

## Semantic Prominence and Argument Realization III

### Delineating Semantic Determinants of Argument Realization and the Interactions among Them

NOTE: Class web site at <http://www.stanford.edu/~bclevin/lisa05.html>

#### 1 The starting points

- One result of the investigation of thematic hierarchies:
  - Causative verbs are special from an argument realization perspective:  
The relative semantic prominence of their arguments follows from the geometry of event structure: specifically, from event embedding

There is empirical evidence that corroborates this proposal:

- Causation trumps other posited semantic determinants of argument realization
- Specifically, some of these determinants figure in the salience statements sometimes seen as underlying thematic hierarchies.

First part of handout will show this via an examination of previously posited determinants.

- A second result of the investigation of thematic hierarchies:
  - The structural view of the thematic hierarchy leaves unexplained why there are also relative prominence relations between arguments of noncausative two-argument verbs.

Second part of handout will examine studies of transitivity to begin to reassess and prioritize other posited semantic determinants of argument realization. (This discussion is preliminary and to some extent speculative and incomplete.)

#### 2 Lessons from Hopper & Thompson's prototype approach to transitivity

Hopper & Thompson suggest that transitivity is a prototype notion, identifying the following semantic components (1980:252, (1)), many of which have figured in subsequent work:

COMPONENTS	HIGH	LOW
A. Participants	2 or more participants, A and O	1 participant
B. Kinesis	Action	Non-action
C. Aspect	Telic	Atelic
D. Punctuality	Punctual	Non-punctual
E. Volitionality	Volitional	Non-volitional
F. Affirmation	Affirmative	Negative
G. Mode	Realis	Irrealis
H. Agency	A high in potency	A low in potency
I. Affectedness of O	O totally affected	O not affected
J. Individuation of O	O highly individuated	O not individuated

Hopper & Thompson (1980:253, (2)) on the components of individuation:

INDIVIDUATED	NON-INDIVIDUATED
proper	common
human, animate	inanimate
concrete	abstract
singular	plural
count	mass
referential, definite	non-referential

- (1) Transitivity, then, viewed in the most conventional and traditional way possible ... can be broken down into its component parts, each focusing on a different facet of this carrying-over in a different part of the clause. Taken together, they allow clauses to be characterized as MORE or LESS Transitive: the more features a clause has in the 'high' column in 1A–J, the more Transitive it is ... (Hopper & Thompson 1980:253)

Tsunoda (1985) points out certain correlations among Hopper & Thompson's parameters:

- (2) a. Agent properties: Volitionality and agency (strong affinity, always co-vary)  
b. Patient properties: Affectedness and individuation (weaker affinity, do not always co-vary)  
c. Modality: Affirmation and mode (will ignore these)

He also notes that it is difficult to find correlations between agent and patient properties:

- (3) a. No correlation between volitionality-agency and affectedness:  
— accidental killing is as effective as intentional killing.  
b. Agentivity can be irrelevant to transitivity:  
— 'hit' NOM-ACC: patient affected; either volitional or non-volitional;  
— either agentive or nonagentive: *He (deliberately/accidentally) hit the fly.*  
— 'hit' NOM-OBL: patient not affected; volitional; agentive:  
*He (deliberately/??accidentally) hit at the fly.*  
c. These properties can contradict each other: See the examples above.
- (4) ... in manifesting a transitive case frame, (I) Affectedness is crucial, but (E) Volitionality and (H) Agency appear to be irrelevant. (Tsunoda 1985:395)

ONE QUESTION: What is the interaction between the properties?

- (5) The less similarity is there between the two major participants of the predicate in terms of control and affectedness, the more semantically transitive is the verb. (Testelec 1998:41, (11))

### 3 Dowty’s (1991) proto-role entailments in argument realization

A verb imposes lexical entailments on its arguments by virtue of the part they play in the event the verb describes. Building on this idea, Dowty (1991) posits two sets of such entailments: one figures in subject selection and the other in object selection. The former includes properties that figure in typical definitions of the traditional role “agent”; the latter of the “patient” role. (The exception is “incremental theme”, an aspectually-based notion.) Thus, these sets are called “Agent” and “Patient” proto-role (or Proto-Agent and Proto-Patient) entailments, respectively.

