

Semantic Prominence and Argument Realization V

Structuring Event Structure

The investigation of the thematic hierarchy showed that structured semantic representations give rise to semantic precedence relations among arguments, such as the priority of cause for subjecthood and patient (entity that changes state) for objecthood.

This lecture will examine other benefits of using a structured semantic representation, or event structure, for argument realization.

Event structures — roughly, predicate decompositions — have two important STRUCTURAL design properties that make them effective semantic representations:

- They distinguish a root (i.e., “core meaning”) from an event structure “template”, a combination of primitive predicates, defining an event type.
- They include a “subeventual” analysis: an event may include subevents, so that complex events may be distinguished from simple events.

Both properties also characterize now widely used “syntacticized” semantic representations.

SUPPORT: CASE STUDIES INVOLVING ARGUMENT REALIZATION

- The grammar of wiping and breaking
- The semantic underpinnings of transitivity and objecthood
- Possible object alternations
- (The distribution of “fake” reflexives in resultatives; see L&RH 1999, RH&L 2001)

1 A property fundamental to the design of event structure: The simple/complex event distinction

Just as sentences are syntactically analyzed as being simple or complex—that is, themselves embedding a well-formed sentence—so have the linguistic representations of events been said to be analyzable as simple or complex—that is, embedding the representation of an event.

The interpretation of the simple/complex event distinction adopted here:

- A COMPLEX EVENT consists of two subevents, each with a well-formed event structure.
- A SIMPLE EVENT consists of a single subevent.

A BENEFIT OF ENCODING SUBEVENTUAL ANALYSIS

Event complexity gives rise to prominence relations among arguments and thus can account for argument realization priorities such as those manifested in context dependence.

1.1 Often-cited evidence for complex events: Adverbial scope

Explanation of ambiguities in sentences with some adverbials (e.g., *again*, *almost*, *nearly*):

- the sentences have a complex event structure and
- the adverbials have two possible scopes: over the entire event or an embedded event (e.g., Morgan 1969, McCawley 1973, Dowty 1979, von Stechow 1995, 1996).

- (1) Tracy opened the door again.
- a. REPETITIVE: [*again* [[Tracy ACT] CAUSE [BECOME [door OPEN]]]]
‘Tracy yet again performed the activity of opening the door.’
 - b. RESTITUTIVE: [[Tracy ACT] CAUSE [BECOME [*again* [door OPEN]]]]
‘Tracy brought it about that the door was once more open
(though she may not have opened the door previously).’

In (1), the complex event is taken to be a causative event, analyzed in terms of a predicate CAUSE taking two events as arguments: ‘*causing event* CAUSE *result event*’.

1.2 Event complexity and lexical aspect

Complex events are best defined as causative events rather than in terms of traditional aspectual notions such as “accomplishment” or “telic”, despite proposals to this effect.

Based on the discussion in Dowty (1979, Chapter 2), many researchers identify the notions “accomplishment” and “causative”, among them Sybesma (1992), Van Valin and colleagues (see Foley & Van Valin 1984; Van Valin 1990; but contrast Van Valin & LaPolla 1997). However, various subsequent studies affirm the independence of telicity and causation (Abusch 1986; Hay, Kennedy & Levin 1999; Pustejovsky 1991; Van Valin & LaPolla 1997; see also Dowty (1979, Chapter 3)).

- The simple/complex event distinction crosscuts traditional aspectual classes.
- Not all complex events (i.e., causatives) are accomplishments.

Causation cannot be reduced to any aspectual notions (McCawley 1976).

Verbs of every aspectual type have related causatives,
and specifically, causatives of certain atelic non-change of state verbs are also atelic.

- (2) a. Robin flew a kite for an hour/#in an hour.
b. Pat bounced the ball for ten minutes/#in ten minutes.

— Nor are all accomplishments complex events.

Causative analyses have been proposed for manner of motion verbs with goal phrases (e.g., *Kim jogged to the beach*) (Croft 1991; Van Valin 1990) and for verbs of consumption with count noun objects (e.g., *Sandy ate the mango*) (Jackendoff 1990), but these analyses have been shown to be inadequate (Levin 2000; L&RH 1999; Van Valin & LaPolla 1997).

