Where do complementizers come from and how did they come about?

A re-evaluation of the parataxis-to-hypotaxis hypothesis

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It is an old and widespread assumption in historical linguistics that hypotactic structures evolved out from paratactic structures. In more recent times, the parataxis-to-hypotaxis hypothesis was associated with the assumption that syntactic structures are discourse-based. This means that hypotactic structures evolved via syntacticization, i.e., via "a process by which flat, paratactic discourse-pragmatic structures transform over time into tight, hierarchic syntactic structures" (Givón 1979: 82f.). One special aspect of this assumption is that complementizers are held to have grammaticalized from nouns, verbs, prepositions, or pronouns in bi-sentential, paratactic source structures. In this paper, I will re-evaluate the existing evidence for the parataxis-to-hypotaxis hypothesis with special focus on the emergence of complementizers. The result of the re-evaluation is that in all cases, where we have enough historical data to reconstruct the development in detail, we have to assume a source structure that already displays subordination. In most cases, the subordinate clause is a relative clause suggesting that relativization is probably the oldest form of subordination. The over-all result of the re-evaluation is that there is no reliable evidence at all for the parataxis-to-hypotaxis hypothesis in its current form.

Keywords: complementizer, grammaticalization, parataxis-to-hypotaxis hypothesis, parataxis, hypotaxis

Introduction

One of the big questions in historical linguistics is where complex sentences come from. The traditional explanation is that hypotaxis developed out of parataxis. This assumption goes back at least to the beginning of the 19th century, when,

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for instance, Friedrich Schlegel expressed the "belief that hypotaxis evolved out of parataxis, that 'primitive' languages just juxtaposed independent sentences from which subordinate clauses gradually evolved" (Harris & Campbell 1995: 25). As Harris & Campbell (1995) emphasize, two aspects have to be distinguished with respect to the parataxis-to-hypotaxis hypothesis. The first aspect concerns the origin of subordination, that is, the Schlegelian belief that the first language(s) originally just juxtaposed main sentences and evolved complex sentences only later. The second aspect concerns the fact that in many languages that already possess subordination, new complementizers evolve from lexemes that served other functions previously. It is widely assumed that the development of new complementizers also starts from source structures consisting of two independent sentences (see, e.g., Heine & Kuteva 2007). Hence, the first aspect concerns the origin and the second one the renewal of hypotaxis.

In recent times, the parataxis-to-hypotaxis hypothesis has gained considerable ground in (non-generative) historical syntax, especially in research on grammaticalization. One has the impression that the distinction made by Harris & Campbell does not matter in any case, see Haspelmath (2010: 757):

> Ganz allgemein kann man wahrscheinlich sagen, dass Nebensätze letztlich immer aus Hauptsätzen entstehen, die ursprünglich nur locker und ohne grammatische Regeln nebeneinander gestellt waren.
> [In general, one can probably say that subordinate clauses ultimately always arise from main clauses that originally were placed side by side only loosely and without grammatical rules. – my translation]

Such a statement does not distinguish between origin and renewal. The claim that subordinated clauses *always* derive from main clauses implies that the very first origin of subordination as well as the emergence of subordinated structures in attested languages, corresponds to the parataxis-to-hypotaxis hypothesis. However, the empirical basis for this claim is very weak: "While most languages have parataxis, we have no direct evidence of it developing into hypotaxis" (Harris & Campbell 1995: 286). In the following, I will present and discuss many cases of complementizers grammaticalized from content words that clearly demonstrate that the development of new complementizers is only possible from a source structure that already exhibits subordination. The parataxis-to-hypotaxis hypothesis, though widely held to be true, lacks any serious empirical confirmation.

The paper is organized as follows: In Section 2, I outline the parataxis-to-hypotaxis hypothesis in its current version as developed since the 1970s. Section 3 is devoted to the external pathway and Section 4 to the internal pathway of how new complementizers emerge. Section 5 contains a general discussion of the findings and proposes a new hypothesis concerning the origin of subordination. Section 6 draws a short conclusion.

1. The parataxis-to-hypotaxis hypothesis

The parataxis-to-hypotaxis hypothesis currently appears as a version or part of the discourse-to-syntax hypothesis. The assumption that grammar and especially syntax evolved from discourse was explicitly put forward for the first time in the 1970s and has gained more and more ground since then. Nowadays, it seems to be a common assumption within research on grammaticalization (see Lehmann 2015, DeLancy 2011; Ohori 2011; Diessel 2019 and many others). The most prominent exponent of this line of research is probably Givón. In several books and papers since the 1970s, he proposes that "discourse pragmatics motivates and explains syntax" (Givón 1979: 81). Givón's work has contributed a lot to the development of modern research on grammaticalization, especially his proposal of a cline of grammaticalization that became known as Givón's cycle (Narrog & Heine 2011):

(1) Discourse 〉 Syntax 〉 Morphology 〉 Morphophonemics 〉 Zero

The basic assumption concerning syntax is that even formal properties are functionally motivated, that is, syntax does not have a completely "independent existence apart from discourse structures" (Givón 1979: 81).[1] According to Givón (1979), the dependence of syntax on discourse is manifested by the fact that in diachrony, one can observe the tendency that hypotactic structures develop from a paratactic succession of independent units. This is captured by the original version of Givón's cycle proposed in Givón (1979), see (2):

(2) parataxis 〉 morpho-syntax 〉 eroded morphology 〉 back to ground zero

Hopper & Traugott (2003: 177) present yet another version of "the cline of clause combining", see (3):

(3) parataxis 〉 hypotaxis 〉 subordination

Taken together, the underlying assumption of the clines in (1)–(3) includes two separate arguments: (i) syntax (or grammar) is discourse based, that is, syntactic structures reflect discourse structures, and (ii) parataxis precedes and develops into hypotaxis. Note that both arguments are in principle independent of each other, because (i) makes an assumption about the non-autonomy of syntax, while (ii) makes a claim about the direction of diachronic developments. In the following, I will be mainly concerned with the diachronic claim in (ii).

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1. Though Givón (1979) argues against the generative assumption that syntax is an autonomous system completely independent of functional pressures, he does neither reject the idea of innatism as a whole nor propose that all structural properties of syntax are functionally motivated.