- (6) Contributing properties for the Agent Proto-Role (Dowty 1991:572, (27)):
  - volitional involvement in the event or state
  - sentience (and/or perception)
  - causing an event or change of state in another participant
  - movement (relative to the position of another participant)
  - (exists independently of the event named by the verb)
- (7) Contributing properties for the Patient Proto-Role (Dowty 1991:572, (28)):
  - undergoes change of state
  - incremental theme
  - causally affected by another participant
  - stationary relative to movement of another participant
  - (does not exist independently of the event, or not at all)

#### 3.1 Basic properties of proto-roles

These sets of entailments “unpack” the content of agent and patient into more basic components. They contribute to the degree to which an argument can be understood as an agent or a patient without being jointly necessary and sufficient in defining either of these notions or in determining their syntactic realization as subject or object.

Thus, proto-roles overcome problem of unclear boundaries facing traditional semantic roles.

- An NP that meets most, if not all, the criteria for either Proto-Agent or Proto-Patient corresponds to a “good” example of the relevant role, as in *Brutus assassinated Caesar*.

- Examples satisfying only one entailment of each proto-role to the exclusion of the others:

- (8) a. the subject of *John sees/fears Mary* only possesses the sentience Proto-Agent entailment (Dowty 1991: 572, (29b))
- b. the object of *John erased the error* only possesses the change of state Proto-Patient entailment (Dowty 1991: 572, (30a))

- Some pairs of subject NPs or object NPs have no shared proto-role entailments at all.

- A single NP may have some Proto-Agent and some Proto-Patient entailments.

AN EXAMPLE: the object of *frighten* psych-verbs with a change of state interpretation has the Proto-Agent entailment of sentience and the Proto-Patient entailment of undergoing a change of state (Dowty 1991: 579–80).

- An argument of a verb need not be associated with any of these entailments (though presumably every argument is associated with some entailment by its verb).

### 3.2 Proto-role entailments in argument realization

- (9) ARGUMENT SELECTION PRINCIPLE: In predicates with grammatical subject and object, the argument for which the predicate entails the greatest number of Proto-Agent properties will be lexicalized as the subject of the predicate; the argument having the greatest number of Proto-Patient entailments will be lexicalized as the direct object. (Dowty 1991:576, (31))
- (10) COROLLARY 1: If two arguments of a relation have (approximately) equal numbers of entailed Proto-Agent and Proto-Patient properties, then either or both may be lexicalized as the subject (and similarly for objects). (Dowty 1991:576, (32))
- (11) COROLLARY 2: With a three-place predicate, the nonsubject argument having the greater number of entailed Proto-patient properties will be lexicalized as the direct object and the nonsubject argument having fewer entailed Proto-Patient properties will be lexicalized as an oblique or prepositional object (and if two nonsubject arguments have approximately equal numbers of entailed P-Patient properties, either or both may be lexicalized as direct object). (Dowty 1991:576, (33))

- AN EXAMPLE: Subject/object selection in *Chris built a house* (Dowty 1991: 577)

- (12) a. *Chris* is subject: volition, sentience, causation, movement Proto-Agent entailments, but no Proto-Patient entailments
- b. *a house* is object: Proto-Patient entailments of change, causally affected, incremental theme, stationary, dependent existence

- An explanation for the existence of psych-verb doublets such as *fear* and *frighten*

- (13) Two classes of psych-verbs:
- a. Experiencer-subject *fear* verbs: My cousin fears spiders.
- b. Experiencer-object *frighten* verbs: Spiders frighten my cousin.

On their stative use, verbs of both types have a Proto-Agent entailment associated with both their stimulus and experiencer arguments: sentience/experiencer and causation/stimulus. As no other proto-role entailments distinguish between the arguments of these verbs, the argument selection principle doesn't unambiguously determine subject and object. Two pairings are compatible with these rules: (i) experiencer/subject and stimulus/object and (ii) stimulus/subject and experiencer/object. Appropriate pairing is determined verb-by-verb or, possibly, language-by-language. (Dowty 1991:579-580, 586-587)

Another property of psych-verbs also follows on Dowty's approach: Most *frighten* verbs show a nonstative change of state reading, as well as the stative meaning. When the experiencer is entailed to undergo a change of state, it is associated with a Proto-Patient entailment, creating an asymmetry between the experiencer and stimulus, which forces the experiencer to be selected as object.

- (14) a. Nonstative change of state reading: The loud noise frightened me.
- b. Stative reading: Ghosts frighten me.