- Accomplishments do not all pattern uniformly with respect to argument realization, with complex events (e.g., *break*) patterning differently from simple events (e.g., *eat*, *draw*, *read*) (RH&L 2005; see also Lecture Notes IV).

- The simple/complex event distinction has a quasi-aspectual grounding in the notion of “temporal dependence between subevents” (L&RH 1999; RH&L 2001).

The temporal unfolding of the subevents of true causatives can be independent.

- (3) a. The widow murdered the old man by putting arsenic in his coffee.
(The act of putting arsenic in the coffee doesn't extend to the point of death.)
- b. Casey's persistent banging broke the window.
(The banging may have been protracted, but the breaking is punctual.)
- c. Terry shocked Sandy by deciding to run for office.
(Terry's decision could have been made long before Sandy hears of it.)

In contrast, although some simple events might appear to have internal structure (e.g., *Kim jogged to the beach*), their perceived subevents (e.g., a jogging event and a going to the beach event) are necessarily temporally dependent — they must unfold together in time — and from a linguistic event structure perspective the event is treated as a simple event (L&RH's 1999 “coidentified” events).

2 Another fundamental property: The bipartite view of verb meaning

The organization of the lexicon into grammatically-relevant semantically-coherent verb classes presupposes that a verb's meaning can be factored into two parts:

- A part shared by all members of the same verb class.
- A part that distinguishes among the members of a class.

- (4) VERBS OF CHANGE OF STATE: bend, break, crack, dry, empty, freeze, harden, lengthen, melt, open, warm, widen, ...

- (5) [[x ACT] CAUSE [BECOME [y <RES-STATE>]]]
dry: [[x ACT] CAUSE [BECOME [y <DRY>]]]
empty: [[x ACT] CAUSE [BECOME [y <EMPTY>]]]
warm: [[x ACT] CAUSE [BECOME [y <WARM>]]]

KEY IDEA: Verb meanings are bipartite: they can be represented using:

- one of a small set of event types defined in terms of primitive predicates
- one of an open-ended set of “roots” representing a verb's idiosyncratic meaning.

(Grimshaw 2005, Hale & Keyser 2002, Jackendoff 1983, 1990, L&RH 1995, Marantz 1997, Mohanan 1994, Mohanan & Mohanan 1999, Pesetsky 1995, Pinker 1989, RH&L 1998)

- *Event structure*: Most important distinction is whether an event structure is complex, consisting of two subevents, or simple, consisting of a single subevent (L&RH 1999).

- (6) a. Complex event structure:
e.g., [[x ACT<MANNER>] CAUSE [BECOME [y <RES-STATE>]]]
- b. Simple event structure:
e.g., [x ACT<MANNER>]

- *Root*: Most important is a root's ontological categorization, chosen from a fixed set of types (e.g., state, result state, thing, stuff, place/container, manner, instrument).

2.1 Integrating roots into event structures

- Roots are systematically associated with event structures.

EVIDENCE: Denominal verbs demonstrate clear associations between meaning of base noun and meaning of related verbs (Clark & Clark 1979).

Associations probably are not linguistic, but rather reflect general cognitive principles.

- (7)
- If N names a container, V means ‘put something in that container’.
bag, bottle, cage, garage, pen, pocket, stable, ...
 - If N names a thing/stuff, V means ‘put that thing/stuff someplace’/
‘provide someplace with that thing/stuff’.
butter, carpet, diaper, garland, harness, saddle, salt, ...
 - If N names an instrument, V means ‘use that instrument for its purpose’.
bicycle, brush, microwave, rake, shovel, spear, staple, ...

Basic event structure(s) associated with a verb is determined by its root’s ontological type.

- (8)
- instrument \rightarrow [x ACT_{<INSTRUMENT>}]
(e.g., *brush, hammer, saw, shovel, ...*)
 - manner \rightarrow [x ACT_{<MANNER>}]
(e.g., *jog, run, creak, whistle, ...*)
 - result (i.e., externally caused) state (Hale & Keyser 2002, L&RH 1995) \rightarrow
[[x ACT] CAUSE [BECOME [y <RES-STATE>]]]
(e.g., *break, close, crack, open, split, ...*)

Roots are integrated into event structures as arguments or as modifiers of predicates;
roots are italicized and in angle brackets; notated via subscripts when modifiers.