Givón (1979) presents and discusses several cases of what he calls *syntacticization*. He defines syntacticization as "a process by which flat, paratactic discourse-pragmatic structures transform over time into tight, hierarchic syntactic structures" (Givón 1979: 82f.). One of the cases he presents is the development of complement clauses out of conjoined or paratactic sentences. Nowadays, the parataxis-to-hypotaxis hypothesis seems to be the 'standard assumption of historical linguistics', see Diessel (2019: 97):

> It is a standard assumption of historical linguistics that syntactic structures often develop from structurally independent elements in discourse (Givón 1979). An often-cited example is the diachronic development of subordinate clauses from paratactic sentences. As Lehmann (1988) and others have shown, there is a cline of clause linkage ranging from the combination of two structurally independent sentences in discourse to tightly organized bi-clausal structures in which one clause is syntactically dependent on the other one. Building on this observation, it is commonly assumed that subordinate clauses have evolved from independent sentences or parataxis (e.g. Hopper & Traugott 2003: 176–184).

One of the examples often mentioned in this context (though not yet in Givón 1979) is the development of *that*-type complementizers in Germanic languages. This development seems to be one of the standard cases to exemplify the development of hypotaxis out of parataxis. This development receives a rather extensive treatment, for example, in Heine & Kuteva (2007: 240f.):[2]

> Accordingly, a structure underlying something like sentence [… (4a)] is grammaticalized into [… (4b)]. The main effects of grammaticalization are summarized in [… (5)].
>
> […(4)] The reinterpretation of demonstrative pronoun as complementizer
> - a. [S1 + DEM] [S2] e.g. I understand that: [He will come].
> - b. S1 [CPL + S2] e.g. I understand [that he will come].
>
> […(5)] From bi-sentential structure to clause complementation
> - a. S2 is reinterpreted as a complement clause.
> - b. The demonstrative object argument (DEM) of S1 is reinterpreted as a complementizer (CPL).
> - c. The complementizer moves from S1 to S2.
> - d. S2 loses its own intonation contour; there is now only one sentential intonation contour.
> - e. The complementizer loses categorial properties that it had as a demonstrative.

2. The original numbers of the examples are (44) and (45).

In Heine & Kuteva's (2007) account, the development proceeds in several steps (5a–e). Though Heine & Kuteva (2007) do not order the steps chronologically, one can conceive of a developmental scenario where (5d) was probably the first step that triggered the following ones, whereas the downgrading of an independent clause to a complement clause (5a) and the changes the original demonstrative pronoun underwent in its development to a complementizer (5b, c, e) are a consequence of the unification at the prosodic level. If the development of *that*-type complementizers (and probably other types as well) would have proceeded as sketched in (5a–e), this would be strong evidence for the hypothesis that hypotaxis developed out of parataxis.

Note, however, that even then this would not be a proof, because it would only be an inference from a language change occurring in documented languages to a state of language evolution long before written attestation started. As is known and widely acknowledged, all these alleged changes from paratactic to hypotactic structures occur in languages that already have hypotactic structures. As Heine & Kuteva (2007: 215) rightly state, changes like the one described by (5a–e) do "not necessarily mean that there was no previous form of subordination". It could simply mean, as Harris & Campbell (1995: 282ff.) already have claimed, that existing forms of subordination have been modified or replaced (see Heine & Kuteva 2007: 215). Therefore, it would only prove that renewal of subordination in the sense of Harris & Campbell (1995) is possible from a paratactic source structure.

Additionally, concluding from the ample evidence coming from any kind of documented languages, all we know of are languages with complex grammar and syntax:[3]

> We have no historical textual evidence of a stage of a native language without complex sentences, followed by the emergence of complex ones. In other words, to our knowledge human languages have had complex sentence structure available throughout recorded history. But reorganization of complex combinations is well evidenced [...]. (Hopper & Traugott 2003: 177)

3. There is possibly one exception to this claim: Pirahã (Mura; Brazil) – the language of "an indigenous hunter-gatherer group of about 800 people living in the Amazon rainforest" (Futrell et al. 2016: 3). According to Futrell et al. (2016: 17), there is "no unambiguous evidence for sentential or NP embedding in Pirahã". Therefore, Pirahã could (but need not to) be a language without recursion and hypotaxis – see, however, Amaral et al. (2018). Note, that even in the case that Pirahã indeed lacks subordination (as Everett 2005 claimed), we have to be cautious to draw too far reaching conclusions as long as we do not know whether Pirahã has never developed hypotaxis or has lost it.

In other words, all we can study when we investigate grammaticalization is the emergence of new grammatical markers within languages which already possess a complex grammar. The emergence of new grammatical material is not to be confused with the emergence of grammar. Confining ourselves to subordination, it means that the emergence of new complementizers or of new subordinated structures does not imply that there was previously no subordination at all (see also Heine & Kuteva 2007: 216 w.r.t. relative clauses in Germanic languages). Applying Harris & Campbell's (1995) distinction between *origin* and *renewal* of subordination, we can say that we can investigate only the second one, whereas we can only speculate about the *origin* (see discussion in Section 5).

In the following, I will be concerned with the development of complementizers, because complementizer-introduced clauses are the prototype of subordinate clauses.[4] By complementizers, I understand lexical items that serve to introduce all kinds of subordinate clauses – be they complement clauses (i.e., subject or object clauses), relative clauses, or adverbial clauses (e.g., temporal, causal, etc.). Note that my use of the term complementizer differs from Heine & Kuteva's (2007: 230) use: they refer only to items introducing complement clauses with the term distinguishing them from adverbial subordinators, i.e., items that introduce adverbial clauses. In contrast to Heine & Kuteva (2007), I use the term complementizer in a wider sense, which comprises both complemental and adverbial subordinators. This is in the tradition of (most) syntactic research and follows from the fact that there is no syntactic difference between both kinds of subordinators – both occupy the C° position (in a traditional generative framework). This assumption is empirically confirmed by the fact that in some languages, the same complementizer is (or can be) used in complement and adverbial clauses.

