

## Lexical Semantics and Argument Realization I

### Empirical and Conceptual Challenges of Argument Realization

RELATED READING: Fillmore 1970, Levin and Rappaport Hovav 2005, Chapter 1.

#### 1 An introduction to the problem

WHAT IS INVOLVED IN ARGUMENT REALIZATION?

Delineating the possible syntactic expressions of the arguments of a verb and accounting for why the arguments of a verb are syntactically realized as they are in and across languages.

AN EXAMPLE: Why do *break* and *hit*, though both showing transitive uses and both being appropriate descriptions of certain events, have distinct patterns of argument realization (Fillmore 1970)?

- (1) Transitive uses:
  - a. The boy broke the window.
  - b. The boy hit the window.
- (2) Causative alternation:
  - a. The boy broke the window with a ball.  
The window broke.
  - b. The boy hit the window with a ball.  
\* The window hit.
- (3) Possessor raising:
  - a. I broke his leg./\*I broke him on the leg.
  - b. I hit his leg./I hit him on the leg.
- (4) *With/against* alternation (Fillmore 1977:74-78):
  - a. Perry broke the fence with the stick.  
Perry broke the stick against the fence. (not comparable to *hit against*)
  - b. Perry hit the fence with the stick.  
Perry hit the stick against the fence.

Furthermore, there are other verbs that pattern like each of them.

- (5) a. *Break* Verbs: bend, fold, shatter, crack (Fillmore 1970: 125, (15))
- b. *Hit* Verbs: slap, strike, bump, stroke (Fillmore 1970: 125, (16))

## THE CONTEXT FOR SOLUTIONS TO ARGUMENT REALIZATION

FOUNDATIONAL ASSUMPTION: The generalizations are taken to involve mapping semantic onto syntactic notions: i.e., verb (or constructional) meaning holds the key to argument realization.

- (6) UNIVERSAL ALIGNMENT HYPOTHESIS: There exist principles of UG which predict the initial [grammatical] relation borne by each nominal in a given clause from the meaning of the clause. (Perlmutter & Postal 1984:97)

THE SIMPLEST PERSPECTIVE: There are SEMANTIC ROLES, identifying classes of arguments sharing a semantic relation to their verbs; each has its own unique syntactic realization.

CENTRAL HYPOTHESIS: Agents are subjects and patients are objects.  
i.e., Agent-patient verbs (and, perhaps, two-argument verbs in general) are transitive.

As the *break/hit* data shows, this perspective oversimplifies the data too much to be workable.

— If both *break* and *hit* are agent-patient verbs, then why the different behavior?

— Fillmore's (1970) solution: *break* takes agent-patient, *hit* agent-location, but then objects aren't all patients.

## 2 An overview of the challenges, or why argument realization is non-trivial

A theory of argument realization must capture attested and preclude unattested semantic role-grammatical relation mappings, contending with:

- Well-known difficulties with identifying relevant components of meaning.

The Italian verbs *russare* 'snore' and *arrossire* 'blush' are both bodily process verbs, yet select different auxiliaries in Italian, suggesting differences in unaccusativity (Rosen 1984).

- (7) *russare* 'snore' takes the auxiliary *avere*  
*arrossire* 'blush' takes the auxiliary *essere*

The semantic notion 'bodily process' is not relevant to argument realization; an alternative characterization of these verbs is possible.

- (8) *russare* 'snore': activity  
*arrossire* 'blush' (= become red): change of state (McClure 1990)

- (9) Auxiliary Selection:  
Activity verbs take the auxiliary *avere* 'have'  
State and change of state verbs take the auxiliary *essere* 'be'

- The problem of verbs with multiple argument realizations.

- (10) The dative alternation:

- a. Lacey gave a basket of fruit to Leigh. (*to* variant)
- b. Lacey gave Leigh a basket of fruit. (double object variant)

- The influence of coarguments on each other's realizations (see below).

The mapping of a semantic role to its syntactic realizations is SENSITIVE to cooccurring roles.

- Dimensions of crosslinguistic variation in argument realization, such as language-particular coding options (see below)
- The interaction of information structure with argument realization.

(11) Information structure affects surface word order: Given material comes before new material.

