

# THE ELASTICITY OF VERB MEANING REVISITED

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# The big question: Meaning & distribution

- How to account for the rich and varied set of syntactic environments that a given verb can be found in?

# The big question: Meaning & distribution

An example of what is at stake:

- Terry **wiped**. (activity)
- Terry **wiped** the table. (activity)
- Terry **wiped** the table. (telic event)
- Terry **wiped** crumbs off the table. (removing)
- Terry **wiped** crumbs into the sink. (putting)
- Terry **wiped** the slate clean. (change of state)
- Terry **wiped** the crumbs into a pile. (creation)

# The big question: Meaning & distribution

Another example of what is at stake:

- The factory horns **sirened** throughout the raid.
- The factory horns **sirened** midday ...
- The police car **sirened** the Porsche to a stop.
- The police car **sirened** up to the accident site.
- The police car **sirened** the daylight out of me.

(Borer 2003, p. 40, (13); from Clark & Clark 1979:803, (32)-(36))

# Basic assumptions about verb meaning

- A verb's **root** must be distinguished from the **event structures** it can be found in; these, in turn, determine its argument realization options
  - In much recent work, event structures are syntactically instantiated as '**constructions**', so argument realization falls together with constructional distribution

(This bipartiteness can be given lexical/projectionist or constructional treatments; set this aside here)

# The big question: Meaning & distribution

- What is the role of the verb's root—the verb's idiosyncratic conceptual content—in the answer to the big question?
- The *siren/wipe* data might suggest that the root doesn't have too large a part to play
- However, there are restrictions on a root's distribution which might suggest otherwise

# The big question: Meaning & distribution

Some attribute such restrictions to world knowledge—presumably, part of the idiosyncratic conceptual content of the root:

#Mary guillotined. (# on the reading:  
'Mary became guillotined'.)

'We claim that it is part of our world knowledge that one cannot become guillotined without the intervention of an agentive causer'

(Mateu & Acedo-Matellán 2012:215)

# The big question: Meaning & distribution

Others suggest roots have grammatically privileged content., e.g., a grammatically relevant ontological type (RH&L 1998)

- Why? Verbs with similar meanings show a ‘distributional signature’: a characteristic set of argument realization options
- Evidence: Fillmore (1971) on *hit* vs. *break*

# The big question: Meaning & distribution

- Are some facets of the conceptual content of a root privileged?
- That is, are there generalizations about the distribution of roots across constructions that reference properties characteristic of certain classes of roots rather than content idiosyncratic to a particular root?

# Roadmap

- Revisit the empirical patterns
- Expand the empirical landscape
- Show asymmetries in root/construction distribution that suggest a compositional process at work
- Sketch the relevant ingredients

The empirical landscape:

From *hit* and *break* to manner and result

# Distributional signatures: *hit/break*

- The boy broke/hit the window with a ball.
- Causative alternation:
  - The boy broke the window./The window broke.
  - The boy hit the window./\*The window hit.
- Conative construction:
  - \*The boy broke at the window.
  - The boy hit at the window.

# Distributional signatures

- These patterns are found across semantically coherent sets of verbs:

*Hit* verbs: slap, strike, bump, stroke, ...

→ surface contact verbs

*Break* verbs: bend, fold, shatter, crack, ...

→ change of state verbs

(Fillmore 1971)

# Distributional signatures

- Juxtaposing *hit* and *break* is compelling
- Certain events can be described by either, though each describes a different facet of the events:

**Scenario:** A vandal throws a rock at a store window and it breaks.

- The vandal hit the window with a rock.
- The vandal broke the window with a rock.

# Beyond hitting and breaking: Manner/result

*Hit* and *break* represent larger classes of roots:

	Manner	Result
Damaging	hit	break
Putting—2-dim	smear	cover
Putting—3-dim	pour	fill
Removal	shovel	empty
Combining	shake	combine
Killing	stab	kill

## Beyond hitting and breaking: Manner/result

*Hit* and *break* represent larger classes of roots (or verbs):

- **Result roots:** specify a state, often resulting from an action
- **Manner roots:** specify manner or 'action pattern' associated with an action

# Beyond hitting and breaking: Manner/result

## Result verbs:

- #I broke the vase with a hammer, but the vase stayed intact.
- I broke the vase by hitting it with a hammer/dropping it on the floor/throwing it at the wall.