I will argue that new complementizers develop from different sources (mainly verbs, nouns, pronouns, prepositions), but mostly along two possible pathways or channels (to stick with Heine & Kuteva's 2007 expression): an external and an internal one. The first pathway consists of the grammaticalization of complementizers from lexical items that originally do not belong to the clause whose complementizer they become as result of grammaticalization. On the second pathway, a lexical item from within the clause is becoming the complementizer of its clause.

4. I will neglect a type of clause that is often considered in this context as well, namely preposed adverbial sentences without complementizers (as investigated in Diessel 2019). The relevant question to decide here is whether they are integrated or not in the main clause – and integration is not to be confused with subordination. Reis (1997) proposes and discusses a fine-grained classification of different types of (un-)integrated and subordinate clauses (see also Reich et al. 2009; Axel-Tober 2012).

Heine & Kuteva (2007: 214f.) propose "two main channels in the rise of clause subordination", namely expansion and integration. By expansion, they roughly understand "the reinterpretation of a nominal as a clausal (propositional) participant". In the following, I will not discuss this type of emergence of hypotaxis, because it does not represent an instance of the development from discourse to syntax. Heine & Kuteva's integration, however, covers developments of *syntacticization* in Givón's sense, that is, changes "by which flat, paratactic discourse-pragmatic structures transform over time into tight, hierarchic syntactic structures" (Givón 1979: 82f.). According to Heine & Kuteva (2007: 214), integration means that the source structure consists of two independent sentences that become integrated "within one sentence". The main empirical goal of my paper is to demonstrate that in all cases where we can reconstruct this development on the basis of historical data, it becomes obvious that the source structure already exhibits hypotaxis – and not parataxis. The conclusion will thus be that the purported development from parataxis to hypotaxis does not exist – at least not in the form as commonly proposed. However, as will become clear in the following, there is (at least) one type of subordinate clause that must have existed as precondition for the development of new complementizers via the external pathway: the relative clause.[5]

2. The external pathway

On the external pathway, the development of new complementizers happens in a process by which a lexical item from outside becomes reanalyzed as complementizer of a clause. The mechanism underlying this change is known as *Gliederungsverschiebung* or rebracketing (see Weiß 2019). The allegedly prototypical case, as demonstrated above, is the development of demonstrative pronouns into complementizers. (6a–d) sketches the development as proposed in Heine & Kuteva (2007: 241). The source structure consists of two independent sentences (see (6a)), the first of which contains a demonstrative pronoun that refers cataphorically to the second sentence (6b). It is standard to assume that the demonstrative pronoun became reanalyzed as complementizer, which then introduced the second clause (6c, d). Simultaneously, the second sentence lost its independence and was downgraded to a dependent clause.

5. There is one exception to this developmental scenario: deverbal complementizers. Though their source structure does not contain a relative clause, they nevertheless only emerge in source structures that already involve hypotaxis as well (Weiß 2019).

(6) a. I understand that. He will come.
b. [S1 … d-pronoun$_i$] [S2]$_i$
c. I understand that he will come.
d. [S1 … [S2 Compl …]]

This development (if true) would represent a prototypical case of hypotaxis emerging from parataxis. As will be explained in more detail in the next section, the development of *that*-type complementizers followed the internal pathway, so it is by no means an instance of Givón's (1979) syntacticization. However, many complementizers have actually developed from lexical items that originally did not belong to the clause whose complementizer they are now. Though in these cases the source structure was bi-clausal, it did not consist of two independent sentences, as would be required in the parataxis-to-hypotaxis scenario.

A main source of complementizers are nouns with a generic meaning such as PERSON, THING, PLACE, TIME or MANNER (see Heine & Kuteva 2007: 230). The most common way these items turn into complementizers seems to be via relativization (see Heine & Kuteva 2007: 230), that is, the nouns take a relative clause and develop then into a new complementizer together with the relative clause marker or without it, see (7a–b):

(7) a. [$_{CP}$ … [N [$_{RC}$ …]]]
b. [$_{CP}$ … [$_{CP}$ COMPL …]]

One of many examples comes from the E1 dialect of !Xun (Northern Khoisan; Namibia) (Heine & König 2015): the noun *tcí* 'thing' together with the relative suffix *–à* developed into the complementizer *tcá* (see (8)):

(8) !Xun, E1 dialect, Northern Khoisan: *tcí* 'thing' + relative suffix *–à* -> *tcá*
mí tsà'á tcá hà̀ kòh gù dshàú (Heine & König 2015: 285)
1SG hear COMPL N1 Past take.SG wife
'I heard that he got married'

Example (8) represents the case where the original relative marker survived as part of the new complementizer. That seems to be a development, which occurred in many languages (see Heine & Kuteva 2007: 231ff. for further examples from Ik, a language of northeastern Uganda). Many complementizers that introduce adverbial clauses show this special morphological make-up. In these cases, an adverbially used prepositional phrase (PP) or a preposition contains or selects a relative clause introduced by a relative complementizer that then can develop into a new adverbial complementizer together with (parts of) the PP or the preposition. Italian *affinché* and *finché* represent such developments: *affinché* goes back to *a fine che* lit. 'to the purpose of that' and *finché* to *fin(o) (a) che* lit. 'until to that' (Zingarelli 2010, s.v. *affinché* and *finché*). Another, slightly different example comes from Latin,

the predecessor language of all Romance languages: The temporal complementizer *dōnicum* 'as long as' developed from *dō ne quom* where *do* is a deictic particle, *ne* a negative particle, and *quom* an archaic form of *cum* 'as' (Walde & Hofmann 1938: 371, Weiß 2019: 538). German *als* 'as' (as well as its English equivalent *as*) is a further example: It emerged through contraction of *al so* 'all/fully so', where *so* was the original complementizer introducing equative or relative clauses (Jäger 2018; Weiß 2019).