The interaction of this constraint with the description of giving events (see later lecture):

- when the recipient is given, recipient–theme order is preferred
- when the theme is given, theme–recipient order is preferred.

In Russian, which has morphological case and free word order, these considerations can be satisfied without “alternate” argument realizations (at least in case marking).

In English, which has fixed word order (presumably, related to its lack of morphological case), these information structure considerations can only be met by allowing alternate argument realizations: i.e., the dative alternation: i.e., given theme–*to* variant, given recipient–double object variant. (Erteschik-Shir 1979, Givón 1984, Ransom 1979, Thompson 1990, 1995)

### 3 A challenge for argument realization: Context dependence of coarguments

It is well-known that a given semantic role need not be consistently associated with a specific syntactic realization, but what is less appreciated is that sometimes the exact realization depends on cooccurring semantic roles.

Examples of the influence of coarguments on each other's realizations.

- (12) An instrument can't be realized as subject in the presence of an agent.
- The door opened.
  - Dana opened the door.
  - The chisel opened the door.
  - Dana opened the door with a chisel.
  - \* The door opened by Dana.
  - \* The chisel opened the door by Dana.

These observations can be interpreted as showing priorities among a verb's coarguments with respect to their potential realization.

- (13) If there is an A [=Agent], it becomes the subject; otherwise, if there is an I [=Instrument], it becomes the subject; otherwise, the subject is the O [=Objective, i.e., Theme/Patient]. (Fillmore 1968:33)

- (14) A recipient can't be realized as subject in the presence of an agent.
- Alex received a package.
  - Sam sent Alex a package.
- (15) An experiencer can't be realized as subject in the presence of an agent/causer.
- The toddler (\*deliberately) feared the lion.
  - The lion (deliberately) frightened the toddler.
- (16) A moving entity (i.e., theme) can't be realized as subject in the presence of an agent.
- Kelly moved the cat into the room.
  - The cat entered the room.
- (17) A moving entity can't be an object in the presence of an entity that changes state.
- Pat broke the window with a bat.  
Pat broke the bat against the window. (not comparable to *hit against*)
  - Shelly smeared oil on the axle.  
Shelly smeared the axle with oil.
  - Pat hit the window with a bat.  
Pat hit the bat against the window.

And an example of context dependence from Kinyarwanda:

- (18) Whether an “oblique” role can be the object of an applicative verb depends on cooccurring oblique roles (Polinsky & Kozinsky 1992).
- When a recipient and a benefactive cooccur, only the recipient can be an object.
  - When a benefactive and an instrument cooccur, only benefactive can be object.

IMPLICATION: These priorities can be cast in terms of a notion of semantic prominence, as embodied, for example, in a THEMATIC HIERARCHY—a ranking of semantic roles. Thus, a lexical semantic representation must be chosen that accommodates the notion of semantic prominence.

EXAMPLE: (inspired by Fillmore 1968) The thematic hierarchy in (19) together with the subject selection rule in (20) accounts for the grammaticality patterns in (12).

(19) Agent > Instrument > Theme/Patient

(20) The argument of a verb bearing the highest-ranked semantic role is its subject.

#### 4 A crosslinguistic dimension to the context dependence challenge

Context dependence has a crosslinguistic dimension: it is more pervasive in some languages (e.g., English) than others, which impose stricter limits on alternate realizations of some semantic roles.

- LIMITATIONS ON INSTRUMENT SUBJECTS (DeLancey 1984; Van Voorst 1996):

“... Irish, like Dutch, requires that the subject NP be an initiator of the event described by the verb. Irish instruments, like those of Dutch, cannot serve as an external argument.” (Guilfoyle 2000:66)

- (21) a. D'oscail Seán an doras leis an eochair.  
 open.PAST Seán the door with the key  
 'Sean opened the door with the key.' (Guilfoyle 2000:66, (13))
- b. \*D'oscail an eochair an doras.  
 open.PAST the key the door  
 'The key opened the door.' (Guilfoyle 2000:66, (11))

• LIMITATIONS ON EXPERIENCER SUBJECTS:

"Unless the subject is clearly an agent . . . , there is a strong tendency for the 'subject-like' element to appear as a PP internal to the VP rather than as an external argument. Thus, predicates expressing physical and psychological states typically appear as nominal predicates with PP experiencers." (Guilfoyle 2000:67)

- (22) Tá eagla orm.  
 is fear on1S  
 'I am afraid.' (Guilfoyle 2000:67, (15a))

Dative/accusative experiencers in German impersonal constructions are subjects in English.