### 3.3 Evidence for a proto-role entailment based subject selection rule

Explaining properties of “partially symmetric interactive predicates” (Dowty 1991:583-586). Such predicates show two argument realization options in English and many other languages:

- (15) One-argument use with collective/conjoined subject vs. two-argument use:
- a. Smith and Jones debated/Smith debated Jones.
  - b. Smith and Jones talked/Smith talked with Jones.

For *debate* and *talk*, the alternate argument realizations are truth-conditionally equivalent.

For other verbs, the alternate realizations need not be truth-conditionally equivalent.

- (16) Sandy must be “agentively” involved in the hugging in (b) but not (a):
- a. Kim hugged Sandy.
  - b. Kim and Sandy hugged.
- (17) Oddness of (b) sentence attributed to nonagentiveness of *lamppost*:
- a. The drunk embraced the lamppost.
  - b. # The drunk and the lamppost embraced

A different truth-conditional asymmetry involving Dowty’s Proto-Agent entailment motion with respect to another participant.

- (18) (a) sentence entails both were in motion; (b) only that Pat was.
- a. Pat and Terry collided.
  - b. Pat collided with Terry.
- (19) # The truck and the lamppost collided.

Difference between the options can’t always be stated in terms of “traditional” agency.

GENERALIZING: When the alternate argument realizations differ in entailments, there is a Proto-Agent entailment which the denotation of the (prepositional) object can lack, but which must hold for all subject denotations in the conjoined NP version.

This generalization does not refer to agency per se, but to the Proto-Agent entailments: these, when distributed differentially over the arguments of a predicate, determine the realization of one argument as subject.

### 3.4 Insights into context dependence

Why aren’t instruments or recipients subjects in the presence of an agent? Baker (1997:11) attributes this to variability in a given argument’s proto-role. In the presence of an agent, a recipient won’t be analyzed as being a Proto-Agent, but in the absence of an agent it can be. (Same holds of instruments.)

“the prototype theory says that certain participants in an event are less prone to being seen as agents than others are, but the one seen as an agent is always the subject” (Baker 1997:110).

### 3.5 Shortcomings of proto-roles

- There is no explanation of impossible combinations of entailments or semantic roles.
- Dowty’s argument selection principle presuppose transitivity, yet there is systematic variation across languages as to what constitutes the transitive verb class (see section 7).
- There are no priorities among proto-role entailments in argument realization; it is simply the number of entailments that counts. Yet, there is empirical evidence to the contrary.

## 4 Subject — and to some extent — object selection: A larger view

CAUSERS ARE SEMANTICALLY MORE PROMINENT THAN ENTITIES THAT CHANGE STATE

The investigation of the structural view of the thematic hierarchy suggests that the structure of event structure explains why causers have priority as subjects.

When a two-argument verb has a complex event structure, comprised of one event embedded in a second, then an argument of the higher event is less embedded than an argument of the lower event and should outrank it in the thematic hierarchy.

Causative verbs (e.g., *break*, *kill*) have been attributed a complex event structure (Dowty 1979; McCawley 1971; Morgan 1969; von Stechow 1995, 1996). In this event structure the caused event containing the patient is embedded under CAUSE, which also takes the causer as an argument, justifying the ranking ‘causer > patient’.

(20) [ [ x ACT ] CAUSE [ BECOME [ y <STATE> ] ] ]

EVIDENCE CAUSERS HAVE PRIORITY IN SUBJECT SELECTION

Koenig & Davis argue for priorities among Proto-Agent entailments in subject selection:

“... for all verbs that denote causal events, the only proto-agent entailment that we need to consider is whether the participant causally affects another participant in the event. ... Similarly, among non-causative verbs, sentience is sufficient to ensure mapping to subject ... Volitional involvement in the event is also sufficient to ensure mapping to subject position in non-causative verbs. Finally, for all verbs for which being in motion counts as a proto-agent entailment, the NP denoting the moving object is mapped onto subject position.”  
(Koenig & Davis 2001:82-83)

That is, causation outranks Dowty’s other Proto-Agent entailments in subject selection (Davis & Koenig 2000:75-76).

Evidence supporting Davis & Koenig's proposal:

- In languages with productive morphological causatives, the introduced causer is invariably the subject of the causative, regardless of the Proto-Agent entailments of the causee.