In other cases, the original complementizer (or relative marker) vanished in the process of grammaticalization of a new complementizer. The emergence of German *weil* 'because' is an example for this kind of development: The MHG source structure was the complex nominal expression *al di wîle daz* 'all the while that' that contains a relative clause introduced by the complementizer *daz* 'that'.[6] In several steps, where the originally complex expression lost phonetic substance (as described in detail in Weiß 2019), the new complementizer *weil* emerged. One step was to leave out the complementizer of the relative clause (9a) – a possibility that existed as a stylistic option not only in this case, but elsewhere too (see Axel-Tober 2012: 175–187) –, another one the stepwise reduction of the definite article until it vanished completely (9b, c):

(9) a. [DP (al) die [N wîle [CP daz]]] → [DP die [N wîle [CP Ø ...]]]
b. [DP die [N wîle [CP Ø ...]]] → [DP d' [N wîle [CP Ø ...]]]
c. [DP d' [N wîle [CP Ø ...]]] → [CP wîle ...]

At this stage, the only word left was *wîle* that was eventually reanalyzed as complementizer introducing a temporal clause. This could have been the case with a very early example from about 1300 given in (10), where *wîle* is probably already a conjunction:[7]

(10) di here cristenhait ... sal loben ... Wile ummer diese werlt gestet
the noble christianity ... shall praise ... while always this world persists
'the noble christianity has to praise, as long as this world exists' (Leben, V7780)

Weiß (2019) presents several other examples of this kind from the history of German. In most cases, the source structure is a preposition that takes as complement a demonstrative pronoun that embeds a relative clause. The relative clause was mostly introduced by the complementizer *dass* 'that' (see above *al di wîle daz* 'all

6. Alternatively, the relative clause could be introduced by *so* 'as' or *und* 'and' (see Ferraresi & Weiß 2011 and Oppermann, t.a. on the use of *und* as subordinating complementizer).

7. In German, this denominal complementizer developed later into a causal one, whereas its English cognate *while* (which emerged in the same way, see Ohori 2011) remained temporal until today.

the while that'), but it could be introduced by other complementizers as well. This is illustrated with the German complementizer *nachdem* 'after': it emerged from the preposition *nach* 'after' taking as complement the demonstrative pronoun *dem* 'that$_{Dat}$' that in turn takes a relative clause. The relative head (i.e. the d-pronoun) "is a nominal denoting an entity with propositional content" (Axel-Tober 2017: e42) and the relative clause specifies the propositional content. (11a–c) is a short excerpt from a text written in the 15th century and it contains an instance of *nach dem* + relative clause, where the relative clause is introduced by *und* 'and' (11b):[8]

(11) a. so tet doch das pfert nach seiner art,
so did PRT the horse according to its manner
b. nachdem und es auch hungerig was,
after-that AND it also hungry was
c. und gieng dest vester einhin paß (Rosenplüt 1996: l. 69–71)
and went the faster in-there more
'so did the horse in its own way, after it was hungry, and it ran all the faster'

German *nachdem* illustrates the case where the preposition together with its d-pronominal complement, but without the original relative clause complementizer, developed into an adverbial complementizer (see Weiß 2019 for further examples).

Summarizing so far, we have seen that there are three ways to develop new complementizers on the external pathway. First, a lexical item that takes a sentential complement or a relative clause can develop into the complementizer of the clause originally embedded under this item (12a). An example presented above was German *weil* 'because'. The same kind of development is presented by deverbal complementizers, where a verb of saying developed into the complementizer then introducing the clausal complement (see Heine & Kuteva 2007 or Weiß 2019 and the literature cited there). Second, a lexical item together with the head of its (nominal or pronominal) complement could be grammaticalized as complementizer (12b): An example given above is *nachdem* 'after'. Third, the original complementizer could be retained and develop into a new complementizer together with the external item(s) (12c). Italian *affinché* and *finché* as well as !Xun *tca* "that" represent such cases.[9]

8. See Fn. 6 for literature on subordinating *und* 'and'. Note that the author of the text Hans Rosenblüt uses both the subordinating and coordinating *und* (10b, c).

9. Another example would be French *parce que* 'because', lit. 'by-this that' (Harris & Campbell 1995: 288).

(12) a. [XP α [CP ...]]] > [CP α ...]]
b. [XP α [YP β [CP ...]]] > [CP α(β) ...]]
c. [XP α ([YP β) [CP γ ...]]] > [CP αγ ...]]

All these cases have in common that the clause for which a new complementizer emerged was already subordinated. They are thus no instances of Givón's syntacticization. The respective clause could have been a complement clause or a relative clause and in both cases, there is a selectional relation between the embedding head and the embedded clause – this even holds for the relative clause, which is one of a special kind: a so-called explicative relative clause (see Weiß 2019 for further details). Therefore, there seems to exist a restriction for such changes that seems to have been overlooked so far. Weiß (2019), who is concerned with such changes under the perspective of rebracketing or *Gliederungsverschiebung* (the original German term coined by the Neogrammarians), proposes the following condition on rebracketing:

Condition on rebracketing (CoR)
A lexical head α may be reanalyzed as complementizer of a clause β only if α selects β (or γ that selects β).[10]

In all cases where we have enough historical data to allow us to reconstruct the development of complementizers emerging via the external pathway, it seems to be the case that they respect CoR. That means that the source structure already exhibits hypotaxis, but not parataxis. Therefore, the development of complementizers via the external pathway presupposes the existence of subordination (see also Heine & Kuteva 2007: 231).

Of course, there are complementizers that must have evolved via the external pathway for which we do not have any or at least not enough historical evidence to decide whether their development respected CoR, too. Heine & Kuteva (2007: 235f.) mention two examples where "there is no evidence of relativization", so the impression arises that the respective noun is directly "grammaticalized to a complementizing pronoun". The first example comes from the Namibian Khoisan language Nama where "the noun *!xái-s* (*!xái-sà* oblique case) 'matter, story' has given rise to the object clause complementizing pronoun *!xái-'è, !xái-sà* 'that', 'whether', and, as such, is still inflected like a noun". The second example is Japanese *koto*, which has the etymological meaning 'thing' and is used as complementizer. For both cases, Heine & Kuteva (2007: 235, ex. 34) suggest a development as sketched in (13a, b):

10. Weiß (2019) derives CoR from the minimalist concept of phasehood. For more information about the technical and theoretical aspects of this explanation, the reader is refered to Weiß (2019).