- (23) a. Mich friert. 'me freezes'  
 I'm freezing.
- b. Mir ist warm. 'to-me is warm'  
 I'm warm. (Hawkins 1985:56, (4.7a,b))

• OTHER LIMITATIONS ON SUBJECTS:

Rohdenburg (1974) shows that English allows a much broader range of subjects than German; many non-agents in German resist being mapped onto subject, though they may be in English; manifested in grammaticality judgments and frequency of occurrence.

- (24) English subjects lacking German counterparts (Hawkins 1985:58-59)
- a. A few years ago a pfennig would buy two or three pins.
- b. This hotel forbids dogs.
- c. This trial cannot proceed.
- d. The latest edition of the book has added/dropped a chapter.
- e. My guitar broke a string.
- f. The book sold 10,000 copies.

Consequently, many English non-agent subjects correspond to PPs in German.

- (25) a. The roof of the tunnel was seeping water.
- b. Durch die Tunneldecke sickerte Wasser (durch).
- c. Through the tunnel roof seeped water. (Hawkins 1985:60)

- (26) a. The latest edition of the book has added a chapter.  
 b. In der letzten Ausgabe des Buches ist ein Kapitel hinzugefügt.  
 c. In the latest edition of the book a chapter has been added. (Hawkins 1985:61)

THE LARGER GENERALIZATION: Agents may be subjects across languages;  
 languages vary as to whether non-agents may be.

IMPLICATION: These limitations on subject choice again reflect priorities in argument realization suggestive of semantic prominence relations.

A REMAINING CHALLENGE: Object alternations, at least, could be viewed either as a manifestation of context dependence (two equally prominent semantic roles) or the opposite (if all roles had to be ranked with respect to each other)! Where, then, do they fit in the picture?

## 5 Another challenge for argument realization: Transitivity

Not all two-argument verbs show the same argument realizations in and across languages.

Every language has a syntactically-privileged class of two-argument verbs: TRANSITIVE VERBS. These verbs display the unmarked expression of arguments for two-argument verbs; one argument bears the core grammatical relation “subject”, the other “direct object”.

A major challenge for theories of argument realization is making appropriate predictions regarding which two-argument verbs MAY or WILL BE transitive across languages.

WHY DOES THIS MATTER? Verbs that are not transitive in all languages presumably have a different relation between their coarguments than those that are. Thus, comparisons of transitive verb inventories can help isolate semantic determinants of argument realization.

Specifically, two-argument verbs, which clearly fit the “agent act on and cause an effect in patient” semantic mold that is behind the name “transitive” are transitive in all languages. Call these CORE TRANSITIVE VERBS (CTVs), cf. Andrews’ (1985) “primary” transitives.  
 Examples of CTVs: *break, destroy, kill, open*

Outside this class, all is not chaos: there appears to be fairly systematic variation as to which two-argument verbs are most likely to be transitive across languages.

### A SCALE OF THE POTENTIAL TRANSITIVITY OF TWO-ARGUMENT VERBS

Tsunoda (1985:388-389) posits an implicational hierarchy of two-argument verbs; he proposes that it be interpreted as a transitivity scale, organized in terms of the decreasing affectedness of the verbs’ patient. The verbs highest on the hierarchy are the most likely to be realized as transitive across languages; these are also most likely to show passive, antipassive, reflexive, reciprocal forms.

- (27) a. Direct effect on patient  
       — Resultative (i.e., creates a change of state): *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*

- English has a large class of transitive verbs; all of Tsunoda’s classes with the exception of pursuit (also ability and some relationship) are transitive in English.

- French has a broader class of transitives: in French verbs of pursuit are transitive; thus, these English two-argument non-transitives have transitive translation equivalents.

(28) *chercher* ‘look for’, *attendre* ‘wait for’; also *demander* ‘ask for’, *pleurer* ‘mourn for’

- Many other languages have more restricted transitive classes than English does.

