

Ways of Constructing Agentivity

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Approaching agentivity

Many verbs, even those typically used agentively, occur agentively and non-agentively:

Agentive: The kids toppled the tower of blocks.

Non-agentive: The wind toppled the tower.

Agentive: We ate the pizza.

Non-agentive: The acid ate the metal.

Approaching agentivity

Questions on the relation between agentive and non-agentive uses:

- **Lexical relatedness:** Is it a case of underspecification or polysemy?
 - Most work takes it to be an instance of underspecification
(Alexiadou et al. 2017, DeLancey 1984, Folli & Harley 2005, Holisky 1987, Van Valin & Wilkins 1996)
- **Syntax of VP:** Is there an interdependence between the agentivity of the external argument and properties of the VP complement?
 - Many argue that verbs take non-agentive external arguments only in the context of an expressed or inferred result state:

The acid ate the metal ??(away).

(Alexiadou et al. 2017, Demirdache & Martin 2015, Folli & Harley 2005, 2008, ...)

Approaching agentivity: A case study

A study of the English verb *sweep* forces a more nuanced view of both issues, though we focus on lexical relatedness

- *Sweep* is chosen for its agentive and non-agentive uses and wide range of syntactic frames, i.e. argument realizations
- We examine its agentive and non-agentive uses across these frames
- We propose a maximally general and maximally compositional analysis of the full range of uses

This analysis leads to insights into the sources of agentivity

Approaching agentivity: Our proposal

Lexical relatedness: A non-uniform account

- Variation in the agentivity of the verb *sweep* is due to both underspecification and constrained polysemy
 - Conventionalized agentive activities regularly give rise to polysemy in the verbs that name them
 - *Sweep* has a specialized meaning encoding such an agentive activity
 - Further, *sweep* has agentive and non-agentive uses that do not encode the specialized meaning; underspecification for agentivity is relevant to these uses

Approaching agentivity: Our proposal

The syntax of VP

- The relation between (non-)agentive subjects and the properties of the VP is more complex than assumed in previous studies
 - Non-agentive uses of *sweep* do not necessarily include a result

The prototypical use of *sweep*: Sweeping with a broom

Examples:

... he moved the desks and **swept** the floor ...

We would **sweep** the carpeting around the pulpit ...

They found her in Grant Park **sweeping** the sidewalks.

As a final touch I **swept** the terrace.

Note: Unattributed examples are from COCA; acceptable constructed examples are preceded by “C”

The prototypical use of *sweep*: Key properties

- Agent: expressed as subject
- Surface: expressed as object
 - must be a floor or other surface which animates usually tread on, e.g., a sidewalk, deck, path, or street
- *I **swept** the desk/the window/the refrigerator.
- Instrument: always understood, so non-defeasible; optionally expressed (in a *with* phrase)
 - must be a broom or similar entity designed to remove unwanted stuff from a surface

Everyone who has ever **swept** the floor **with a standard broom** and dustpan knows about that annoying line of dust ...

(<https://www.familyhandyman.com/article/get-the-last-lines-of-dust-into-the-dustpan/>)



The prototypical use of *sweep*: Key properties

Other interpretive event properties

- Non-defeasible:
 - The agent must use the instrument in the typical action pattern (Jackendoff 1990:34) that allows its design goal to be achieved
- Typically understood, but defeasible:
 - Presence of unwanted material on the surface
 - Attainment of the goal (i.e. removal of unwanted material).



^CMy brother **swept** the floor although it was absolutely spotless!

^CAfter my brother **swept** the floor, there were still crumbs under the table.

The prototypical use of *sweep*: Key properties

Broom-sweep: The term for the verb when showing these properties

Broom-sweep is found in two syntactic frames:

- Transitive with surface as object (already illustrated)
- Unspecified object

We scrub, **sweep**, mop, and polish, until the shop is positively gleaming
... (J. Green, *Bookends*, Broadway, New York, 2002, p. 168)



Broom-sweep: Summary

- Direct object: surface
 - Semantically obligatory, but restricted; syntactically omissible
- Subject: agent
 - Must engage in the action pattern typical of a specific goal-oriented activity
- Necessary inferences:
 - Use of a broom(-like entity)
 - The action pattern is the one typically used to achieve the goal of removing unwanted material from the surface using a broom
- Defeasible inferences:
 - Presence of unwanted stuff on surface
 - Attainment of the goal

Beyond broom-*sweep*

A verb built on the same root \sqrt{SWEEP} appears in a different set of characteristic syntactic frames with their own interpretive properties

Rain **sweeps** the patio.

I **swept** the coins off the counter.

She **swept** her hand through her hair.

The flood ... **swept** across the flats to the sea.

She **swept** into the room.