(13) a. [S_1 N] [S_2] e.g. [*I don't know the thing*] [*he wants (it)*]
b. S_1 [CPL + S_2] e.g. *I don't know* [*what he wants*]

The source structure in (13a) consists of two syntactically independent sentences and the complement clause (= S_2) is just "added to the complement noun without any formal marking" (Heine & Kuteva 2007: 235), that is, in a paratactic manner. The complement noun in S_1 is then grammaticalized into the complementizer of S_2 (probably through relabeling and rebracketing, i.e. *Gliederungsverschiebung*), but it remains unclear what triggered this development.

Concerning the Nama example, remember that we have presented above an example from another Khoisan language. In the E1 dialect of !Xun, Northern Khoisan, the complementizer *tcá* 'that' evolved from the noun *tcí* 'thing' plus the relative suffix *-à*. Güldemann (2006: 124) mentions a further example where relativization plays a role in the grammaticalization: "The quotative-complementizer *ti (ee)* of !Xam [(Khoisan; South Africa, extinct)] is also a noun 'place, way, matter'; it is usually followed by the agreeing relative pronoun *ee*". These examples demonstrate two things: First, that in the Khoisan languages, the grammaticalization of complementizers out of nouns often involves the relative clause strategy, and second, that this strategy indeed does occur in this language family. Therefore, the absence of any historical evidence in the Nama example does not necessarily exclude relativization. Heine & Kuteva (2007: 231ff.) present several examples from Ik (already mentioned above) that show that the obligatoriness of the relative clause marker decreases with the increasing grammaticalization of the noun as complementizer. That means that in the Nama example, the grammaticalization of *!xái-'è* and *!xái-sà* as 'that' and 'whether' could have reached a level that makes the presence of the relative marker superfluous or unnecessary. It would then be comparable to Germ. *weil* or Engl. *while*, where nowadays there is no longer any evidence that, as long as they were nouns, they embedded a relative clause.[11]

As for the Japanese example, note that Comrie & Horie (1995) treat complement clauses introduced by *koto* as structurally comparable to relative clauses: Both consist of a nominal head and a dependent clause, where the relation between both is not marked overtly. Therefore, it could well be that the grammaticalization of *koto* is no exception, but involves relativization as well.

Summarizing this section, we can say that there are many examples where we have enough diachronic evidence to reconstruct the development of complementizers via the external pathway. In all these cases, we see that subordination is involved, that means that a lexical item (verb, noun, or preposition) embeds

11. That is obviously the reason why the emergence of *while* is sometimes mistakenly analyzed as only involving relabeling of a noun as a complementizer – so, e.g., by Haspelmath (1998).

a clause and then develops into the complementizer of the embedded clause (sometimes together with additional material such as the original complementizer). There are, however, many other cases where we do not have any or at least not enough diachronic information to reconstruct the development step by step. These cases give the impression that their development did not involve relativization, but just relabeling as complementizer. However, as I have tried to show above, this argumentation falls short for at least two reasons. First, there are examples such as German *weil* or English *while* that seem to have emerged through relabeling alone, but in these cases, we have enough historical evidence to know that their development involved relativization as a first step. Second, most of the alleged examples of syntacticization à la Givón (1979) come from languages that already possess subordination (as Nama and Japanese did at the time when the above-mentioned complementizers were grammaticalized). Taken together, both arguments increase the probability that complementizers developed from a source structure that involved subordination (like 12a-c above) even if we have no historical evidence for it. What we definitely can say is that they are no reliable examples of syntacticization, and therefore, they do not prove that syntacticization exists at all.

3. The internal pathway

Another main source for complementizers are lexical items that belong from the beginning to the clause they introduce after being grammaticalized as complementizer. Functional items that develop into complementizers via the internal pathway are, for instance, relative or interrogative pronouns. In the case that interrogative pronouns (or wh-pronouns) form the source, it is probable that the clause is already embedded in the source structure. Heine & Kuteva (2007: 243), however, assume a source structure consisting of two independent sentences (as in (14a)), but they admit that so "far, no historical data have been found to corroborate this reconstruction" (Heine & Kuteva 2007: 243, fn. 16). Therefore, I assume a source structure with an embedded interrogative clause as in (14b). In this structural constellation, wh-pronouns can develop into complementizers (14c).

(14) a. [S1] [QW + S2?]
b. [S1 [QW + S2?]]
c. [S1 [CPL + S2]]

Heine & Kuteva (2007: 242ff.) give several examples for this kind of development from Russian, Georgian, Mandarin Chinese, and !Xun. According to them, it seems to be especially common in Indo-European languages.

Corroboration for the assumption that a hypotactic structure such as (14b) rather than a paratactic one as in (14a) forms the source structure comes from the observation that in many cases, wh- or relative pronouns first develop into relative clause complementizers before they get generalized as declarative complementizers. Yiddish *voś* 'what' is an example that exemplifies this development (see Kühnert & Wagner 2004). It first occurred as a relative clause complementizer (as in many other German dialects, see Weiß 2013) and only later as a complementizer in complement clauses, see (15a, b):

(15) a. [...] un zgt im ali zaḳ vś ir fotr im zin het
and says him all things what her father in mind had
'and he says him all things that her father had in mind' (Kühnert & Wagner 2004: 286, ex. 30)

b. veyśtu den nit voz unz Ari cu gihert
know-you PRT not what us Ari to belong
'Don't you know that Ari belongs to us?' (Kühnert & Wagner 2004: 278, Example (12))

As described in Kühnert & Wagner (2004), *voś* first replaced the original relative pronouns *der/di'/doś* 'that' and developed into a complementizer introducing relative clauses. Today, the use as a complementizer of complement clauses is restricted to factive-emotive predicates like *badoyern* 'regret', but in some sources from the first half of the 19th century, no such restriction is observable, so this seems to be a later development.[12] Therefore, Yiddish *voś* represents the case where an interrogative pronoun was first grammaticalized as a complementizer in relative clauses and was later generalized as a declarative complementizer. Heine & Kuteva (2007: 235) mention some very diverse languages that "have experienced a process straight from relative marker to complementizer", among which are the Oto-Manguean language Chalcatongo Mixtec (Mexico) and Thai. Russian *čto* is a further example for the development from a wh-pronoun into a relative marker (complementizer) and eventually into a declarative complementizer (see Heine & Kuteva 2007: 243).[13]

12. There are a few German dialects that allow *was* as declarative complementizer with comparable restrictions (see Weiß 2013).