English transitives with non-transitive translation equivalents in Caucasian languages include representatives of most of Tsunoda’s classes except for the core transitive verbs (Tsunoda’s resultative verbs with direct effect on patient).

(29) “Certain verbs that we would regard as distinctly transitive normally occur in N.W. Caucasian in the nominative construction. These include the verbs ‘beat’, ‘bite’, ‘expect’, ‘harm’, ‘help’, ‘kiss’, ‘look at’, ‘meet’, ‘push’, ‘read’, ‘stab’, ‘wait for’.” (Catford 1976:44)

- A subclass to single out: Verbs of surface contact by impact are not transitive in many languages (a subset of Tsunoda’s non-resultative verbs with direct effect on patient).

Lhasa Tibetan counterparts of *break*, *cut*, and *kill* are obligatorily transitive, but the counterpart of *hit* is not: argument denoting surface contacted takes a locative marker (DeLancey 1995).

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

Concepts expressed by other English surface contact verbs involve verb-noun combinations.

(31) 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))

English sometimes uses this option as well.

(32) I gave Lobsang a kick (= ‘I kicked Lobsang’)  
 (cf. \*I gave the window a break.)

Ingush also uses verb-noun combinations to express the counterparts of some English surface contact verbs (Nichols 1982:447, 1984:188). Again the surface contacted is expressed in an oblique case—a case-marking pattern common across Caucasian languages (Nichols 1984:188).

(33) *tuop tuoxan* ‘rifle hit’ means ‘shoot’, not ‘beat with a rifle’ (Nichols 1984: 189).

Even in English, these verbs allow either the surface or the instrument as their object.

(34) a. Lindsay hit the fence with a stick.  
b. Lindsay hit the stick against the fence.

(35) a. Taylor beat the wall with his fists.  
b. Taylor beat his fists against the wall.

IMPLICATION: A theory of argument realization should account for the systematicity in what must or may be a transitive verb,

Yet, some approaches (e.g., Dowty’s 1991 proto-roles) assume a verb’s transitivity is GIVEN.

OVERCOMING THE CHALLENGE: As with context dependence, overcoming this challenge requires a theory of argument realization that is sensitive to the relationship between a verb’s coarguments: it is these relations that distinguish the core transitives from other two-argument verbs.

(36) 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)

## 6 Unifying these challenges

Hawkins (1985) suggests a unifying perspective on these challenges: They reflect differences in the degree of SEMANTIC TRANSPARENCY languages show in argument realization.

A language which limits subjects to agents and objects to patients—or the class of transitive verbs to agent-patient verbs—shows a more TRANSPARENT semantics-syntax mapping than one which doesn’t since particular morphosyntactic notions are uniquely paired with specific semantic notions.

From this perspective, English is less semantically transparent than some other languages:  
e.g., the subject could be realizing one of a range of semantic roles.

## 7 A related challenge: The breadth of object choices available to a verb

Semantic transparency (or the lack thereof) also manifests itself in object choices.

### 7.1 Crosslinguistic diversity in the semantic range of objects

English allows a wide range of semantic roles to be realized as objects,  
both across verbs and with a given verb (Levin 1999).

(37) The engineer built the bridge. (effected object/factitive; cf. Fillmore 1968)  
The engineer destroyed the bridge. (patient/consumed object)  
The engineer widened the bridge. (patient/incremental theme; cf. Dowty 1991)

The engineer moved the bridge. (theme)  
 The engineer washed the bridge. (location/surface)  
 The engineer hit the bridge. (location; cf. Fillmore 1970)  
 The engineer crossed the bridge. (path)  
 The engineer reached the bridge. (goal)  
 The engineer left the bridge. (source)  
 The engineer saw the bridge. (object of perception)  
 The engineer hated the bridge. (stimulus/target or object of emotion)  
 (Levin 1999)

- (38) a. Kelly sewed.  
 b. Kelly sewed bows on the costume.  
     Kelly sewed the costume with bows.  
 c. Kelly sewed the lining to the skirt.  
     Kelly sewed the lining and skirt together.  
 d. Kelly sewed the piece of silk into a ball gown.  
     Kelly sewed a ball gown out of the piece of silk.  
 e. Kelly sewed her fingers to the bone.  
 f. Kelly sewed her way to fame.