- Event structure chosen to ensure that the basic elements of meaning encoded in a root are given linguistic expression (RH&L 1998).

EXAMPLE: Means/manner vs. result verb distinction (L&RH 1991, RH&L 1998)

A distinction within many apparent verb classes based on a convergence of meaning/behavior:

- Means/manner verbs: specify manner of carrying out an action (e.g., *pound, sweep*)
- Result verbs: specify result of an action (e.g., *remove, put, cover, empty, clean*)

	Means/Manner	vs.	Result
— Verbs of Removal:	<i>shovel</i>	vs.	<i>empty</i>
— Verbs of Putting:	<i>smear</i>	vs.	<i>cover</i>
— Verbs of Combining:	<i>shake</i>	vs.	<i>combine</i>
— Verbs of Killing:	<i>stab</i>	vs.	<i>kill</i>

Means/manner verbs often describe actions performed to bring about some conventionally associated result (cf. *sweep clean*), even if result not lexically entailed (Talmy 2000). Result verbs do not specify the manner in which the associated result is achieved, though there may be a conventional way of doing this (cf. *clean a floor/sweep a floor clean*). (Perception of unified verb class from conventional means/manner–result associations.)

- A root licenses an event structure according to meaning it encodes; hence, association of:
- a means/manner root with a simple event structure;
 - a result root with a complex event structure, consisting of causing and result subevents.

2.2 Consequences of the bipartite view of verb meaning

- Allows for a finite characterization of an infinite set of verb meanings.
- Allows for crosslinguistic similarities in the set of verb classes, while allowing crosslinguistic divergences in the class members.
- Localizes arbitrary complexity in verb meaning in the root.
- Defines set of possible semantic roles, as well as natural sets of cooccurring arguments.

3 The licensing of arguments

3.1 The root participates in determining number and status of arguments

As means/manner verbs, *run* and *pound* should have same event structure, yet they have a different number of arguments: one for *run*, two for *pound*.

- (9) a. Pat ran.
 b. Leslie pounded the metal.

WHY? Difference must reflect the nature of the associated roots.

Each root must specify the minimum number of participants in associated event:

e.g., an event of running minimally involves the runner.

e.g., an event of pounding minimally consists of a pounder and a surface.

(see also Goldberg 1995, Grimshaw 2005, van Hout 1996)

3.2 Root participants and event structure positions

Most participants associated with roots are paired with event structure positions.

Subjects of *run* and *pound* realize such event structure positions.

However, not all root participants are paired with event structure positions.

The object of *pound* exemplifies such a PURE ROOT PARTICIPANT.

(cf. Van Valin's (1990) multiple-argument activities with one macrorole;

Wunderlich's (1997) nonstructural arguments)

- (10) a. Pat ran
 [x ACT<RUN>]
 b. Leslie pounded the metal.
 [x ACT<POUND> y]

SUMMARY: Two types of NP arguments in the syntax (cf. Grimshaw 2005):

- Those that realize a root participant associated with an event structure position.
- Those that realize a root participant with no place in event structure (underlined).

4 One-/two-argument activities/semelfactives have same event structure

PREDICTION: Activity/semelfactive verbs should to some extent display same behavior independent of whether their roots are associated with one or two participants.
WHY? The root is always associated with the same event structure template.

SUPPORT FOR THE PREDICTION:

- Actor participant is always the subject (i.e., one-argument activity/semelfactive verbs are unergatives).
- Some two-argument activity verbs allow *ss-* causatives in Berber (Alalou & Farrell 1993).
- One- and two- argument activity/semelfactive verbs are found in resultative constructions, including the *way* construction (cf. Carrier & Duncan 1992).
- One- and two- argument activity/semelfactive verbs allow *out-* prefixation (cf. Bresnan 1982; Irube 1984).

