

Thematic Role Specificity in Argument/Oblique Alternations

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1 Introduction

- I investigate here the lexical semantic basis of argument/oblique alternations (Levin 1993).
 - (1) a. John loaded the hay onto the wagon.
 - b. John loaded the wagon with the hay. (Locative alternation)
- In such alternations one participant varies in terms of **morphosyntactic prominence**:
 - (2) Direct arguments are more **morphosyntactically prominent** than obliques.
 - (3) **Markedness Hierarchy** **Accessibility Hierarchy**
 Nom < Acc < Dat < Oblique Subj < DO < IO < Oblique
 (Croft 2003) (Keenan and Comrie 1977)
- I focus here semantic properties — entailment differences between variants.
- In (1) the direct objects are holistically changed (all moved/affected), modulo determiners, but the obliques are underspecified (Fillmore 1968, 1977, Anderson 1971, Dowty 1991):
 - (4) (a) i. John loaded the hay onto the wagon, filling the entire wagon.
 - ii. John loaded the hay onto the wagon, and still had room for the grain.
 - iii.#John loaded the hay onto the wagon, and still had two bales left over.
 - (b) i. John loaded the wagon with the hay, leaving none behind for the horses.
 - ii. John loaded the wagon with the hay, and still had two bales left over.
 - iii.#John loaded the wagon with the hay, and still had room for the grain.
- I argue these entailment differences arise from subtle variations in **thematic roles**:
 - Thematic roles are not atomic but are sets of entailments (Dowty 1991).
 - Thematic roles are structured by “specificity,” i.e. how many entailments they have.
- The mapping from thematic roles to realizations is principled:

Obliques have thematic roles that are underspecified for thematic role information encoded by direct arguments.
- This forms the basis of an entailment based approach to alternations.
- I ignore here two other factors known to govern alternations:
 - Topicality (Givón 1979, 1984, Keenan 1985, Arnold et al. 2000, Wasow 2002).
 - Animacy, humanness, person — what Evans (1997) calls “cast” properties.

2 Semantic Effects in Argument/Oblique Alternations

- Many alternations exhibit similar entailment patterns, *not always to do with affectedness*.
 - (5) **Conative alternation** (Underspecified affectedness)
 - a. John slashed the canvas. (canvas affected)
 - b. John slashed at the canvas. (canvas underspecified for affectedness)
 - (6) **Dative alternation** (Underspecified possession/goal)
 - a. John threw/mailed Mary the ball. (Mary a goal and (intended) possessor)
 - b. John threw/mailed the ball to Mary. (Mary not necessarily a possessor)
 - c. John threw the ball at Mary. (Mary not necessarily a goal or possessor)
 - (7) **Reciprocal alternation** (Underspecified activeness/motion)
 - a. The truck and the car collided. (both car and truck in motion)
 - b. The truck collided with the car. (car underspecified for motion)
 - (8) **Preposition drop alternation** (Underspecified holistic traversal)
 - a. John climbed the mountain. (entire mountain traversed)
 - b. John climbed up the mountain. (entire mountain not necessarily traversed)
 - (9) **Search alternation** (Underspecified existence presupposition)
 - a. John hunted a unicorn in the woods. (unicorn presupposed to exist)
 - b. John hunted (in) the woods for a unicorn. (unicorn might not exist)
 - In all cases the oblique is **underspecified** for something specified of the direct argument (e.g. holistic affectedness, affectedness, activeness, possession, existence presupposition).

3 Semantic Prominence - Structural or Semantic?

- The earliest work on this assumed that alternations are different ways of syntactically realizing the same thematic roles (Hall (Partee) 1965, Gruber 1965, Fillmore 1968). More recent work derives alternations instead from lexical semantic representations.
- The two variants in (10) represent two distinct event types (see Levin and Rappaport 1988, Pinker 1989, Jackendoff 1990, Gropen et al. 1991, Goldberg 1995, Baker 1997, Koenig and Davis 2004).
 - (10) a. John loaded hay onto the wagon. (change-of-location, cf. *put*)
[*x* cause [*y* to come to be at *z*]/LOAD]
 - b. John loaded the wagon with hay. (change-of-state, cf. *fill*)
[[*x* cause [*z* to come to be in STATE]] BY MEANS OF [*x* cause [*y* to come to be at *z*]/LOAD]](cf. Levin and Rappaport 1988, (24), p.26)
- Each structure makes a different participant more prominent (“higher/earlier”) in the lexical semantic representation — I refer to this as **semantic prominence**.

5 Some Alternations and Non-Alternations

- Two entailments relevant for determining the proto-patient in locative verbs:
 - Affectedness (“causally affected by another participant”)
 - Holistic Affectedness (ability to be “incremental theme” modulo determiners)
- *Load* associates the following sets of entailments with the location and locatum participants.

$$(14) \quad \text{a. LOCATUM}_{load} = \left\{ \begin{array}{c} \text{Affected} \\ \text{Holistic} \\ \dots \\ \text{locatum properties} \\ \dots \end{array} \right\} \quad \text{b. LOCATION}_{load} = \left\{ \begin{array}{c} \text{Affected} \\ \text{Holistic} \\ \dots \\ \text{location properties} \\ \dots \end{array} \right\}$$

- Both qualify as the proto-patient and thus may be direct object. This tells us that the direct object of *load* inherently encodes the following role:

$$(15) \quad \text{Obj}_{load} := \left\{ \begin{array}{c} \text{Affected} \\ \text{Holistic} \\ \dots \end{array} \right\}$$