- (21) a. Ha-b'dixa hicxika oti.  
the-joke laugh.CAUS I.ACC  
'The joke made me laugh.' (Hebrew)
- b. Uutinen puhu-tt-i nais-i-a pitkään.  
news.item talk-CAUS-PAST woman-PL-PART long-ILL  
'The news made the women talk for a long time.'  
(Finnish; Davis & Koenig 2000: 75, (26))

- Further evidence causation has priority over the sentience Proto-Agent entailment:  
a sentient participant is subject only when there is no causer (Dowty 1991).

- (22) a. The toddler (\*deliberately) feared the lion.  
b. The lion (deliberately) frightened the toddler.

- And causation again takes priority over the Proto-Agent entailment, motion:  
a moving participant is subject only when there is no causer (Dowty 1991).

- (23) a. The train passed/crossed the border.  
b. The wind blew the napkin off the table.

Why should causation outrank other Proto-Agent entailments in subject selection?  
It is the only Proto-Agent entailment corresponding to a notion definable in event structures.

A causer is the least embedded argument in a typical causative event structure.  
Supposing that event structure prominence is preserved in argument realization,  
then, the causer would take precedence over any other argument for subject selection.

#### A LITTLE ON OBJECT SELECTION

The same idea could be carried over to Proto-Patient entailments and object selection:  
Among these entailments, "changes state" outranks the others.  
It too may derive from proposed event structures via predicates BECOME or CHANGE.

An entity lexically entailed to undergo a change of state MUST be the direct object  
but an entity lexically entailed to undergo movement CAN be an object, but need not be.

Evidence: A moving entity can't be object in the presence of an entity that changes state.

- (24) a. Pat broke the window with a bat.  
Pat broke the bat against the window. (not comparable to *hit against*)
- b. Pat hit the window with a bat.  
Pat hit the bat against the window.
- c. Shelly smeared oil on the axle.  
Shelly smeared the axle with oil.

## 5 Beyond event structure

Event structure may be important to subject and object selection, but alone it is inadequate.

Event structure doesn't impose a semantic prominence relation on the arguments of two-argument noncausative verbs, like *wipe*, *scratch*, *want*, *see*, *love*, *have*: their arguments are equally embedded.

Yet, one argument is realized as subject and the other as object, so one must be more prominent than the other.

Need a way of establishing their relative ranking independent of their morphosyntactic realization, which the ranking is supposed to predict.

THE PROBLEM EXEMPLIFIED: RRG's actor-undergoer hierarchy

The geometry of event structure needs to be supplemented by other event-based statements of prominence.

## 6 Clustering of proto-role entailments

PAIRING OF ENTAILMENTS: some Agent and Patient Proto-role properties come in pairs.

(Dowty 1991:574; Croft 1998:37; Koenig & Davis 2001:83; Primus 1999:52-53):

- Proto-Agent “causing an event or change of state in another participant”  
and Proto-Patient “undergoes change of state”
- Proto-Agent “movement (relative to the position of another participant)”  
and Proto-Patient “stationary relative to movement of another participant”.
- Proto-Agent “exists independently of the event named by the verb”  
and Proto-Patient “does not exist independently of the event, or not at all”.

These pairings suggest a convergence of certain sets of entailments as Proto-Agent or Proto-Patient entailments.

Paired entailments identify participants in a semantic relation. In each pair the Proto-Patient entailment is dependent on the Proto-Agent entailment. Thus, they reflect an asymmetric relations between event participants, and, thus, implicitly define a ranking of arguments (Primus 1999).

What is the nature of the semantic relation defining the pairings?

Primus (1999:36-37) sees the pairings as entailments of a more general “control” relation; a similar idea is introduced by Davis & Koenig:

“Finally, note that although it is difficult to provide a unifying characterization for each set of entailments, the ACTOR entailments relate to initiating an event and affecting other participants, while the UNDERGOER entailments typify affected participants. The entailments characteristic of the ACTOR attribute might then reduce to a general entailment roughly paraphrasable as ‘has control over the unfolding of the situation’ ...” (Davis & Koenig 2000:73)



## 7 Tsunoda’s implicational hierarchy of two-argument verbs

Tsunoda’s introduces an implicational hierarchy of the likelihood that various semantic classes of two-argument verbs are transitive across languages.