One-argument activity/semelfactive verbs:

(11) Reflexive Resultative:

- a. In the drawing rooms Katie and Eliza laughed themselves into fits. (M. Wesley, *A Dubious Legacy*, Viking, New York, 1992, p. 270)
- b. We curled up together like lost children who have finally cried themselves quiet. (K. Kijewski, *Katwalk*, St. Martin's, New York, 1989, p. 68)
- c. Allison had yawned herself into catatonia . . . (B.J. Oliphant, *Death and the Delinquent*, Fawcett, New York, 1992, p. 24)
- d. "Don't use my name," I said, blinking myself awake. (L. Matera, *Havana Twist*, Simon and Schuster, New York, 1998, p. 56)

(12) *Way* Construction:

- a. I grumbled my way to the living room to do my stretches. (S. Paretsky, *Burn Marks*, Delacorte, New York, 1990, p. 114)
- b. But I managed to crawl my way to the road, where I was found. (S. Scopettone, *I'll Be Leaving You Always*, Little, Brown, Boston, 1993, p. 14)
- c. So, after sneezing my way through many little-read tomes in Widener, I told him I had decided to do my research on one of America's great Progressive women reformers, Jane Addams. (J.K. Conway, *True North*, Knopf, New York, 1994, p. 34)

(13) *Out-* Prefixation:

- a. Here was a young girl who could out-strut anything on two legs. (G.F. Edwards, *A Toast Before Dying*, Doubleday, New York, 1997, 169)
- b. Lacing through the place is a cooling creek, outbabbled by the customers, where they chill their beer, vodka and wine. (F.X. Clines, "Tea at Dusk in Tashkent Is a Ritual for Men Alone", *The New York Times*, July 22, 1990, p. 6)
- c. Stockowski and Dixon were outjumped by bigger, stronger girls . . . (J.C. Cotey, "Parents Enjoy Sweat Rewards", *St. Petersburg Times*, July 10, 1999, p. 7C)

Two-argument activity/semelfactive verbs (not all easily allow “unspecified” objects):

(14) Reflexive Resultative:

- a. By that time Sophie had swept and scrubbed herself into a state when she could hardly move. (D. Wynne Jones, *Howl's Moving Castle*, Greenwillow Books, New York, 1986, p. 43)
- b. She slammed herself inside her bedroom. (N. Star, *Up Next*, Pocket Books, New York, 1998, p. 55)
- c. He reads himself quasi-blind each time he researches one of the scholarly browsing books on which he built his reputation. (K.R. Long, “Scholar Casts Skeptic’s Eye on Religious Practices”, *The Stuart News/Port St. Lucie News* (Stuart, FL), January 4, 1997, p. D8)
- d. Thirty-two dairy cows ate themselves to death . . . (“32 Washington Cows Die from Eating Too Much”, *The New York Times*, March 29, 1998, p. 20)
- e. At his current pace, however, Sauerbrun would kick himself into the NFL record book with 120 punts over the course of the 16-game season . . . (S. Mickles, “Murray Ready to End Davis’ Reign”, *The Advocate*, Baton Rouge, LA, October 10, 1997, p. 1D)

(15) *Way* Construction:

- a. . . . I whacked my way through juicy green kiwi, fat, ultra-red strawberries, and pineapple so sweet you wondered why they’d let it leave Hawaii. (D.M. Davidson, *Dying for Chocolate*, Bantam, New York, 1992, p. 7)
- b. I woke because a fly was tickling its way along my leg . . . (N. Gordimer, *The Lying Days*, Signet, New York, 1955, p. 357)
- c. Near the ceiling of Ginny’s bedroom, a family of mice scratched their way into the insulation, preparing a winter nest. (L. Wallingford, *Cold Tracks*, Walker, New York, 1991, p. 137)
- d. . . . it pecked and crept its way along the branch and disappeared into its own hole. (W. Cather, *A Lost Lady*, 1923; Vintage, New York, 1990, p. 18)

(16) *Out-* Prefixation:

- a. I’m no slouch in the food department, but she consistently outordered and outate me. (C. Garcia-Aguilera, *Bloody Shame*, Putnam’s, New York, 1997, p. 4)
- b. “. . . Georgia will have to outscratch and outclaw the Gators just to beat them,” Spurrier said Monday. (T. Barnhart, “Spurrier Defends Comments; Poor-mouthing Is Getting Old”, *The Atlanta Journal and Constitution*, November 12, 1991, p. E1)
- c. “. . . They outhit us and outplayed us. . . .” (D. Ventura, “School Sports; Division 2 North; Danvers Dances”, *The Boston Herald*, June 13, 1999, p. B46)
- d. Whereupon their American Security Bank teammates calmly outtugged their obviously straining opponents . . . (P.S. Canellos, “Jocks of All Trades; Playing the Corporate Games”, *The Washington Post*, July 14, 1986, p. C1)

5 Contribution of event structure and root to argument realization

The two types of event structure vary as to number of structure participants:

- Complex event structures (i.e., two subevents): two structure participants, one per subevent, realized as subject and object.
- Simple event structures (i.e., one subevent): one structure participant, realized as subject; any other arguments are licensed only by root, one of these may be realized as object.