Note: Focus is on physically instantiated instances of *sweep*; metaphorical instances are ignored (e.g., *Our gaze swept the crowd*; *The fad swept the class*)

Broom-*sweep* in the larger context of *sweep*

- Though broom-*sweep* is considered the verb's prototypical sense (e.g., first listed dictionary sense), we argue that it is a specialized sense
- The non-broom-*sweep* examples involve the basic sense: **basic-*sweep***

Evidence to be presented:

Basic-*sweep* appears in more varied syntactic frames and shows less restricted interpretive properties than broom-*sweep*

Both *sweeps*: Proposed analysis in a nutshell

- Posit a single, core meaning underlying both *sweeps*
- Properties of *basic-sweep* follow from core meaning + recognized compositional processes and principles of argument realization
- *Broom-sweep* involves a narrowing of the core meaning via a regular lexicalization process applicable to conventional activities of agents
 - Its properties follow from this narrowed meaning + principles of argument realization

Basic-*sweep*: Next step

- Survey the syntactic frames associated with basic-*sweep* and identify their characteristic syntactic and interpretive properties
 - Simple transitive
 - Transitive + PP
 - Unaccusative + PP
 - Instances may have agentive and non-agentive subjects
- Show that these properties set basic-*sweep* apart from broom-*sweep*

Simple transitive basic-*sweep*: Examples

Rain **sweeps** the patio.

Frigid waves **swept** the deck.

The flames **swept** the distant fields.

The wind **swept** the rock knoll.

The snow flurries **swept** the valley.

... when the branch of the tree **swept** the window ...

(L. Hall, Spiders; <https://lindseyhallwrites.com/2020/10/23/spiders/>).

Simple transitive basic-*sweep*: Key properties

- Subject is not an agent
 - No instrument inferred
 - No specific action pattern inferred, let alone a goal-oriented one
- Direct object understood as a surface, but need not be floor-like
- No unwanted stuff on the surface inferred

The snow flurries **swept** the valley.

The branch of the tree **swept** the window.

Simple transitive basic-*sweep*: Key properties

- The surface argument must be expressed; it cannot be omitted

*The frigid waves/flames/snow/snow flurries/branches **swept**.

- However, simple transitive basic-*sweep* is relatively infrequent
- Rather, basic-*sweep* most often appears with a directional PP

Transitive + PP basic-*sweep*: Examples

She swept **the brush through** Megan's shiny hair.

(Blog post, The Dancing Angels, August 28, 2012; <https://jimrit.wordpress.com>)

She began to sweep **her fingers over** the strings.

(M. L'Engle, *Troubling a Star*, Laurel, New York, 1995, p. 146)

I swept **the coins off** the counter ...

(<https://sprudge.com/the-tale-of-the-dark-roast-127280.html>)

... the wind swept **the fires quickly through** the top growth ...

(<https://www.ft.com/content/2dfa1c88-7864-11dc-8e4c-0000779fd2ac>)

... the current sweeps **the bait into** the dark reaches under the wooded canopy ...

Transitive + PP basic-*sweep* with agentive subjects

Direct object receives several non-surface interpretations:

- Instrument object

She swept the brush through Megan's shiny hair.

(Blog post, The Dancing Angels, August 28, 2012; <https://jimrit.wordpress.com>)

- Body part object

She began to sweep her fingers over the strings.

(M. L'Engle, *Troubling a Star*, Laurel, New York, 1995, p. 146)

- “Theme” object

I swept the coins [=the payment] off the counter ...

(<https://sprudge.com/the-tale-of-the-dark-roast-127280.html>)

Transitive + PP basic-*sweep* with non-agentive subjects

- Direct object only interpreted as “theme”

... the wind swept **the fires** quickly through the top growth ...

(<https://www.ft.com/content/2dfa1c88-7864-11dc-8e4c-0000779fd2ac>)

Behind her the wind swept **leaves** into the room ...

... the current sweeps **the bait** into the dark reaches under the wooded canopy ...

- No instrument/body part objects as they require an agent

Transitive + PP *basic-sweep*

with agentive and non-agentive subjects

- Both direct object (on all options) and PP are obligatory:
 - ^CPat swept *(a brush) *(through her wavy hair). (instrument object)
 - ^CPat swept *(her hand) *(over her face). (body part object)
 - ^CThe tsunami swept *(the debris) *(off the beach). (“theme” object)
 - ^CPat swept *(the coin) *(into the jar). (“theme” object; surface implicit)
 - ^CThe wind swept *(leaves) *(into the yard). (“theme” object; surface implicit)
- PP often includes an NP interpreted as the surface

Unaccusative + PP *basic-sweep*

- The PP is obligatory, as is the subject

... **fire** swept *(through their home) ...

The flood ... swept *(across the flats to the sea).

... **a flashing new car** swept *(in through the open gateway) ...