- (39) Kim whistled.  
 Kim whistled a tune.  
 Kim whistled a warning.  
 Kim whistled her appreciation.  
 Kim whistled a piercing whistle.  
 Kim whistled her way through difficulties.  
 (Rappaport and Levin 1998)

But English may be unique: Not all languages allow such variety, across verbs or with a given verb.

On the basis of a more limited set of data, Van Voorst (1996) suggests that English has the broadest semantic range of objects, French next, Dutch next.

- (40) a. FRENCH: write letter/check, \*ski the Rockies, chew meat, bite-REFL tongue  
 b. DUTCH: write letter/\*check, \*ski the Rockies, chew (on) meat, chew on gum, bite  
     \*(on) tongue

## 7.2 A subtle manifestation of this diversity: Lexical specificity

In English, a verb may have a range of objects, so various semantic notions are realized as objects.

Other languages may use distinct verbs where English has one, with the choice among them governed by the choice of object. Thus, a given verb tends to show a single choice of object. As Plank (1985) puts it, in such languages verbs seem to AGREE SEMANTICALLY with their objects.

A SIMPLE EXAMPLE: English *search* is translated by French *chercher* ‘search for a THING’ and *fouiller* ‘search in a PLACE’ (Gougenheim 1975).

IMPLICATION: In English, distinct semantic notions might be in competition for objecthood when they cooccur, while in languages with “semantic agreement” there is not competition for objecthood.

CONSEQUENCE: Semantic agreement proves to be a strategy for maintaining semantic transparency.

### 7.3 Another example: Effected and affected objects

English has some verbs which take only effected objects, as in (41), and others that may take affected or effected objects, as in (42); the latter tend to be basically activity verbs.

- (41) build, construct, create, design, fabricate, manufacture, synthesize, ...
- a. The engineer built an innovative house out of recycled materials.
  - b. \*The engineer built recycled materials into an innovative house.
- (42) bake, carve, grind, sew, spin, weave, whittle, ...
- a. Taylor carved the chunk of wood into a dog.
  - b. Taylor carved a cat out of the chunk of wood.

In Spanish, effected objects are primarily found with verbs whose meaning includes a notion of creation; when the verb emphasizes the activity over the creation, then effected objects are not possible, contrasting with English (Martínez Vázquez 1998).

- (43) Escribió unas palabras.  
'S/he wrote some words.' (Martínez Vázquez 1998:259, (66))
- (44) a. Rayó/grabateó un papel.  
'S/he scratched/scrawled on paper.'
- b. \*Rayó/grabateó unas palabras.  
'S/he scratched/scrawled some words.' (Martínez Vázquez 1998:259, (68))

A single English verb may be translated into two distinct, morphologically-related German verbs, one taking an affected, and the other an effected object (Hawkins 1985; Plank 1985):

- (45) a. ein Grab/ein Loch/einen Tunnel graben  
'to dig a grave/a hole/a tunnel'
- b. den Boden umgraben/Kartoffeln ausgraben  
'to dig the ground/potatoes' (Hawkins 1985:30)

OTHER EXAMPLES (though they may not all represent the same phenomenon):

- English *teach children* translated by a different verb from *teach French* (Workgroup on Functional Grammar 1981; cf. also Kalyuga 2002 on Russian).
- Languages with verbs of dress determined by body part being clothed. (e.g., Japanese, Backhouse 1981; Hebrew, Newman 1983)
- Languages with multiple verbs of putting depending on properties of figure and ground.
- See Plank (1985) for many more examples; also Gougenheim (1975).

- (46) a. On učil menja matematike.  
He-NOM taught me-ACC mathematics-DAT  
'He taught me mathematics.' (Russian; Kalyuga 2002:192)
- b. On prepodaval mne matematiky.  
He-NOM taught me-DAT mathematics-ACC  
'He taught me mathematics.' (Russian; Kalyuga 2002:192)

## 8 A further challenge for argument realization: The morphosyntactic dimension

Languages differ in terms of their morphosyntactic resources, and these differences must be taken into account in formulating a theory of argument realization.