- (17) a. Complex event structure:
e.g., [[x ACT] CAUSE [BECOME [y <RES-STATE>]]]
- b. Simple event structure:
e.g., [x ACT<MANNER> (y)]

CONSEQUENCE: A nonactor argument does not always have the same status.

- When a complex event verb has a root associated with two participants, its nonactor argument realizes a structure participant.
- When a simple event verb has a root associated with two participants, its nonactor argument realizes a pure root participant.
(The actor argument of both realizes a structure participant.)

PREDICT: Objects of simple and complex event verbs should show different properties.

6 Case study I: The grammar of wiping and breaking (RH&L 1998)

Explaining differences in behavior of two classes of two-argument verbs:

- Surface contact verbs (*wipe, rub, scrub, sweep, ...*)
- Lexically simple change of state verbs (*break, dry, melt, open, ...*)

Surface contact verbs show more argument realization options than change of state verbs: (RH&L 1998, Wright & Levin 2000; despite questions raised by Goldberg 2001)

- They allow unspecified objects without recourse to generic, repetitive, or contrastive contexts, change of state verbs don't.
- They take nonsubcategorized objects, change of state verbs don't.

- (18) Unspecified Objects:
- a. Leslie swept/scrubbed (the floor).
 - b. *Kelly broke again tonight when she did the dishes.
- (19) Nonsubcategorized Objects:
- a. Leslie wiped the cloth over the table. (MEANS 'Leslie wiped the table')
 - b. Kelly broke the stick over the fence. (CANNOT MEAN: 'Kelly broke the fence')

Members of these classes of transitive verbs have roots associated with two participants, but their roots are of distinct ontological types, and thus are basically associated with distinct event structures.

- (20) a. Change of state verb: Result state root \rightarrow complex event
 [[x ACT] CAUSE [BECOME [y <RES-STATE>]]]
 b. Surface contact verb: Means/manner root \rightarrow simple event
 [x ACT<MANNER> y]

As a consequence, the verb types contrast as to nature of their nonactor argument:
 — Lexically simple change of state verbs: structure participant.
 — Surface contact verbs: pure root participant.

This difference has repercussions for their argument realization options due to a condition on the event structure-syntax mapping. This condition ensures mapping to syntax preserves facets of event structure.

THE STRUCTURE PARTICIPANT CONDITION: There must be an argument XP in the syntax for each structure participant in the event structure.
 (RH&L 1998:113, (25a); cf. L&RH’s 1999 Argument-Per-Subevent Condition; also Grimshaw & Vikner 1993, van Hout 1996, Kaufmann & Wunderlich 1998)

- Since a surface contact verb has a simple event structure and, thus, only one structure participant, the actor, only this argument is required by the Structure Participant Condition, though its root is associated with two participants.
 The other argument, a pure root participant, does not fall under this condition.

CONSEQUENCES: It can be left unexpressed, giving unspecified object interpretation; other than “normal” objects fine; no reason for object to have consistent semantics.

- Since a change of state verb has a complex event structure with two structure participants, it must have two arguments by the Structure Participant Condition. Its object must realize the structure participant of the second subevent.

CONSEQUENCES: No unspecified objects; choice and interpretation of object is fixed: get uniform semantics (patient), determined by its event structure position.

7 Case study II: Characterizing transitivity and objecthood (Levin 1999)

- Discussions of transitivity recognize a “privileged” or “core” set of transitive verbs; its members have a clear semantic characterization, fitting the “agent act on and cause an effect in patient” mold that is behind the name “transitive”.