(A.W. Upfield, *The Widows of Broome*, 1950; Scribner reprint, New York, 1985, p. 4)

- PP often includes an NP interpreted as the surface
- The subject may optionally be agentive (but is still a theme)

^C**She** swept *(into the room).

Basic-*sweep*: Interim summary

- Transitive subject need not be an agent
 - No particular action pattern inferred, let alone a goal-oriented one
 - No inference of unwanted stuff or goal of cleanliness
 - No inferred instrument
 - Surface not understood as floor-like and usually obligatory
- No omission of direct object allowed
- Surface most often is reference object in a PP, but may be object
- Direct object interpreted as “theme”, body part, or instrument
 - If so, a directional PP is needed.

Both *sweeps*: Proposed analysis in a nutshell

- Posit a single, core meaning underlying both *sweeps*
 - Properties of **basic-sweep** follow from core meaning + recognized compositional processes and principles of argument realization
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- Broom-sweep involves a narrowing of the core meaning via a regular lexicalization process applicable to conventional activities of agents
 - Its properties follow from this narrowed meaning + principles of argument realization

The semantic core of *sweep*

The abstract semantic content associated with the root ν SWEEP:

*sweep*_{core}: “x **moves** across a planar surface y while maintaining sustained **contact**” (cf. McNally & Spalek in press)

Will show:

- Unaccusative use of basic-*sweep* simply involves this content and represents the minimal argument realization of *sweep*
- Other uses of basic-*sweep* are compositionally built on this content
- Two construals possible: one foregrounds **motion**, the other **contact**

Argument realization: Basic components

- Simple motion along a path is expressed as a small clause (SC)
 - A moving entity is the subject of a SC
 - A path is the predicate of a SC; its reference object is the object of P
- An effector (Van Valin & Wilkins 1996) is a subject
(roughly, Borer's 2005 originator or Ramchand's 2008 initiator)
- A force recipient (affected entity broadly construed) is an object
(Beavers 2010, Rappaport Hovav & Levin 2001)

Argument realization: Unaccusative + PP basic-*sweep*

“x moves across a planar surface y while maintaining sustained contact”

Both x and y must be expressed to ensure the minimal content of *sweep*_{core} is instantiated

Relevant argument realization principles:

- As x is a moving entity, it is realized as the subject of a SC
- As y is a reference object with respect to x’s path of motion, it is realized in an appropriate PP, the predicate of the SC

This give rise to an unaccusative structure: [_{VP} *sweep* [_{PP} x [_{PP} P y]]]

... fire_x swept through their home_y ...

Argument realization: Unaccusative + PP *basic-sweep*

All being equal, if an agent causes an entity's motion, it must be mentioned
(Rappaport Hovav 2014, RH&L 2012)

*The brush swept through her hair.

Thus, an unaccusative structure only arises when there is no external agent
e.g., when the moving entity is understood as imbued with a force or capable of
self motion, i.e. a natural force, animate entity, “projectile” (Kearns 2000:241)

... fire swept through their home ...

Further, when an animate entity exercises its ability for self-motion, it is
understood agentively by pragmatic inference (Van Valin & Wilkins 1996)

^CShe swept into the room.

Argument realization: Transitive + PP basic-*sweep*

Addition of **inanimate cause** to minimal argument realization

$[_{\text{VoiceP}} z [_{\text{VP}} \text{sweep} [_{\text{PP}} x [_{\text{PP}} P y]]]]$

- **z as a cause, i.e. an effector, is realized as an external argument**
- x as a moving entity is realized as the subject of the SC
- y as reference object for x's path is realized in an appropriate PP, the predicate of the SC

The fires_x **swept** quickly through the top growth_y

^CThe wind_z **swept** the fires_x quickly through the top growth_y

Argument realization: Transitive + PP *basic-sweep*

Addition of **animate cause** to minimal argument realization

$[_{\text{VoiceP}} z [_{\text{VP}} \text{sweep} [_{\text{PP}} x [_{\text{PP}} P y]]]]$

- **z as a cause, i.e. an effector, is realized as an external argument**
- x as a “theme”/instrument/body part, a moving entity, is realized as SC subject
- y as reference object for x’s path is realized in an appropriate PP, the SC predicate

$^C \text{Pat}_z$ swept **a brush**_x through her wavy hair_y. (instrument object)

$^C \text{Pat}_z$ swept **her hand**_x over her face_y. (body part object)

$^C \text{Pat}_z$ swept **the coins**_x off the counter_y. (“theme” object)

Argument realization: Simple transitive basic-*sweep*

“x moves across a planar surface y while maintaining sustained contact”

“Contact” construal of some sweeping events + related argument realization:

- x, the moving entity, imparts a force on the surface through contact
 - thus, it is an effector and hence is realized as a subject (Wolff et al. 2010)
- y, the surface, is a force recipient; thus, realized as direct object

The wind_x **swept** the rock knoll_y.