13. Many Romance languages also possess a common complementizer for relative and complement clauses, but that seems to be the result of syncretism. Italian *che* 'that', for instance, goes back to Latin *quia* 'because' as general subordinator, but to Latin *quid* 'that' as relative clause complementizer (see Zingarelli 2010, s.v. *che*).

This is very similar to what happened with *that*-type complementizers in Germanic languages. According to Axel-Tober (2017: e55), the development consists of several steps:

> [...] the complementizer *thaz* did not directly evolve from the nominative/accusative form of the demonstrative pronoun, but from the relative particle, which in turn developed out of the neuter relative pronoun.

The demonstrative pronoun first developed into a (neuter) relative pronoun, which then further developed into a relative complementizer and eventually into a declarative complementizer. Interestingly, Delbrück (1909) already proposed a similar development for the emergence of the Gothic complementizer *þatei* 'that'. His proposal can be formalized as in (16a–d). In (16a) we have a demonstrative pronoun as object in the main clause that takes an explicative relative clause introduced by the complementizer *ei*, which specifies the propositional content of the demonstrative pronoun (Axel-Tober 2017: e42). In a first step (see (16b)), the demonstrative pronoun develops into a relative pronoun thereby changing its syntactic position from outside the relative clause to one within (this change is an instance of rebracketing, see Weiß 2019). In a second step, the relative pronoun becomes part of the relative clause complementizer (16c), which finally develops into a general subordinator that can introduce complement clauses as well (16d).[14]

(16) a. [CP ... [DP þata [CP [C° ei] ...]]]
b. [CP ... [DP [CP þata [C° ei] ...]]]
c. [CP ... [DP [CP [C° þatei] ...]]]
d. [CP ... [CP [C° þatei] ...]]]

The *that*-type complementizers in the West Germanic languages – i.e., Germ. *dass*, Dutch *dat*, and Engl. *that* – developed structurally in the same way. The only difference is that the original relative clause complementizer – of the form *þe/ðe/the/de* (see Schreiber 2011) – vanished with the result that only the pronoun remained and was eventually reanalyzed as complementizer. Therefore, it is by no means the case that the demonstrative pronoun directly developed into a complementizer. The emergence of *that*-type complementizers in the Germanic languages, which counts as prototypical instance of syntacticization (Heine & Kuteva 2007: 240f.), can no longer serve as an example of this process. On the contrary, it

14. Interestingly, Poletto & Sanfelici (2018) report a recent development in Marebbano (a Rhaetoromance V2 variety) where a demonstrative pronoun occurs in prepositional relative clauses (e.g., *de chël che* 'of that that' or *a chell che* 'to that that'). According to their analysis, the demonstrative is part of the relative clause, that is, the development has reached a level comparable to (16b) or even (16c) in the Gothic case.

provides further evidence for the assumption that the grammaticalization of complementizers requires already existing subordination.

As in the case of the external pathway, there are also complementizers evolved along the internal pathway that give the impression that they developed in the way as proposed by Heine & Kuteva (2007), that is, they seemingly evolved out of a paratactic source structure. In many cases, it is a demonstrative pronoun that develops into a complementizer introducing relative clauses. Heine & Kuteva (2007: 226) propose a bi-sentential source structure as in (17) with two independent sentences at the beginning of which the second one develops into a relative clause, thereby losing its independence.

(17) [S1 + S2] juxtaposition to S1 [S2] relativization

They present an example from Old Norse in order to exemplify the alleged development. Example (18) stems from a runic inscription and it is ambiguous, as Heine & Kuteva (2007: 226) following Zeevaert (2006) claim, "between the (paratactic) demonstrative and the (hypotactic) use of *sā* as a non-restrictive relativizer".

(18) Old Norse (ca. 800 ad; Zeevaert 2006: 21)
stikuR karþi kubl þau aft auint sunu sin sa fial austr.
i. 'Stig made these monuments after his son Eyvind. He[15] died in the east'. or
ii. 'Stig made these monuments after his son Eyvind, who died in the east.'

However, there is little evidence for the purported ambiguity of (18) and thus for "the transition from paratactic to hypotactic forms of clause combining" (Heine & Kuteva 2007: 225). Above, I presented a case (see (16a–c) from Gothic) where a demonstrative pronoun developed into a relative pronoun and later on into a relative complementizer, but there the source structure already involved a relative clause introduced by the complementizer *ei*. The same development, as mentioned there too, occurred with *that*-type complementizers in Germanic languages. Thus, it seems to be the case that the development of relative pronouns/complementizers out of demonstrative pronouns requires that the source structure already contains a relative clause – and (18) does not fulfill this precondition.

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15. Zeevaert (2006: 21) translates *sā* with a personal pronoun. However, it would have been more appropriate to use the d-pronoun *der* 'this', which in German occurs frequently in anaphorical use (see Portele & Bader 2016 among others). It is very common to resume a proper noun with a d-pronoun in the following sentence, which seems to be pragmatically more appropriate than the use of a personal pronoun, see (i) (# = pragmatically degraded):

(i) Kennst du den Peter? Der/#er wohnt da drüben.
Know you the Peter? This/he lives there over there
'Do you know Peter? He lives over there.'

Even more serious, there is an additional aspect that speaks against Zeevaert's (2006) analysis: ON relative clauses were introduced by the complementizers *er* or *sem*, whereas the demonstrative pronoun *sā* does only occur as (part of) the antecedent (Faarlund 2004: 264). We can thus conclude that *sā* in (18) is no relative pronoun, but a demonstrative pronoun that refers anaphorically back to the proper noun *Eyvind* in the preceding sentence.