Although *break*, *cut*, *destroy*, *kill*, *open* fit this semantic profile, many English transitives do not; these noncore transitives include *hit*, *jiggle*, *kick*, *pound*, *shake*, *stab*.

- Although “patient” and similar semantic roles are considered the prototypical object roles, objects of English transitives bear a wide range of semantic roles; some may not belong to typical role inventories or may not be easily identifiable.

- (21) 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)

- (22) The engineer praised/touched/avoided/owned/studied/visited the bridge.
 The engineer ignored/greeted/chose/advised/met/followed the architect.

- In contrast, subjects are characterizable in terms of a few semantic role types.

A KEY INSIGHT: Members of these transitive classes realize two different event types:

- Core transitives: complex event structure; both arguments structure participants.
- Other transitives: simple event structure;
 one argument is a structure participant, the other is a pure root participant.

CONSEQUENCES FOR OBJECTHOOD:

- The multiplicity of semantic characterizations attributable to objects of transitives.

Objects of core transitives realize a particular event structure position (Grimshaw 2005):
 they realize the structure participant of second subevent of a complex event structure.
 Thus, they have a unified and uniform semantic characterization (so-called “patient” role).

Objects of other transitives realize a pure root participant; can’t be characterized in
 event structure terms; hence, lack of a simple unified semantic characterization.

Such objects can, however, be characterized with respect to the root:

subregularities could arise due to natural classes constituted by verbs with similar
 roots, and, thus, their pure root participants would also form a natural class.

Thus, some classes of pure root participants might show language-specific realizations;
 otherwise, they would have some sort of default realization — in English, object.

- (23) REALIZATION OF PURE ROOT PARTICIPANT FOR RUSSIAN VERBS OF AUTHORITY:
 The pure root participant of Russian verbs of authority is realized as an instrumental
 NP.

- (24) *rukovodit’* ‘rule, direct, manage’, *upravljat’* ‘govern’, *komandovat’* ‘command’, *zavedovat’* ‘manage, be in charge’, *ovladevat’* ‘master’, *vladet’* ‘rule, own’, *dirižirovat’* ‘conduct (an orchestra)’, *verxovodit’* ‘lord it over’ (Dezsö 1982:58-59; Nichols 1975:346-47, 1984:201)

- The source of the subject/object semantic role asymmetry: Subjects, unlike objects, are always structure participants: they realize the argument of an identifiable primitive predicate; hence, their semantic roles are constrained.

8 Case study III: The nature of object alternations

OBJECT ALTERNATIONS: Argument alternations involving an apparently triadic verb, which maintains the same association of an argument with subject, but can express either of its other two arguments as its object, with the third usually expressed as an oblique.

- (25) Locative Alternation — ‘putting’ subtype:
- a. Jill sprayed paint on the wall.
 - b. Jill sprayed the wall with paint.
- (26) Locative Alternation — ‘removing’ subtype:
- a. Jack wiped crumbs off the counter.
 - b. Jack wiped the counter.
- (27) Material/Product Alternation:
- a. Martha carved a toy out of the piece of wood.
 - b. Martha carved the piece of wood into a toy.
- (28) Image Impression Alternation:
- a. Taylor embroidered peonies on the jacket.
 - b. Taylor embroidered the jacket with peonies.
- (29) *With/Against* Alternation:
- a. Sam hit the fence with a stick.
 - b. Sam hit a stick against the fence.

CAVEAT: Assume following L&RH (2002) that the dative alternation is not an object alternation in that the first object in the double object construction is not a true “object” (Baker 1997, Hudson 1992, Marantz 1993, Maling 2001).

THE PROPOSAL:

Roots and event structures both have a part to play in object alternations. Having roots basically associated with simple event structures makes alternations possible. The range of attested alternations arises from the nature of the roots themselves.

8.1 Object alternation verbs basically have a simple event structure

WHY? Such verbs have only a single structure participant, realized as the subject; thus, they have flexibility as to object choice.

That is, object alternations reflect event complexity — or, rather, “simplicity”.

- Semantically, verbs known to alternate are basically means/manner verbs (e.g., they don’t entail a result); that is, they have simple event structures.