- *With* and *onto* may also encode proto-patients (assuming they are generally associated with proto-patients just like object), but they encode “weaker” roles *sans* holistic affectedness.
- The space of realization possibilities for the patient-like participants of *load* is:

$$(16) \quad \text{a. Obj}_{load} := \left\{ \begin{array}{c} \text{Affected} \\ \text{Holistic} \\ \dots \end{array} \right\} \quad \text{b. with}_{load} := \left\{ \begin{array}{c} \text{Affected} \\ \dots \end{array} \right\} \quad \text{c. onto}_{load} := \left\{ \begin{array}{c} \text{Affected} \\ \dots \end{array} \right\}$$

- The locative alternation arises from a *conflict of resources*: given the limited options in (16), only one participant may be the direct object.
- The remaining participant is realized by an appropriate “next best option,” inherently “down-grades” the participant’s thematic role to one where holistic affectedness is not known.
- But why should *with* and *onto* encode these roles? Is there a pattern?
- Consider *cut* and *break* (not normally considered a locative alternation):

- (17) a. John cut/broke his finger on the rock. (finger affected, rock not necessarily)
 b. John cut/broke the rock with this finger. (rock affected, finger not necessarily)

- Here the direct objects are affected but not necessarily holistically so (cf. *break/cut up*). The obliques are underspecified (Fillmore 1970, 1977).

$$(18) \quad \text{a. Obj}_{cut/break} := \left\{ \begin{array}{c} \text{Affected} \\ \dots \end{array} \right\} \quad \text{b. with}_{cut/break} := \{ \dots \} \quad \text{c. on}_{cut/break} := \{ \dots \}$$

- For both *cut/break* and *spray/load* the oblique is **minimally underspecified**.

Alignment of roles to realization for a given verb:
i. Direct argument markers - roles determined by prototypicality
ii. Oblique markers - roles form minimal contrasts with direct arguments

- Why the entailments line up as they do is the deeper question I don't address here.
- Alternation arises from symmetric role assignment and limited morphosyntactic resources. But not all locative verbs alternate:

- (19) a. John put/*filled the water into the bucket.
 b. John filled/*put the water with the bowl.

- Previous accounts (cf. Levin and Rappaport 1988) argue that *put* is simply change-of-location and *fill* simply change-of-state, preventing alternations but also not capturing the entailments.
- On my approach the non-alternation is due to asymmetric thematic role assignments, thus only one can be the direct object, preventing alternations and capturing the semantics.

(20)	LOCATION	LOCATUM	Decomposition Approach
<i>cut</i>	{Affected}	{Affected}	N/A
<i>put</i>	{Affected}	{Affected Holistic}	[x cause [y to come to be at z]]
<i>fill</i>	{Affected Holistic}	{Affected}	[x cause [z to come to be in state]] by means of ...
<i>load</i>	{Affected Holistic}	{Affected Holistic}	[x cause [y to come to be at z]] or [x cause [z to come to be in state]]...

- Why different locative verbs should lexicalize different assignments is more of a mystery (see Dowty 1991, Gropen et al. 1991 for discussion).
- A different situation occurs when there are more realization possibilities than participants, as in the conative and reciprocal alternations:

- (21) a. John slashed (at) the curtain.
 b. $Obj_{slash} := \{Affected\}$ c. $at_{slash} := \{\dots\}$

- (22) a. The truck and the car collided/The truck collided with the car.
 b. $Subj_{collide} := \{Active\}$ c. $with_{collide} := \{\dots\}$

- Here any option is acceptable for realizing the single participant, producing an alternation but with a commensurate difference in thematic role.

6 Conclusion and Further Work

- In summary:
 - Verbs associate sets of entailments with their participants.
 - Direct arguments realize the most proto-agent/patient/recipient sets of entailments.
 - Obliques realize minimally contrastive less prototypical sets of entailments.
 - Participants get their roles dependent on how they are realized.
 - Alternations arise from two sources:
 - i. too few direct argument positions for multiple participants
 - ii. too many realization options for single participants
- I should stress again that though I focused on holistic affectedness in this discussion, this is just one of numerous semantic fields that show underspecificity relationships.
- Not all alternations show semantic contrasts, but many do, always with a consistent correlation. This approach gives the elegant principle discussed above some semantic teeth.

Semantic prominence is reflected by morphosyntactic prominence.

where

A participant is more **semantically prominent** if it has a **more specific thematic role**.

- In other words, *languages encode most economically what you say most about*.
- This generalization has cross-linguistic validity in other argument/oblique oppositions (cf. accusative/dative causee marking in Japanese (Shibatani 1973) and French (Authier and Reed 1991), dative/oblique goal-marking in so-called “verb-framed” languages (Beavers 2004), and Tongan absolutive/oblique antipassives (Churchward 1953, Chung 1978) show similar underspecificity relationships), suggesting that it has universal applicability.
- There are several further issues not discussed:
 - Which prepositions show up where? Presumably based on general association of oblique markers with proto-roles in combination with inherent semantics.
 - Why do the properties line up the way they do? Presumably to do with the specific relevant entailments (e.g. holistic affectedness entails affectedness but not vice versa).
 - Lexical idiosyncrasy: why do some verbs allow alternations and others do not? Avoiding vacuous alternations and the effect of manner are relevant.
 - Pragmatic and “cast” effects: semantics is just one piece of a much bigger picture.

7 Acknowledgments

I'd like to acknowledge the support of the LinGO project at CSLI. I'd also like to thank Itamar Francez, Philip Hofmeister, Martin Kay, Paul Kiparsky, Beth Levin, Jean-Philippe Marcotte, Tanya Nikitina, Ivan Sag, Tom Wasow, and Arnold Zwicky for their thoughts and suggestions. Any oversights or omissions are entirely my own.

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