Zeevaert (2006: 20) presents another example (Stone of Stentoften, KJ96; DR357; Bl3)[16] where *sā* seems to be a relative pronoun introducing a relative clause without complementizer. However, if anything, it is a free relative clause introduced by a demonstrative pronoun – as was common in the earliest documented Germanic languages such as Gothic, OE, or OHG (Harbert 2007: 269f.; Weiß 2016). Wagener (2017) mentions another, slightly later runic inscription, which presents a parallel version of this text. Interestingly, in this inscription, *sAR* replaces *sā* and it seems to be a form contracted of *sā* and the complementizer *er*. According to Wagener (2017), *sā* is no relative pronoun but belongs to the nominal shell that embeds the relative clause. It is comparable to Gothic *þata* or OHG *daz* (see (16a–c) above), with the difference that ON *sā* was never reanalyzed as relative pronoun (Wagener 2017: 143). So we can take for granted that neither the example mentioned in (18) nor the second one quoted in Zeevaert (2006: 20) provide evidence for "the transition from paratactic to hypotactic forms of clause combining" (Heine & Kuteva 2007: 225).

Other examples mentioned by Heine & Kuteva (2007) come from Ik and (Classical) Chinese. Regarding Ik (spoken in northeastern Uganda), we have already seen that this language uses the relativization strategy in other cases, so it may well be the case that it was involved here, too, but it left no traces in the documents.

As for the examples from Classical Chinese, at least the second case mentioned by Heine & Kuteva (2007: 228f.) is somewhat different, since the demonstrative pronoun *di* was originally an adnominal determiner and the relative clause was embedded under a nominal head.[17] Heine & Kuteva (2007: 229), following Shi & Li (2002), outline this development as in (19):

16. See http://www.runenprojekt.uni-kiel.de/abfragen/default.htm.

17. The other example from Classical Chinese is *zhi* that "was used exclusively as a demonstrative pronoun in the inscriptions of the tortoise shells of the Shang Dynasty (c. sixteenth-eleventh century BC)" (Heine & Kuteva 2007: 228). *Zhi* was an optional „marker of modifier[s]" (Shi & Li 2002: 13) of various kinds (relative clauses, associate and genitive phrases).

(19) The grammaticalization of *di*/*de* in Chinese (Shi and Li 2002: 13)
a. [relative clause + [$di_{demonstrative}$ + noun]]
b. [[relative clause-de] + noun]

Another example for the development of a demonstrative into a relative pronoun or complementizer is the origin of the Iranian Ezāfe-particle that evolved as a combination of demonstrative and relative pronoun (Haider & Zwanziger 1984) – which is completely parallel to the development of *þatei* in Gothic (see above). As Deutscher (2009) has convincingly shown, Akkadian complementizers evolved in the same way:

> Akkadian thus shows that the demonstrative pronoun became a marker of relativization not through a process of integration of two independent clauses, but rather through the integration of an independent clause with an already existing relative clause, one which was originally headed by this demonstrative. So the process that turned a demonstrative into a relativizer was not the genesis of relativization, but only the renewal of a marker in an already existing subordinate structure. The old marker for the onset of the relative clause was the construct state on the head noun, the new marker was a demonstrative.
>
> (Deutscher 2009: 209)

To summarize this section, we have seen that the emergence of complementizers via the internal pathway also presupposes subordination. There is no reliable evidence for the assumption that demonstrative and interrogative pronouns – the main sources – develop into complementizers on the internal pathway out of a bi-sentential source structure. This holds true for wh-pronouns that evolve as complementizers from their use in embedded wh-questions – a change following the Spec-to-Head or Head Preference Principle (van Gelderen 2004). Regarding demonstrative pronouns, their grammaticalization into complementizers (e.g., *that*-type complementizers in Germanic languages) often involves several steps, the first of which being the change from a demonstrative into a relative pronoun (an instance of rebracketing or *Gliederungsverschiebung*) and the second one a Spec-to-Head development. Their development into complementizers thus combines the external and the internal pathway.

4. General discussion

In the preceding sections, I have re-evaluated the existing evidence for the parataxis-to-hypotaxis hypothesis. The result was that there is no reliable evidence at all. All cases where we have enough historical data to reconstruct the development of new complementizers step-by-step point in the same direction:

Lexical items develop into complementizers only in hypotactic source structures. In the cases where a new complementizer evolved via the external pathway, the hypotactic structure contains a relative clause embedded under a head noun/pronoun or selected by a preposition.[18] In cases where a new complementizer grammaticalized via the internal pathway, we are also dealing with a hypotactic source structure. On the other hand, Heine & Kuteva's (2007) assumption of a bi-sentential paratactic source structure lacks any empirical evidence (as they admit themselves, see Heine & Kuteva 2007: 243, fn. 16).

In all other cases where we have not enough information to reconstruct the development, we can only speculate whether they comply with the parataxis-to-hypotaxis hypothesis or whether they evolve from hypotactic source structures. As argued for above, the second possibility is much more likely. The main argument for the second possibility is twofold. First, the impression we get from synchrony can be misleading: There are cases such as Germ. *weil* or Engl. *while* which look as if they were just the result of relabeling a noun as a complementizer, but we know that they evolved from a hypotactic structure (MHG *al di wîle daz* 'all the while that'). Second, other developments that are in principle analyzable as originating from a bi-sentential paratactic source structure, happened in languages or language families from which we have clear examples of the relativization strategy. One example given in Section 2 came from the Namibian Khoisan language Nama where "the noun *!xái-s* (*!xái-sà* oblique case) 'matter, story' has given rise to the object clause complementizing pronoun *!xái-'è, !xái-sà* 'that', 'whether'" (Heine & Kuteva 2007: 235). Although we have no evidence in this special case that the noun embedded a relative clause in the source structure, there are clear instances for the relativization strategy from several other Khoisan languages.