- (30)
- a. Locative Alternation (adding): dab, smear, splash, spray, sprinkle, ...
 - b. Locative Alternation (removing): rake, rub, scrub, shovel, sweep, wipe, ...
(these are a subset of the surface contact verbs)
 - c. Image Impression Alternation: emboss, embroider, engrave, paint, stamp, ...
 - d. Material/Product Alternation: carve, knit, sculpt, sew, weave, whittle, ...
 - e. *with/against* Alternation: beat, hit, pound, tap, whack, ...

These verbs show simple event verb behavior: unspecified and nonsubcategorized objects.

- (31) Shelly swept/scratched/hit/carved/sewed/knit.
- (32) a. Cinderella swept and scrubbed her way to a new ball gown.
Cinderella swept and scrubbed herself into catatonia.
- b. Drew sewed her fingers sore.
Drew sewed her way to a job in the fashion industry.
- (33) a. With hot, molten drippings falling from the ceiling onto his arms and back, Tarantino sprayed his way through the debris with a fire extinguisher. (“Doctor Saves Navy Drug Operations Manager”, MSNBC Newsbreak, October 26, 2001)
- b. With great difficulty, he and the other two men splashed and forced their way through the rusted, barnacle-encrusted supports of the pier. (A. Lurie, *The Last Resort*, Henry Holt, New York, 1998, p. 211)
- c. For the women, Darien high schooler Cindy Davis outdistanced (outsplashed?) her competition to win . . . (C. Barlow, “The Leatherman’s Loop”, *New York New Jersey Connecticut Runner*, June 1987)
- d. Finally, the final mode, Graffiti Wars has you outspray the other person, even allowing you to cover up their own tags! (www.rocketpunch.com/nuked/)

• Verbs from certain semantic classes don’t show object alternations:

Change of state verbs (e.g., *break*, *crack*, *dim*, *widen*) don’t, nor do verbs of putting (e.g., *insert*, *put*), filling (e.g., *cover*, *fill*), or taking (e.g., *take*, *obtain*).

- (34) a. Lee broke the fence with the stick.
Lee broke the stick against the fence. (CAN’T MEAN: ‘Lee broke the fence’)
- b. Corey shortened the dress.
* Corey shortened an inch off the dress
- c. Shannon put/*filled the groceries into the bag.
Shannon filled/*put the bag with the groceries.
- d. Alex obtained the rare metal from Transylvania.
* Alex obtained Transylvania of the rare metal.

These are complex event verbs: their roots specify result states and they don’t allow unspecified and nonsubcategorized objects.

- (35) * Kelly broke/dimmed/filled/covered/obtained/inserted.
- (36) a. * My kids broke me into the poorhouse.
* The puppy broke his way out of the china shop.
- b. * The stagehand dimmed the scene dark.
* The stagehand dimmed his way off the set.
- c. * The waiter filled the table wet.
* The waiter filled his way to a maître d’ position.
- d. * Sam inserted the door open.
* Sam inserted his way to the jackpot.

As complex event verbs, these verbs have two structure participants. Their objects have their source in a specific event structure position, so no alternations.

- Verbs with stative roots associated with three arguments also show object alternations; again, these are verbs with simple event structures.

- (37) Tony admired them for their integrity.
 Tony admired the integrity in them.
 Tony admired them.
 Tony admired their integrity.

8.2 How would object alternations arise?

An object alternation requires there to be two nonactor “arguments” associated with a simple event verb and two distinct ways of realizing both simultaneously.

A SKETCH (actual details of how licensing works need further investigation):

There are two interacting sources of licensing:

- Roots that are inherently associated with either two or three participants;
- Nonverbal predicates that allow a verb’s simple event structure to be augmented to a complex event structure, while also licensing structure participants.

AN EXAMPLE: The removing form of the locative alternation.

Assume *wipe* describes a process; its root is basically associated with an actor and a surface. *wipe* does not entail a particular result (Talmy 2000), though wiping is a means of removing stuff from a surface;

wipe’s event structure can be augmented via the addition of a predicate to give a complex removing event, with an added predicate licensing the stuff argument, and the “normal” (location) object appearing in a newly introduced result clause.

- (38) a. Kelly wiped the table.
 [x ACT<WIPE> y]
 b. Kelly wiped the crumbs off the table.
 [[x ACT<WIPE> y] CAUSE [BECOME [z NOT AT <PLACE>]]]

8.3 The diversity of English object alternations

- If object alternations have a unified source, why is there diversity in the alternations and the semantic classes of verbs showing them?