## Manner verbs:

- I hit the vase with a hammer, but nothing happened to it.
- #I hit the vase by dropping it on the floor/throwing it at the wall.

## Beyond hitting and breaking: Manner/result

- Manner and result verbs have their own distributional signatures
- Result verbs: Require that the argument the result is predicated of is expressed—and necessarily as an object
- Manner verbs: No such restrictions

The empirical landscape:

Challenges involving manner and result

# Manner and result roots: Challenges

- ‘Manner’ root in ‘result’ configuration:
  - Kim ran to the store.
  - Much of the *wipe* paradigm
- ‘Result’ root in ‘manner’ configuration:
  - break the bag open
  - break the branch off
  - break his way out to safety (M&AM 2012)
  - break the walnuts into the bowl (RH&L 1998)

# 'Manner' roots in 'result' configurations

- Found when a result XP can be compositionally added outside of the 'verb'
  - cf. Template Augmentation (RH&L 1998)
  - Used to explain the *wipe* paradigm
  - Used to explain variable behavior with respect to unaccusativity

# 'Result' roots in 'manner' configurations

- This phenomenon deserves further scrutiny
- Cited examples:
  - are presupposed to be 'manner' configurations
  - have special characteristics
  - are not truly parallel to comparable examples with manner roots (focus here)

# 'Result' roots in 'manner' configurations

Kelly wiped the crumbs off the table.

- Means 'Kelly removed the crumbs from the table by wiping the table'

... leads to expectation that:

\*Kelly broke the dishes off the table.

- Should express 'Kelly removed the dishes from the table by breaking the table'
- Contrary to fact

# 'Result' roots in 'manner' configurations

Kelly shoved the dishes off the table.

Means 'Kelly shoved the dishes and as a result they went off the table'

... leads to expectation that:

\*Kelly broke the dishes off the table.

- Should express 'Kelly broke the dishes and as a result they went off the table'
- Contrary to fact

# 'Result' roots in 'manner' configurations

Result roots are occasionally found in the *way* construction—a 'manner' configuration with a nonselected object:

break his way out to safety (M&AM 2012)

# 'Result' roots in 'manner' configurations

... but result roots unlike manner roots are not found in nonselected object resultatives in general:

- The child rubbed the tiredness out of his eyes.
- \*The child broke the beauty out of the vase.
  
- Cinderella scrubbed her knuckles raw.
- \*The clumsy child broke her knuckles raw.

# Further distributional asymmetries

- Many object alternations are found with manner, but not result roots (Levin 2006)
- Locative alternation:
  - Sam sprayed the wall with paint.
  - Sam sprayed paint on the wall.
  - Shannon put/\*filled groceries into the bag.
  - Shannon filled/\*put the bag with groceries.
- *With/against* alternation; possessor raising

# Interim conclusion

- Result roots show more limited distribution overall than manner roots
- These distributional asymmetries suggest that the notions ‘manner’ and ‘result’ matter to argument realization
- If roots have an ontological type, predict that this type could be relevant to their distribution

## Next steps

- Have focused on ‘coarse-grained’ distributional asymmetries tied to ‘manner’ and ‘result’
- Next: show distributional differences arise among verbs with manner roots: These are ‘medium-grained’ distributional asymmetries
- **Case study:** surface contact verbs, *hit* vs. *wipe*

The empirical landscape:

Surface contact verbs: Hitting vs. wiping

# Surface contact verbs: Introduction

*Hit* and *wipe* show shared properties characteristic of manner verbs that set them both apart from *break*

... but they also show properties that differentiate them, attributable to specifics of their manner roots

# Surface contact verbs: Similarities

- Similar semantic subclasses

	Hitting verbs	Wiping verbs
Body part	Kick, punch, slap	Lick
Instrument	Club, lash, stab	Sponge, towel
Sound on contact	Clink, thud, whack	??
Other manner	Beat, hit, swat	Rub, sweep, wipe

# Surface contact verbs: Similarities

- Unspecified object construction:  
Kim hit and hit./The bird pecked.  
Cinderella swept/wiped/scrubbed.
- Nonselected object resultatives:  
Kim drummed her fingers raw.  
Cinderella scrubbed her fingers raw.
- Conative construction:  
Kim hit at the mosquito.  
Cinderella scrubbed at the stained floor.

# Surface contact verbs: Similarities

- *With/against* alternation:

Kim hit the fence with a stick.