This hierarchy may be attributed to semantic determinants of argument realization, with the hierarchy reflecting the priorities among them.

Tsunoda’s implicational hierarchy of two-argument predicates (1985:388-389):

- (25) a. Direct effect on patient  
       — Resultative: *kill, break, bend*  
       — Non-resultative: *hit, shoot, kick, eat*
- b. Perception  
       — Patient more attained: *see, hear, find*  
       — Patient less attained: *listen, look*
- c. Pursuit: *search, wait, await*
- d. Knowledge: *know, understand, remember, forget*
- e. Feeling: *love, like, want, need, fear, boast; fond, afraid, angry, proud*
- f. Relationship: *possess, have, lack, resemble, correspond, consist; similar, lacking*
- g. Ability: *capable, proficient, good*

(Semi-colons separate verbal predicates from adjectival predicates; will ignore the latter.)

The verbs highest in the hierarchy are most likely to be transitive across languages. (They are also most likely to show passive, antipassive, reflexive, reciprocal forms.)

Tsunoda (1985:388-389) proposes that the hierarchy is organized in terms of the decreasing affectedness of the patient.

Tsunoda’s (1981:393) “additions” to Hopper & Thompson’s semantic components of transitivity; he calls these “effectiveness conditions”:

COMPONENTS	HIGH	LOW
Impingement	Impingement on O	Non-impingement on O
Attainment	O attained	O not attained
Completion	completed	uncompleted, in progress
Resultative	resultative	non-resultative
Genericity	specific or single activity/situation	customary/general/habitual activity/situation
Realization	actual/realized	potential/unrealized

On some of Tsunoda’s (1981:393-394) terms:

- “*kill* is resultative, creating a change of state in O, but *hit* is not necessarily so.”
- “*hit* can impinge on O, but other actions, states etc, cannot, e.g. *search, like, possess*.”
- “Completed versus uncompleted or in progress. E.g. *He hit me* versus *He will hit me* or *He was hitting me*.”
- “*see, find* (actual/realized) versus *search, try to find* (potential/unrealized)”;  
     also *shoot* versus *shoot at*

The verbs in Tsunoda’s hierarchies can be reorganized into four classes for the purposes of this handout:

- (26) a. Resultative verbs with a direct effect on patient: *kill, break, bend*  
 b. Non-resultative verbs with a direct effect on patient: *hit, shoot, kick, eat*  
 c. Verbs of pursuit: *search, wait, await*  
 d. Stative predicates of perception, knowledge, feeling, possession: *see, hear, find; know, understand, remember, forget; love, like, want, need, fear, boast; possess, have, lack, resemble, correspond, consist*

Some comments on these classes:

- RESULTATIVE VERBS WITH A DIRECT EFFECT ON PATIENT: these are the “agent-patient” verbs of Lecture I: verbs in which an agent acts on and causes a change of state in a patient. They fit the causative event structure in (20), which explains why they are always reported among the transitive verbs of a language.
- NON-RESULTATIVE VERBS WITH A DIRECT EFFECT ON PATIENT: these verbs deviate from the agent-patient mold; will focus on a major subset of them in section 8.
- VERBS OF PURSUIT: Tsunoda does not give a lot of information about this class, but some of its members fall into the set of interaction verbs to be discussed in section 9
- STATIVE VERBS OF PERCEPTION, KNOWLEDGE, FEELING, POSSESSION: Will not consider these verbs in detail, but their status is most likely attributable to their stativity, which makes them less like the agent-patient verbs. Most likely, it is the requirement that one of their arguments be sentient, which makes this argument eligible for subjecthood (cf. Dowty 1991; Fillmore 1977; Mohanan 1994; Wechsler 1995).

## 8 Verbs of surface contact

A significant subset of Tsunoda’s class of “non-resultative verbs with a direct effect on patient” are verbs that describe an event which involves contact with a surface, without necessarily entailing any change in it. The canonical members are verbs such as *hit, kick, shoot*, but the class could be extended to verbs, such as *rub, sweep, wipe*.

Evidence these verbs are not always transitive across languages (from Lecture I):

LHASA TIBETAN: The counterpart of English *hit* is not transitive: the argument denoting surface contacted takes a locative marker. Concepts expressed by other surface contact verbs involve verb-noun combinations (DeLancey 1995).