### 8.1 Delineating the challenge

AN EXAMPLE: The status of “first”—or “inner”—object in the English double object construction.

THE QUESTION: Should “first object” be considered a type of direct object, as its name suggests, and, thus, taken to be comparable to the object of English transitives?

Or, is it better taken to be analogous to the dative NP of languages like Russian or German?

(47) Lacey gave a box of candy to Leigh.

(48) Lacey opened a box of candy.

(49) Ja        dal        Ivanu        knigu.  
I.NOM    give.PST   Ivan.DAT    book.ACC  
'I gave Ivan a book.' (Russian)

IMPLICATIONS FOR ARGUMENT REALIZATION:

— The object option means a wider set of semantic notions maps to object in English than in Russian or German.

— The dative option might make the mapping across these three languages more comparable. (Will revisit this question in a later lecture.)

MORE GENERALLY: Language-specific factors whose significance needs to be better understood:

- the problem of indirect object/first object/dative case
- the availability of serial verbs or verb-verb compounds
- coding options trade-offs: case-marking, agreement, word order
- differences in the inventory of adpositions or case-markers
- differences in the transitive verb inventory
- differences in fine-grainedness of verb meaning

WHY DOES THIS MATTER?

A failure to appreciate dimensions of crosslinguistic variation in argument realization may suggest languages are more diverse than they actually are.

A SIMPLE EXAMPLE: Serialization in some languages serves a function analogous to the use of datives/obliques in others.

(50) “In these languages [= the West African languages Ijo, Twi, and Yoruba], the function of serialisation seems to be to permit additional arguments to be associated with semantically 3-place verbs where the syntax allows a maximum of two arguments per verb. Serialisation is thus a strategy for increasing the number of arguments associated with the main verb of a sentence.” (Sebba 1985:124)

(51) A    kownu    seni    den        asi        gi        mi  
the    king    send    the-PL    horse    give    me  
'The king sent me the horses.' (Sranan; Sebba 1985:129, (36))

- (52) A teki a aksi fala a bon  
 he take the axe fell the tree  
 ‘He felled the tree with an axe.’ (Sranan; Sebba 1985:129, (34))

## 8.2 A case study: The crosslinguistic expression of motion events

How different are French and English in the way that they describe events of motion to a goal?

THE RECEIVED STORY: These languages differ with respect to Talmy’s (1975, 1985) typology:  
 French is a “path” (V-framed) language and English a “manner” (S-framed) language.

THE LEXICALIZATION OF COMPONENTS OF MOTION EVENTS IN A VERB:  
 Lexicalization of motion and path: e.g., *arrive, ascend, depart, descend*  
 Lexicalization of motion and manner/cause: e.g., *amble, jog, walk, swim*

Talmy (1975, 1985) proposes that languages vary as to which pattern they use:  
 In English, verbs of motion typically lexicalize motion and manner.  
 In French and Spanish, verbs of motion lexicalize motion and path.

- (53) Anne ran/jogged/strolled to the park.
- (54) Anne va au parc.  
 Anne goes à.the park  
 ‘Anne goes to the park.’ (French)
- (55) Anne court au parc.  
 Anne runs à.the park  
 ‘Anne runs at the park.’ (French; location interpretation only)
- (56) a. An old woman hobbled in from the back.  
 b. Une vieille femme arriva en boitant de l’arrière-boutique.  
 an old woman arrived in limping from the back-store  
 (French; Vinay & Darbelnet 1958:105)

Slobin (1991) proposes that these differences among languages in argument realization reflect differences among them in the construal of the event: “thinking for speaking”.

But are these two languages so different?

- English allows path verbs to describe directed motion.

- (57) Anne went to the park.

- French allows some manner verbs to describe directed motion events.  
 (See Pourcel and Kopecka (2006) for an extensive list of options available in French.)

— By using “event” delimiters such as *jusqu’à* ‘until’ (cf. Japanese; Beavers 2003, 2004)

- (58) La cire coule jusqu’au/\*au bord de la table.  
 The wax flows until-à.the/\*à.the edge of the table  
 ‘The wax flowed to the edge of the table.’ (French; Cummins 1996)

— By expressing the direction in a subordinate clause.