The snow_x flurries **swept** the valley_y.

A breeze moved the willows, the tips of their branches_x **sweeping** the ground_y.

Argument realization: Simple transitive basic-*sweep*

On this analysis, transitive basic-*sweep* is a true transitive, and not a covert unaccusative as argued for *cover* (Rappaport Hovav in press, Wilson 2020)

^CSnow covered the valley.

(cf. The wind swept the rock knoll.)

Evidence: A result XP can be predicated of the force recipient/surface:

... a forest fire that **swept the slopes bare** ...

([https://en.wikipedia.org/wiki/Desolation_Peak_\(Washington\)](https://en.wikipedia.org/wiki/Desolation_Peak_(Washington)))

This resultative is unexpected if a forest fire were an underlying object

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Broom-sweep: Meaning and argument realization

- Broom-sweep maintains $sweep_{core}$'s **motion** and **contact** components
- It narrows them by further **lexicalizing** the use of a broom(-like entity) in a specific action pattern on a floor(-like surface)

“x **moves** across a planar surface y while maintaining **sustained contact**”



“z **manipulates** $x_{A\ BROOM}$ to **move** across a planar surface y, a floor-like entity, while **maintaining sustained contact**, with an action pattern typically used to achieve the goal for which a broom is designed”

Broom-sweep: Meaning and argument realization

“z manipulates $x_{A \text{ BROOM}}$ to move across a planar surface y, a floor-like entity, while maintaining sustained contact, with an action pattern typically used to achieve the goal for which a broom is designed”

Argument realization consequences:

- The instrument, being incorporated, isn't expressed as an argument
- The use of an instrument requires an agent, realized as the subject
- The surface, as a force recipient, must be realized as direct object
- Unspecified object variant available as it occurs precisely when an activity is conventionalized (Brisson 1994, Glass 2022, Mittwoch 2005)

Broom-sweep: Meaning and argument realization

An advantage of the specialized meaning approach to broom-sweep:

- If broom-sweep were taken as basic, basic-sweep uses could not be derived compositionally as it would involve removal of lexically encoded meaning, thus violating the Principle of Monotonicity (Koontz-Garboden 2012; RH&L 1998)

Why broom-*sweep*?

- Cannot predict that *sweep* will take on a specialized meaning
- However, a verb with the meaning of broom-*sweep* **is** expected
- English regularly has verbs that designate the activity conventionally associated with the use of an instrument
 - Usually, they share a root – and name – with the noun naming this instrument
 - Examples: *mop, nail, rake, saw, ...*
- The verb *sweep* has the properties that the verb *broom* would have had were it to exist
 - i.e. it fills an established meaning niche in English

Why broom-*sweep*?

- The verb *sweep* is not unique in assuming a specialized meaning to allow reference to a conventionalized set of actions that humans undertake to achieve a particular goal
- Other non-denominal examples: *bake* (Atkins et al. 1988), *clean* (L&RH 2013), *paint*, *wash*, ...
- Thus, actions of agents figure in a regular process of lexical specialization

Basic-*sweep* and broom-*sweep*: Summary of major points

- All uses of *sweep* can receive a unified analysis in terms of a single, shared core meaning, *sweep*_{core}
- This core meaning + established processes of composition and principles of argument realization account for the argument realization and interpretive properties of basic-*sweep*
- Broom-*sweep* involves a specialization of the core meaning via an established lexicalization process applicable to conventional activities of agents
- Its argument realization properties follow from the properties of *sweep*_{core} and the additional lexicalized properties

Conclusion: Re-approaching agentivity

Initial question revisited: What is the relation between the agentive and non-agentive uses of a verb, in particular *sweep*?

Lexical relatedness: Is it a case of underspecification or polysemy?

- Agentivity, which sometimes occurs with basic-*sweep*, is due to the underspecified nature of its core meaning, with certain event participants understood as agents if animate
- Agentivity with broom-*sweep* is due to its specialized, lexicalized meaning as a conventional activity of an agent; it represents constrained polysemy

Conclusion: Re-approaching agentivity

Initial question revisited: What is the relation between the agentive and non-agentive uses of a verb, in particular *sweep*?

Syntax of VP: Is there an interdependence between the agentivity of the external argument and the properties of the VP complement?

- Simple transitive basic-*sweep* shows that non-agentive external arguments, like agentive external arguments, can occur in contexts without expressed or inferred result states

Thank you!

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Note: For an earlier version of the analysis of *sweep* that is framed differently see B. Levin and M. Rappaport Hovav (2022) Conventionalized agentive activities and compositionality, in *For Hagit: A Celebration*, [QMUL Occasional Papers in Linguistics 47](#).