that there are more things necessary (w.r.t.  $B$ )'*

So, the schema in (19a) and the semantics assigned to the imperative operator, the antiexhaustifier *zum Beispiel* 'for example' and the covert exhaustifier allow us to derive the necessity reading for plain imperatives and account for the ambiguity in (1) (= (21)). Now, we have to convince ourselves that the account does not overgenerate.

First, it is predicted correctly, that instantiating (19a) by applying  $EXH$  to an  $R$  that has been antiexhaustified by  $zB$  attributes contradictory beliefs to the speaker (for arbitrary  $R$ ).

- (28)  $\#EXH(zB(R)) =$   
 $\lambda b \lambda p. (zB(R))(b)(p) \& (\forall q \in (zB(R)(b)))[q \in (zB(R))(p)] =$   
 $\lambda b \lambda p. R(b)(p) \& \diamond(\text{Bel}_{c_s})[\neg(\forall q \in R(b))[q \in R(p)]] \&$   
 $(\forall q \in \{t \mid R(b)(t) \& \diamond(\text{Bel}_{c_s})[\neg(\forall q' \in R(b))[q' \in R(t)]]\})$   
 $[q \in \{s \mid R(p)(s) \& \diamond(\text{Bel}_{c_s})[\neg(\forall q' \in R(p))[q' \in R(s)]]\}]$

For arbitrary  $b$  and  $p$  the third conjunct causes the contradictory belief attribution: Insert  $p$  itself as a  $q$ . By the first two conjuncts,  $p$  passes the restriction:  $R(b)(p)$ , and  $\diamond(Bel_{c_S})[\neg(\forall q' \in R(b))[q' \in R(p)]]$ . Hence, it should hold that  $R(p)(p)$  (maybe!), but also that  $\diamond(Bel_{c_S})[\neg(\forall q' \in R(p))[q' \in R(p)]]$  (contradiction!).

Hence, applying *EXH* to an operator that has been antiexhaustified by  $zB$  attributes a nonsensical belief to the speaker and is therefore most likely avoided.

Furthermore, it is easy to see that (at least for modal operators construed from  $\square$  and  $\diamond$ ) multiple occurrence of *EXH* does not hurt.  $EXH(EXH(\diamond))$  comes out as  $EXH(\square)$  by the equivalence in (13). So we only have to worry about multiply exhaustifying necessity. But  $EXH(\square)$  simply expresses identity (cf. (16)) which is not affected by further exhaustification ( $EXH(EXH(\square)) = EXH(\square)$ ). (For arbitrary  $b$  and  $p$ ,  $(EXH(EXH(\square)))(b)(p) = (EXH(=))(b)(p)$  by the equivalence of exhaustive necessity and identity. But this is  $b = p \ \& \ (\forall q)[(q = b) \rightarrow (q = p)]$ , which is of course true.)

Finally, we might want to consider the combination of applying anti-exhaustification twice,  $zB(zB(R))$ . So far, I have assumed that  $zB$  is present only if encoded explicitly by *zum Beispiel*. Empirically, applying *zum Beispiel* twice does not give rise to a sensible reading (cf. (29)), which squares well with the computed meaning for the corresponding formula.  $zB(zB(R))$  turns out to be pragmatically equivalent to  $zB(R)$ . As soon as the speaker does not exclude that the proposition he asserts is true  $zB(zB(R))$  is equivalent to  $zB(R)$ ; so, if  $zB(zB(R))$  is not to give rise to Moore's paradox, it is true of two propositions as soon as  $zB(R)$  is.