- (27) shing\*(-la) sta=re-s gzhus-pa  
 tree-LOC axe-ERG hit  
 ‘hit the tree with an axe’ (DeLancey 1995: (18))

- (28) nga-s blo=bzang=la rdog=rdyag gzhus-pa yin  
 I-ERG Lobsang-LOC kick<sub>N</sub> hit/throw-PERF/CONJUNCT  
 ‘I kicked Lobsang’ (DeLancey 1995: (20))

INGUSH: The counterparts of certain English surface contact verbs are also expressed via verb-noun combinations (Nichols 1982:447, 1984:188). Again the surface is expressed in an oblique case—a case-marking pattern common across Caucasian languages (Nichols 1984:188).

## 8.1 Another semantic determinant of argument expression: Force recipient

One way of modelling events is in terms of causal chains (Croft 1991, 1998; DeLancey 1984; Langacker 1987; Talmy 1976).

From this perspective, the event type prototypically denoted by a transitive verb involves:

- The asymmetric transmission of a force from one entity to a second, followed by
  - A change in the second entity, i.e., the manifestation of the force transmission.
- i.e., Tsunoda’s “resultative verbs with a direct effect on patient” or “agent-patient verbs”.

Agent-patient verbs involve a transmission of force to their patient and a change in it; verbs of surface contact only involve transmission of force from one entity to a second. (These verbs in isolation do not entail the second entity changes state and, thus, do not conform to the prototypical transitive event.)

Causal chains and argument ranking:

“Instead of a thematic role hierarchy, a ranking of participants in terms of their force-dynamic relations to each other is argued to be critical for linking, in fact more important than type of thematic role in the usual sense. One participant outranks another if it is antecedent to the other in the causal chain (in terms of transmission of force).” (Croft 1998:23)

The grammatical relations subject and object are assigned according to order of arguments in the causal chain (The causal order hypothesis; Croft 1991:186).

IMPLICATIONS FOR ARGUMENT REALIZATION WITH SURFACE CONTACT VERBS:

- Surface contact verbs take two arguments: “force transmitter” and “force recipient”.
- The causal chain defines a semantic prominence relation between these two arguments.
- The placement of these verbs on Tsunoda’s hierarchy suggests that such verbs have priority over verbs of other types in realizing their arguments as subjects and objects.
- Specifically, force recipients are candidates for expression as direct object.

Crosslinguistic differences appear to involve whether the force recipient qualifies as an object or not; languages agree that the force transmitter is a subject.

WHY DO SURFACE CONTACT VERBS OCCUR WHERE THEY DO IN TSUNODA’S HIERARCHY? That is, why are they the most likely to be transitive crosslinguistically after the “resultative verbs with a direct effect on patient”, that is, agent-patient verbs?

Surface contact verbs have an argument that is a force recipient, but doesn’t change state. In general, verbs with such arguments are associated with a cancellable implicature that the force recipient undergoes a change related to the conventional result of the action. This implicature creates the impression that these verbs fit the agent-patient mold. (See Talmy 2000 for more discussion.)

INDEPENDENT EVIDENCE FOR “FORCE RECIPIENT”: the distribution of result XPs. Rappaport Hovav & Levin 2001 argue it allows for a unified generalization.

The distribution of result XPs with transitive verbs plus objects.

Change of state verbs can only predicate a result XP of their object.

Other classes of transitives that also only predicate a result XP of their object include:

- Verbs of surface contact and motion (e.g., *rub*, *sweep*, *wipe*)
- Verbs of exerting force (e.g., *pull*, *push*, *tug*, *yank*)

- (29) a. She might employ it [her body] as a weapon—fall forward and flatten me wafer-thin. (D. Ephron, *Big City Eyes*, Putnam’s, New York, 2000, p. 92)
- b. She was wiping the mirror free of steam ... (E. George, *Missing Joseph*, Bantam, New York, 1993, p. 251)
- c. He pulled the glass door tightly shut behind them ... (A. Cleeves, *Murder in My Backyard*, Fawcett, New York, 1991, p. 119)

THE GENERALIZATION:

The result XP is predicated of the NP denoting the argument of a transitive verb which is the recipient of a transmitted force, if there is one.

RH&L (2001) argue that this restriction has its source in the basic properties of events (Croft 1991:173, 269).