- (59) L'enfant sautille en allant à l'école.  
the child skips in going à the school  
The child is skipping to school. (Pourcel and Kopecka 2006:47, (62))

— By inferring the goal of motion when a locative PP is used; cf. English (Nikitina 2004).

- (60) Allez, courons dans la maison!  
go-IMP-2PL run-PRES-1PL in the house  
'Come on, let's run in the house!' (Stringer 2005:63)

- (61) Casey ran in the room. [= Casey ran into the room]

What is the nature of the difference?

A language's lexicalization pattern may reflect (i) the elements of meaning that can be lexicalized by a verb in that language and/or (ii) the compositional devices available.

Specifically, French does not appear to have an allative preposition that allows paths to be composed with manner of motion verbs (Levin and Song 1998; Beavers, Levin, and Tham 2006).

(An alternative proposal: French disallows productive N-N compounding and, concomitantly lacks certain types of complex predicate formation; Beck and Snyder 2001, cf. Snyder 2001.)

## 9 A Conceptual Challenge for Argument Realization

THE CONTEXT FOR SOLUTIONS TO ARGUMENT REALIZATION:

The relevant generalizations map semantic notions onto syntactic notions.

- (62) UNIVERSAL ALIGNMENT HYPOTHESIS: There exist principles of UG which predict the initial [grammatical] relation borne by each nominal in a given clause from the meaning of the clause. (Perlmutter & Postal 1984:97)

A DESIDERATUM: The semantics-syntax mapping should PRESERVE at least some facets of the semantic representation in the syntax.

This assumption is pervasive, though often left implicit (e.g., the notion of semantic transparency). Acknowledging it provides insight into some argument realization phenomena and helps to understand and evaluate approaches to argument realization.

A common approach to the semantics-syntax mapping that satisfies this desideratum:

AN EQUIVALENCE CLASS PRESERVING MAPPING: A mapping that treats each equivalence class of arguments (i.e., arguments with the same semantic role) in the same way.

- (63) Agents are subjects, patients are objects.

THE CHALLENGE: Even putting aside disagreement about the best characterization of the relevant semantic and syntactic notions, satisfying this desideratum in this way proves to be a challenge:

- There is a discrepancy between the richness and variety of semantic notions and the paucity of syntactic notions they are mapped onto (subject, (first, second) object, indirect object, oblique).
- Given this, a many-to-one mapping might seem unavoidable; in fact, the mapping is actually many-to-many: e.g., a wide range of semantic roles can be realized as subjects and certain semantic roles can have more than one realization. (And a further complication, context dependence and related phenomena.)

CONSEQUENCE: A theory of argument realization must take a stand on how a semantics-syntax mapping equalizes the number of semantic and syntactic distinctions.

OPTIONS WITHIN AN EQUIVALENCE CLASS PRESERVING MAPPING:

- reduce the number of semantic distinctions (e.g., proto-roles)
- augment the number of syntactic distinctions (e.g., abstract syntactic structure).

AN ALTERNATIVE: An approach suggested by thematic hierarchies:

A PROMINENCE PRESERVING MAPPING: A mapping that preserves the prominence relations encoded in the lexical semantic representation in the syntax.

- (64) the syntactic prominence of an argument is determined (or largely determined) by its thematic prominence (Jackendoff 1992:22)

EXAMPLE: Subject choice in English

- (65) If there is an A [=Agent], it becomes the subject; otherwise, if there is an I [=Instrument], it becomes the subject; otherwise, the subject is the O [=Objective, i.e., Theme/Patient]. (Fillmore 1968:33)
- (66) The argument of a verb bearing the highest-ranked semantic role is its subject.  
Agent > Instrument > Theme/Patient

This approach can deal with many-to-many mapping, while differently satisfying the desideratum.

However, it presupposes lexical semantic and syntactic representations over which prominence relations among arguments can be defined, as well as an understanding of what prominence means with respect to each representation.

THE CHALLENGE: Defining syntactic and also SEMANTIC prominence (see future lectures).

## 10 Conclusions

- A theory of argument realization faces various challenges from within and across languages.
- Crosslinguistic variation in argument realization may reflect differences in degree of surface semantic transparency.
- Theories of argument realization are developed in the context of the assumption that the semantics-syntax mapping preserves meaning.

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