The result of the re-evaluation carried out in the preceding sections is that there are no clear instances of syntacticization. As mentioned above, syntacticization is defined as "a process by which flat, paratactic discourse-pragmatic structures transform over time into tight, hierarchic syntactic structures" (Givón 1979: 82f.). It is widely assumed that syntacticization often occurs and that it is a main source for the emergence of new complementizers and of new subordinated structures. As we have seen, Heine & Kuteva (2007) propose bi-sentential origins in several cases, for example, for the emergence of relative clause markers out of demonstrative or interrogative pronouns. However, in all cases we investigated and discussed, the source structure does not consist of independent sentences

18. I disregard here the possibility that verbs can develop into complementizers, too. I have nothing special to say about this channel, but I just want to point out that it requires a hypotactic source structure as well (see Weiß 2019) – so it is no instance of syntacticization either.

that get combined later, but of clauses that were already hypotactically connected with each other. Therefore, the widespread hypothesis that hypotaxis is the result of syntacticization lacks any empirical confirmation and must be considered as falsified. This holds at least for the strong version of the parataxis-to-hypotaxis hypothesis, which assumes that all subordinate clauses evolved from juxtaposed main clauses (as claimed, for example, by Haspelmath 2010). However, even a weaker version that claims that at least some forms of subordinate clauses or complementizers, respectively, emerged from a paratactic source structure (see Heine & Kuteva 2007), has not received any empirical corroboration. We have not seen a single instance where the source structure has been paratactic.[19]

In many cases, the type of subordinate clause that occurs in the source structure is a relative clause – mostly in the form of an explicative relative clause. This type of relative clause is headed by nouns with a general meaning such as THING, TIME, etc. (Heine & Kuteva 2007: 230) or by a demonstrative pronoun, and the relative clause serves to specify the propositional content of the (pro-)noun (Axel-Tober 2017: e42, Weiß 2019: 530). Note that this scenario gives rise to complementizers introducing complement clauses as well as adverbial clauses. Therefore, it is not justified to distinguish between the two types of complementizers.

Surprisingly, the results of our investigation that subordinate structures of different types emerged from source structures that contain a relative clause corresponds to findings of Indo-European Studies as well as to assumptions made in theoretical syntax. Concerning Indo-European, it is common knowledge that Proto-Indo-European possessed subordinate clauses only in form of relative clauses (see Fritz 2002: 249f.). If they were attributive-restrictive they were introduced by the interrogative pronoun *k^wi-/k^wo, and if they were appositive, the relative pronoun was *$(H)i̯o$- – commonly held to be "a thematic derivative from the deictic root *i-/ei" (Luján 2009: 223) that lived on in Goth. *ei* and Westgerm. *þe* (Delbrück 1909). The attributive-restrictive relative clause introduced by *k^wi-/k^wo was syntactically a correlative construction left-adjoined to the following matrix clause (Kiparsky 1995). Though both types originally differed in certain respects, for example, concerning their position (preposed vs. postnominal, see Fritz 2002: 250), headedness (internal vs. external), or integration into the main clause (adjoined vs. integrated), they converged somehow in their further development in the individual Indo-European languages. In Vedic, for example,

19. Note that this probably holds for AND-complementizers, too, that is, complementizers that evolved from the coordinating conjunction AND, as attested, e.g., in !Xun (Heine & König 2015: 282ff.) or in older stages of German (see Ferraresi & Weiß 2011; Oppermann, t.a.). The German case demonstrates that AND can (only?) develop into a complementizer in a language that already possesses subordination.

*(H)i̯o- replaced *k^wi-/k^wo- so that there was no difference anymore between the two types w.r.t. the relative marker and the functions they served (Lühr 2000).[20]

Syntactically, relative clauses introduced by *k^wi-/k^wo are a form of free relative clauses (Luján 2009). Typologically, there is an additional interesting fact: Languages that do not possess free wh-relative clauses – such as Japanese, Djirbal or Bambara – use a "light" head noun meaning 'person' or 'thing' that embeds a relative clause (Luján 2009: 229). Although in Indo-European, relative-correlative clauses are considered the oldest form of relativization (Kiparsky 1995; Harbert 2007: 422), other language families show that externally headed relative clauses can be as old as well.

We find a second surprising correspondence with an assumption made in theoretical syntax. As we have seen above, complement clauses in many languages seem to have had their origin in constructions consisting of a head noun taking a relative clause. There is a tradition in generative syntax that claims that at least subject clauses are "CPs embedded in a (possibly null) 'DP shell'" (Hartman 2012: 34). Others such as Kayne (2010, t.a.) even maintain that all complementizers are relative pronouns and complement clauses thus relative clauses. Franco (2012), though rejecting the idea that complementizers are relative pronouns, nevertheless argues that subordinate clauses have to be nominal because they need to be case-marked. Similar proposals or observations have been made, among others, by Axel-Tober (2012, 2017), Kratzer (2006, 2016), and Moulton (2009, 2015). All these proposals are justified with different arguments (syntactic, semantic, typological, and diachronic ones) and to varying degrees, but they could probably rely on the diachronic facts presented in this paper. However, which of these proposals gains most from the diachronic developments presented above needs to be investigated in future research (see Franco 2012 for a first attempt).

5. Conclusions

To summarize briefly our results: Contrary to a widespread opinion in historical syntax and grammaticalization research (see Givón 1979; Heine & Kuteva 2007; Haspelmath 2010; Narrog & Heine 2011; Diessel 2019, and many others), there is no reliable evidence for the parataxis-to-hypotaxis hypothesis nor for the discourse-to-syntax hypothesis. The standard opinion has proven wrong and must be abandoned. Although it is reasonable to assume that discourse has a

20. In German, the correlative relative type developed into free wh-relative clauses and replaced the earlier type of free relatives that used d-pronouns. This replacement occurred in Middle High German times (Weiß 2016).

hierarchical structure (for example in the sense of Asher & Lascarides 2003 and Asher & Vieu 2005 who distinguish between subordinating and coordinating discourse relations), it is, however, not appropriate to propose a one-to-one correspondence between discourse and syntax in this respect.[21] Syntacticization, "a process by which flat, paratactic discourse-pragmatic structures transform over time into tight, hierarchic syntactic structures" (Givón 1979: 82f.), does not play any role in the development of subordination. All the alleged instances of syntacticization we examined above have turned out to go back to source structures that already involve subordination. Therefore, the grammaticalization of complementizers from nouns, pronouns, prepositions, and other content words seems to be possible exclusively from a hypotactic source structure. In most cases, it was a structure containing a relative clause headed by a light noun or a demonstrative pronoun:

(20) $[_{DP}\ [_{NP}$ (pro-)noun$]\ [_{CP}$ relative clause$]]$

I would not be surprised if future research reveals this structure to have been the type of subordination that was the first to arise.

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21. Thanks to Oliver Schallert for drawing my attention to this argument.

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