Kim hit the stick against the fence.

Sam wiped the table with a damp cloth

Sam wiped a damp cloth over the table.

# Surface contact verbs: Similarities

- Hitting verbs need not realize a specific argument as direct object
- Object can be:
  - the surface: hit the table
  - the instrument: hit the stick against the fence
  - a non-argument: drum one's fingers raw

# Surface contact verbs: Similarities

- Wiping verbs need not realize a specific argument as direct object
- Object can be:
  - the surface: wipe the table
  - the instrument: wipe the cloth over the table
  - the material on the surface: wipe the crumbs off
  - a non-argument: scrub one's fingers raw

# Surface contact verbs: Differences

- Wiping verbs: Surface argument may, but need not be understood as incremental theme
  - Sam wiped the table in one minute flat.
  - Sam wiped the table for an hour.
- That is, these verbs are potential or 'latent' incremental theme verbs (Tenny 1992:20).
- Hitting verbs: Surface argument is never an incremental theme
  - Kim pounded the metal for/\*in 5 minutes.

# Surface contact verbs: Differences

Wiping verbs: surface is 'normal' direct object  
... but they may take an argument denoting material found on surface (L&RH 1991)

- Kerry is scrubbing the bathtub.
- Kerry is scrubbing the stains (off the bathtub).

Hitting verbs: cannot take a material argument

# Surface contact verbs: Differences

- Expression of the material:
  - typically as an object
  - occasionally in an *of* phrase with surface as object

We finished the creamy custard, scraping the cup of **its thick, bittersweet chocolate sauce** ... (D. Pergamaent, Best Trattoria in Rome?, Travel Sect., *NYT*, 3/22/09, p. 11)

# Surface contact verbs: Differences

- Gives rise to locative alternation for wiping verbs:

We scraped the sauce from the cup.

We scraped the cup (of sauce).

- Material often co-occurs with surface
  - suggests it may be licensed via a locative relation with the surface (RH&L 1998)

# Surface contact verbs: Differences

- Possessor raising is found with hitting verbs, but disallowed with wiping verbs
- Kelly hit my arm.
- Kelly hit me on the arm.
- Kelly wiped my arm.
- \*Kelly wiped me on the arm.

# Surface contact verbs: Implications

- Even among manner verbs, there are subclasses whose members show systematic differences in distribution
- Suggests privileged facets of the relevant roots are behind the distinct distributional signatures

# Accounting for the distributional asymmetries

## The basic ingredients

# Ingredients: Event structures/constructions

- State (including locational states)
- Activity
- Events of scalar change
  - Noncausative ('become')
  - Causative

(Could be syntacticized)

# Ingredients: Roots

- Grammatically relevant ontological types of roots:
  - Result (or state) roots
    - Specify some key property of a scalar change
    - This includes specifying elements defining a path
  - Manner roots
    - Instantiate an 'action pattern' (Jackendoff 1990)
- Roots are inserted into event structure positions compatible with their type (cf. RH&L's 1998 Canonical Realization Rules)

# Ingredients: Roots

Requirements on manner vs. result roots:

- A result root must be in a construction where:
  - the argument it is predicated of is expressed
  - and it is expressed as an object
- A manner root does not have such a requirement

# Scalar changes

- Types of scalar change (HK&L 1999):
  - Property scale: scalar valued property of an entity
  - Path scale: path an entity moves along
    - may be instantiated in various semantic fields (Jackendoff 1983): positional, possessional, identificational, ...
- Underlie diversity of constructions that certain verb roots are found in

# Scalar changes

- Licensing a scalar change:
  - Via the lexicalization of a result root in the verb
    - Terry broke the vase.
    - Sam exited the station.
  - Via result XP (Template Augmentation; RH&L 1998)  
(Result XPs can introduce a complete scale or fill out a scale partially lexicalized in the root)
    - Kim hit the ball into the garden.
    - Sam wiped the table clean.
    - Terry broke the vase to smithereens.

# Scalar changes

- There can be only one scalar change in a construction (cf. Goldberg 1995, Tenny 1987)
- An argument with a scalar change predicated of it must be expressed and only as an object

# Accounting for the distributional asymmetries

## Change of state verbs

# Change of state verbs

- Due to their result (state) root, they are paired with events of scalar change
- Require an object which the change is predicated of
- **Consequence:** cannot take unspecified objects or nonselected objects, nor take anything but their theme as object. Also cannot be found in object alternations.