## 9 Blume’s study of two-argument agentive nominative-dative verbs

Blume (1998) posits a class of “interaction verbs”—two-argument verbs, with two typically sentient arguments. Almost all are transitive in English, but take nominative-dative (or nominative-oblique) arguments in other languages (e.g., German, Hungarian, Maori).

Her list of interaction verbs includes some of Tsunoda’s pursuit verbs and the (active) perception verbs with a less attained patient.

- (30) Subclasses of interaction verbs (Blume 1998:274)
- a. Verbs of communication/social gesture (rather than transmission of a proposition that changes knowledge): *listen to, answer, greet, call for, wave to, congratulate, thank, read to, threaten, give notice to, ...*
- b. Motion verbs: *follow, dodge, meet*  
Both participants show autonomous activity, performing actions independently of each other.
- c. ‘Obey’ verbs: *obey, work for, serve*  
“Nominative participant that has to conform to particular standards and/or purposes presupposed on the part of the dative participant”

Blume’s (1998:254) semantic characterization of these verbs: “Agentive /nom/dat verbs denote complex events consisting of more than one subevent — one of them typically presupposed — where each participant in the complex event is independently active in at least one of the subevents”

AN EXAMPLE: German *helfen* ‘help’ has “two temporally overlapping subevents s1 and s2: in s1 one participant is presupposed to strive consciously for a certain aim ... and in s2 the other participant performs an unspecified act that contributes to the achievement of the aim of the first one.” (Blume 1998:254-255)

Interaction verbs are said to be “weakly transitive”, i.e., “verbs expressing complex events that do not assign proto-patient properties in any implied subevent,” (Blume 1998:255), specifically, “both arguments bear proto-agent properties in at least one implied or presupposed subevent, but neither argument bears proto-patient” (Blume 1998:268, (9))

Blume (1998:268, (9)) posits her own scale of semantic transitivity of verb classes:

- (31) *+transitive*  
Verbs expressing situations that involve:  
I. two and more argument positions; one or more arguments bear proto-patient properties in at least one implied subevent;  
II. two argument positions; both arguments bear proto-agent properties in at least one implied or presupposed subevent, but neither argument bears proto-patient properties in any implied subevent;  
III. more than one argument position; at most one of the arguments bears proto-agent properties; proto-patient properties are not assigned;  
IV. only one argument position  
*-transitive*

Blume's redefinition of proto-role properties (1998:266, (7)):

- (32) Contributing properties for the Proto-Agent:  
A participant A is a Proto-Agent iff it fulfills the following functions in at least one of the subevents E that are expressed by the meaning of a verb:  
— A controls E  
— A is conscious of E (“sentience”)  
— A is autonomously active/has an essential function in E
- (33) Contributing properties for the Proto-Patient:  
A participant P is a Proto-Patient iff it fulfills the following functions in at least one of the subevents E that are expressed by the meaning of a verb:  
— P is in E created or destroyed by A (“dependent existence”)  
— P is in E directly affected by A  
— P is in E controlled or manipulated by A

RELATIONS BETWEEN CASE ARRAYS AND SEMANTIC VERB CLASSES:

- nom-dat interaction verbs are level II, as each participant is an agent in a subevent
- nom-dat psych, perception, and possession verbs are level III, as they are statives
- agentive level III verbs select PP or adverbial NPs; these are verbs whose second participant need not have proto-agent properties

- (34) A verb expressing a complex action may select a /nom/dat or /abs/dat case frame iff it is on level II of the transitivity scale. (Blume 1998:269, (10))
- (35) The agent in the first implied subevent of a temporally ordered sequence of subevents in the event structure of a verb is coindexed with the nominative or absolutive. (Blume 1998:269, (11))

NOTE: Blume's transitivity hierarchy may be more about affectedness than she suggests as all Type I-III verbs take a Proto-Agent; they differ in the status of their second argument.

## 9.1 English and German interaction verbs

ENGLISH: Despite their surface transitivity, English interaction verbs can be distinguished from agent-patient verbs, using diagnostics discussed by Maling (2001) in a study of the mapping between morphological case and semantic roles in Germanic.

Baker (1997) identifies diagnostics to distinguish direct vs. indirect objects of ditransitives. Though Baker takes these to diagnose grammatical function, Maling argues that they are sensitive to semantic roles as some two-argument verbs have a non-agent argument that pattern with patients and others with goals of ditransitives.