(29) #Kauf zum Beispiel zum Beispiel keine Zigaretten!  
buy.IMP for example for example no cigarettes

(30)  $zB(zB(R))(b)(p) =$   
 $(zB(R))(b)(p) \ \& \ \diamond Bel_{c_S}[\neg(\forall q)[(zB(R))(b)(q) \rightarrow (zB(R))(p)(q)]] =$   
 $R(b)(p) \ \& \ \diamond Bel_{c_S}[\neg(\forall q)[R(b)(q) \rightarrow R(p)(q)]]$   
 $\ \& \ \diamond Bel_{c_S}[\neg(\forall q)[R(b)(q) \ \& \ \diamond Bel_{c_S}[\neg(\forall q')[R(b)(q') \rightarrow R(q)(q')]] \rightarrow$   
 $[R(p)(q) \ \& \ \diamond Bel_{c_S}[\neg(\forall q')[R(p)(q') \rightarrow R(q)(q')]]]]]$

(31) For any speaker  $S$  and any proposition  $A$ :  $utter_S(A) \rightarrow \square(Bel_{c_S})A$ .

To see the connection, the third conjunct is best translated to its existential dual. This says that the speaker holds it possible that there is a  $q$  such that  $R(b)(q)$  but that he believes that it does maybe not do so exhaustively, but yet it is not both true that  $R(p)(q)$  and  $\diamond Bel_{c_S}[\neg(\forall q')[R(p)(q') \rightarrow R(q)(q')]]$ . Given the pragmatic principle (31), this is again verified by  $p$  itself. It passes the restriction thanks to the first two conjuncts and (31). Again  $R(p)(p)$  may be the case or not, but  $\neg(\forall q')[R(p)(q') \rightarrow R(p)(q')]$  is a contradiction and thus false of all the speaker's belief worlds.

The issue becomes of interest though if we take into account other elements that have an effect similar to *zum Beispiel* 'for example' in that they likewise block exhaustification. One candidate might be the modal particle *doch*, which in asser-

tions usually expresses that the information is not new. Added to an imperative as in (32) it either expresses that it should already be known to the addressee that he must not buy cigarettes, or it behaves like *zum Beispiel* in expressing that not buying cigarettes is one possibility to achieve a goal.

- (32) Kauf doch keine Zigaretten!  
buy.IMP PRT no cigarettes

Now, *doch* can indeed co-occur with *zum Beispiel* without giving rise to infelicity (cf. (33)).<sup>5</sup>

- (33) Kauf doch zum Beispiel keine Zigaretten!  
buy.IMP PRT no cigarettes  
roughly: ‘One possibility you have is not to buy cigarettes (*you know that, right?*).’

In this case, we only get the possibility reading.

Without going into detail as to what is the contribution of *doch*, it seems to be like *zum Beispiel* in blocking exhaustification (at least under one reading of (32)). Therefore, it might be surprising that (33) is fine, in contrast to repetition of *zum Beispiel* (cf. (29)) with its rather cumbersome and highly redundant semantics (cf. (30)). But of course, we need not assume that *doch* is translated as *zB*. Indeed, I would say that most likely it is not. Whatever the analysis for the particle should ultimately be, one would want to make sure that it parallels the antiexhaustifier *zB* in blocking application of *EXH*. It should be allowed to apply after *zB* though.

### 16.3 Conclusion and Outlook

*EXH* and *zB* as defined here allow us to compute the different modal forces observed with imperatives depending on the interaction of *OP<sub>Imp</sub>* with *zum Beispiel*. This cannot be obtained from a necessity semantics. *EXH* and *zB* carry over to modal verbs as well.

So far, this all happens in semantics, which is most likely not as it should be (consider e.g. the considerations w.r.t. exhaustive necessity). The constraints on the optional (anti)exhaustification for modals and imperatives have to be studied in more detail.

Empirically, it would be interesting to compare the proposal with exhaustivity in disjunctions (cf. Geurts *ta*), and to try to extend it to modal operators in Salish that (like imperatives) express necessity as a default but are interpreted as possibility when necessity gives rise to a contradiction (cf. Matthewson, Rullman, and Davis 2005).

Last but not least, the assumption of an exhaustivity operator in the imperative might shed new light on the interaction of imperatives with free choice items that

<sup>5</sup>I am indebted to Tatjana Scheffler (p.c.) for pointing these cases out to me.

remained surprising in Section 7.4 (cf. Menéndez-Benito 2005 for licensing of free choice items by exhaustivity operators).

So, keep an eye on imperatives.



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