— The variants in the alternations typically denote complex events, consisting of a causing subevent—containing the verb’s root—and a result subevent; the result is typically a conventional result of the causing subevent (Talmy 2000).

- Result subevents come in various types: removal, addition, creation, . . .
 The various types of object alternations reflect different types of results.
 Locative alternation: Addition or removal
 Material/product and image impression alternations: Creation

— Each type of result subevent is brought about by particular (conventional) actions.
Concomitantly, there are associated classes of means/manner verbs,
describing modes of removing, adding, creating, . . .

- Why do some simple event verbs show more object alternations than others?

Object alternation verbs may be found in complex event structures, built on
their basic simple event structures;
each complex event is characterized by a particular type of result.

Thus, verbs whose roots describe means/manners that can be used to obtain several types
of results can show multiple alternations.

EXAMPLE: *sew* has such a root, since sewing can be used to create an object,
cover a surface, attach things, or “impress” an image.

- (39) a. Dale sewed the piece of silk into a ball gown.
Dale sewed a ball gown out of the piece of silk.
- b. Dale sewed bows on the costume.
Dale sewed the costume with bows.
- c. Dale sewed the lining to the skirt.
Dale sewed the lining and skirt together.

A verb whose root describes a means/manner used only to obtain a very specific result,
such as *vacuum*, will not show a range of object alternations (compare *shovel*).

- (40) a. Avery vacuumed the dust off the rug.
Avery vacuumed the rug.
- b. *Avery vacuumed the dust onto the rug.
*Avery vacuumed the rug with the dust.
- c. *Avery vacuumed the dust into a pile.
*Avery vacuumed a pile from the dust.

- (41) a. Tracy shoveled snow off the sidewalk.
Tracy shoveled the sidewalk.
- b. Tracy shoveled the leaves into the gutter.
- c. Tracy shoveled the leaves into a pile.

A verb whose root describes a means/manner which is not used to obtain a particular result,
such as *drink*, will not show object alternations.

Thus, having a simple event structure is necessary, but not sufficient, for object alternations.

- (42) a. Lindsay drank.
- b. The guests drank the teapot dry.
- c. Ellis drank the coffee from the cup.
*Ellis drank the cup of the coffee.

- Why do stative verbs show few object alternations?

- (43) Tony admired them for their integrity.
 Tony admired the integrity in them.
 Tony admired them.
 Tony admired their integrity.

Many object alternations arise from conventional associations between means/manner verbs and particular results, with a result predicate playing a key role in argument licensing.

Stative verbs, by their very nature, have simple event structures,
 but are not conventionally associated with particular results;
 thus, a result predicate is not available to license any arguments.

To show object alternations their roots must be associated with three participants and there must be some other way of licensing the expression of all three simultaneously.
 Yet, few stative verbs have sufficient root participants.

In the attested object alternation, the stative verb has two root participants and a third participant is introduced as the possessor of one of the root participants.

- Why do some verbs “show” only one variant of an alternation?

- (44) a. Ashley filled the bucket with water.
 * Ashley filled water into the bucket.
 b. Ashley poured water into the bucket.
 * Ashley poured the bucket with water.

These verbs have roots of type “result state”, not “means/manner”, as required for object alternations; their roots are basically associated with complex event structures. Since their roots describe the same type of results as characterize certain object alternations, they have similar semantics, which is why the question is raised.

9 Conclusions

- Accounts of a range of facets of English verb behavior predicated on:
 - The root/event structure distinction
 - The existence of event structures with a subeventual analysis
 - The notion of a pure root participant.
- These facets of verb behavior are epiphenomena of the interaction of certain types of roots, simple event structures, and principles of argument licensing.
- They have received a more unified analysis than their variety suggests: they arise because simple event verbs do not restrict their potential objects.
- These results hinge on—and thus support—a partial dissociation of the complexity of an event from the number of arguments it involves.
- These results underscore an asymmetry between subjects and objects: subjects arise from structure participants and, thus, do not show the broad semantic range that objects, which may arise from structure or pure root participants, do.

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