SAMPLE ARGUMENT: English synthetic compounds (Maling 1997)

Baker (1997) notes an asymmetry in compound formation with ditransitives, as in (36)

Just like the goal of a ditransitive, the object of *help*, *invite*, *reach*, *telephone*, *thank*, *visit* cannot be left-hand element of a synthetic compound.

Unifying generalization must be semantic: goals not found in compounds.

Similar argument possible with derived nominals, depictive secondary predicates, middles (not mentioned by Baker).

- (36) Three-argument (i.e., ditransitive) verbs:  
 Theme compounded: secret-telling (to spies), book-reading (to children)  
 Goal compounded: \*spy-telling (of secrets), \*child-reading (of books)
- (37) Two-argument interaction verbs:  
 \*relative-inviting, \*needy-helping, \*friend-telephoning
- (38) Two-argument agent-patient verbs:  
 mosquito-killing, window-breaking

(Alternative is to build on Baker's UTAH and posit null prepositions or little v's with verbs like *help* to make them structurally parallel to ditransitives.)

GERMAN: has many nom-dat interaction verbs, but also some nom-acc ones. All interaction verbs pattern together independent of the case of their second argument (which Maling calls a goal); the nom-acc interaction verbs do not pattern with nom-acc agent-patient verbs.

The relevant German two-argument verb classes:

- (39) German:
- Verbs with goals expressed as datives: *helfen* 'help', *danken* 'thank', *begegnen* 'meet', *drohen* 'threaten', *schaden* 'harm', *fluchen* 'curse', ...
  - Verbs with goals expressed as accusatives: *bitten* 'ask', *anrufen* 'appeal to/phone', *bedienen* 'serve', *einladen* 'invite', *treffen* 'meet', *unterrichten* 'instruct', *unterstützen* 'support', ...
  - Verbs with themes (i.e., patients) expressed as datives: NOT FOUND
  - Verbs with themes expressed as accusatives: prototypical transitives

GERMAN MIDDLES (Maling 2001:440, Table 2)

Semantic role	m-case	German verb	Middle
Theme	Acc	<i>waschen</i> 'wash'	<i>sich waschen</i>
Theme	Dat	none	N/A
Goal	Acc	<i>bitten</i> 'ask'	* <i>sich bitten</i>
Goal	Dat	<i>helfen</i> 'help'	* <i>sich helfen</i>

## GERMAN DEPICTIVE PREDICATES (Maling 2001:446, Table 4)

Semantic role	m-case	German verb	Object as depictive host
Theme	Acc	<i>untersuchen</i> ‘examine’	possible
Theme	Dat	none	N/A
Goal	Acc	<i>bedienen</i> ‘serve’	not possible
Goal	Dat	<i>helfen</i> ‘help’	not possible

## GERMAN SYNTHETIC COMPOUNDS

- Accusative goals pattern like dative goals: can’t compound.
- Accusative themes can be productively compounded.

IMPLICATIONS FOR ARGUMENT REALIZATION: Interaction verbs require their own argument selection principles, presumably because their second argument is sentient and does not change state. The relative prominence of their argument can be established because one is the initiator of the event and has control over its initial unfolding.

## 9.2 Refining Blume’s classification

McFadden (2004) argues that Blume’s motion subclass of interaction verbs—what he calls “verbs of relative motion”—needs to be distinguished from the other two subclasses.

Reinterpreting slightly, he argues that the dative NP with the motion class patterns more like an allative NP, while the dative NP with the other interaction verbs patterns more like the dative NP with ditransitives, such as ‘give’.

He gives this difference a syntactic implementation positing that

- the dative NP of motion verbs is introduced within a PP in VP
- the dative NP of other interaction verbs is introduced as a specifier of an applicative little *v* above the VP.

It is interesting that verbs of relative motion pattern distinctly, given that Dowty includes as a Proto-Agent entailment: “movement relative to the position of another participant”.

## 10 Summary and conclusions

- Causers have priority for subject selection and patients for object selection, presumably by virtue of the geometry of event structure. The geometry of event structure also determines that causers are more prominent than patients.
- Systematic crosslinguistic differences in the class of transitive verbs across languages can be fruitfully investigated to identify semantic determinants of argument realization and prominence relations between the arguments of two-argument verbs.
- Notions that appear to be relevant to defining prominence relations include force transmission, sentience, movement.
- Not all verbs that appear to be transitive necessarily pattern together.

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