# Accounting for the distributional asymmetries

## Surface contact verbs

# Surface contact verbs: A characterization

- **Hitting** roots—and events—involve impact at a ‘point’ on the surface, usually carried out with the intent of causing damage (although damage is not lexicalized by the verb).
- **Wiping** roots—and events—involve a contact over an extended part of the surface, usually carried out with the intent of removing stuff from it (although removal is not lexicalized by the verb).

# Surface contact verbs: Basic properties

- The conceptual content of their root brings in an argument, the **surface** (Levin 1999)
- Since the surface of a surface contact verb does not have a result necessarily predicated of it, there are no constraints on its realization.
- **Consequence:** unspecified objects, conative construction, nonselected and other objects

# Surface contact verbs: Basic properties

- General conceptual content: application of force to a surface
- Thus, unlike many manner verbs, this content ‘licenses’ a second event participant in addition to the participant that ‘instantiates’ the manner (and is expressed as subject)
  - Cf. Levin’s (1999) ‘constant participants’

# Surface contact verbs: Nature of root

More specific conceptual content determines the nature of the 'second' participant/surface:

- **Hitting roots:** surface understood as a point (i.e. an inherent whole)
- **Wiping roots:** surface understood as a region or extended area
  - Attribute potential incremental themehood to this: gives extent necessary for 'measuring out'

# Determining attested types of scalar change

- Manner roots do not lexicalize a scalar change, allowing them in constructions where a result XP introduces a scalar change
- Many manners are performed to achieve a goal; result XP makes goal explicit
- A particular manner root may be found with several types of result XPs because the same manner could be used to achieve several results

# Determining attested types of scalar change

- Some manners are conventionally associated with particular results:
  - *Wipe* describes an action involving surface contact and motion which is often used to remove stuff from a surface
  - *hit* describes an action involving forceful contact with a surface which is often used to damage or harm the surface
- Gives rise to the observed paradigms

# Accounting for the paradigms: *wipe*

- Sam wiped. (activity)
  - No external scalar change; no need for an object
- Sam wiped the table. (activity)
  - No external scalar change; object licensed by root
- Sam wiped the table. (telic event)
  - Object understood as incremental theme since root introduces a 'region' surface

# Accounting for the paradigms: *wipe*

- Sam wiped crumbs off the table. (removing)
  - Introduction of *from* path scale with surface as source; brings material argument with it
- Sam wiped the crumbs into the sink. (putting)
  - Introduction of *to* path scale with surface(=source) left implicit; brings material argument with it
- Sam wiped the crumbs into a pile. (creation)
  - Introduction of abstract path scale detailing transformation of material via manner

# Accounting for the paradigms: *wipe*

- Sam wiped the slate clean. (change of state)
  - Introduction of property scale, predicated of surface; details change in surface
- Sam scrubbed her hands raw. (change of state)
  - Introduction of property scale, predicated of nonselected argument; surface is implicit

# Accounting for the paradigms: *hit*

- The bird pecked. (activity)
  - No external scalar change; no need for an object
- Kim hit the fence. (activity)
  - No external scalar change; object licensed by root
- \*Kim hit the fence. (telic event)
  - Object can't be understood as incremental theme since root introduces a 'point' surface

# Accounting for the asymmetries: *hit*

- Kim hit the ball into the playground. (putting)
  - Introduction of *to* path scale, predicated of surface, detailing its trajectory
- Kim pounded the metal into a tray. (creation)
  - Introduction of abstract path scale detailing transformation of material via manner

# Accounting for the asymmetries: *hit*

- Kim pounded the metal flat. (change of state)
  - Introduction of property scale, predicated of surface; details change in surface
- Kim drummed his fingers raw. (change of state)
  - Introduction of property scale, predicated of nonselected argument; surface is implicit

# Conclusions/Implications

- Result roots systematically show a more limited distribution than manner roots
- Manner roots also show systematic distributional differences
- All these differences can be traced back to the conceptual content of the roots

# Conclusion/Implications

‘Thus, while the lexicon is notoriously the domain of the idiosyncratic, it is becoming increasingly apparent that it is also the domain of principles of great generality. That is particularly evident in the relationship of syntax to lexical semantics ...’

(Hale et al. n.d. (circa 1983):8)

Thank you!