Disentangling (Non-)agentivity, Telicity, and Result State

Beth Levin

Stanford University

Workshop on Maximalization Strategies in the Event Domain

University of Debrecen

April 17-19, 2023

(Non-)agentivity and (a)telicity

Are these notions interrelated?

- Dowty (1979: Chapter 2) initially takes all activity predicates to be agentive, representing them with Ross's (1972) primitive DO.

  Pat **ran/talked/sang**.

- Dowty (1979: Chapter 3) recognizes that (i) not all activity predicates are agentive and (ii) agentive predicates are found in every aspectual class.

  The rock is **rolling** down the path. (Dowty 1979: 164, (48a))

  The stereo is **blaring**.

- Dowty's (1991) 'incremental theme' is a proto-patient entailment; thus, telicity is distinct from agentivity as embodied in proto-agent entailments.

(Non-)agentivity and (a)telicity

More recently, the link resurfaces in a different guise:

- There is an interdependence between the agentivity of the external argument and the nature of the VP complement.

  - Verbs take non-agentive external arguments only in the context of an expressed or inferred result state.

    The acid **ate** the metal ??(away).

  - The **'resultative restriction'** (Schäfer 2012: 133ff)

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

- Events with result states are taken to be causative; hence bi-eventive.

  - Thus, they represent a type of maximally complex event.

(Non-)agentivity and (a)telicity

Implications of the resultative restriction:

Descriptions of simple events must have agentive external arguments.

Starting point of the talk:

- The empirical basis of the resultative restriction has been questioned.
- Non-agentive external arguments, like agentive external arguments, may indeed occur without expressed or inferred result states, i.e. in descriptions of simple events.

The shutters **banged** the wall.

The branch **scraped** the window.

(Non-)agentivity and (a)telicity

Focus of the talk:

- What allows non-agentive external arguments in descriptions of simple events?
  - Are properties of the external argument NP or of the verb relevant?
  - Important to look beyond machines and natural forces, the usually acknowledged exceptions.
- Do these properties illuminate why agentive external arguments are so much more common than non-agentive ones?

Goals of the talk:

- Argue observed data patterns arise from licensing conditions on manner roots interacting with argument realization principles.

(Non-)agentivity and (a)telicity

Set aside: Why non-agentive external arguments are found in causative event descriptions with verbs falling under the resultative restriction.

The ice, in moving to the south, **scraped** the land bare …

The tsunami **swept** the debris off the beach.

- Discussions of causative alternation verbs note that causative event descriptions typically allow for a range of external arguments.

- Thus, it is unsurprising that verbs falling under the resultative restriction are claimed to show more external argument options in the context of result phrases, i.e. in causative event descriptions.

Roadmap

- A close examination of the resultative restriction.
- Shortcomings of the resultative restriction.
- Implications of the empirical landscape for argument realization.
- Licensing of manner roots and argument realization of contact verbs.
- Concluding remarks.

An examination of the resultative restriction

An examination of the resultative restriction

Folli & Harley (2005): Atelic VPs, unlike telic VPs, are not compatible with inanimate external arguments.

- **Telic**

  The sea **destroyed** the beach.

  The groom **destroyed** the wedding cake.

- **Atelic**

  *The sea **ate** the beach.

  The groom **ate** the wedding cake. (F&H 2005: 95, (1a-b))

An examination of the resultative restriction

However, the verbs used in these VPs are compatible with inanimate external arguments in the presence of a result phrase:

The carpenter **carved** the toy.

*The wind **carved** the beach.

The wind **carved** the beach away. (F&H 2005: 104, (19c-e))

Peter **washed** the street.

#The running water **washed** the street.

The running water **washed** the street clean. (D&M 2015: 209, (32))

An examination of the resultative restriction

- The observation extends to data in French, Italian, and German.

  *Der Regen **wäscht** die Straße.

  'The rain washes the street.'

  Der Regen **wäscht** die Straße sauber.

  'The rain washes the street clean.'

  Hans **wäscht** (den Boden).

  'John washes the floor.' (German; M&S 2014: 233, (43a), (44a-b))

- In French, which lacks resultative constructions, for a simple transitive to be felicitous a result state must be inferred. (AMS 2017)

The scope of the resultative restriction

What is the scope of the purported restriction with respect to:

- The external argument NP
- The verb

The scope of the resultative restriction : The external argument NP

- Initial statement: applies to inanimates (F&H 2005)

- Reformulation: applies to entities that are not teleologically capable (F&H 2008; refined in F&H 2023)
  - Teleological capability: 'intrinsic properties of an initiator that enable it to carry out the processes necessary to bring an event into existence' (F&H 2023: 8)
  - Teleologically capable entities: (human) agents, machines, natural forces

- Alternate statement: applies to 'causer' subjects (Alexiadou and colleagues; e.g., AA&S 2015: 42-44; Martin & Schäfer 2014: 232-233; Schäfer 2012: Section 3)
  - 'causers ... are inherently eventive' (AA&S 2015: 7); distinct from agents and instruments.

The scope of the resultative restriction: The verb

- F&H's (2005) 'parade' example: The verb *eat*, but they list other verbs of consumption, broadly construed: *chew, nibble, carve*

- Schäfer (2012): Manner of motion *roll*

- Demirdache & Martin (2015): Manner *wash*

- Alexiadou, Martin & Schäfer (2017): A wide range of French manner verbs, including *balayer* 'sweep', *repasser* 'iron', *râcler* 'scrape, scrub', *gratter* 'scrub, scratch', *mordre* 'bite'

- **Bottom line:** The relevant verbs have manner roots; they describe simple events in their basic, transitive uses.

An aside: The much cited verb *eat*

An aside: The much cited verb *eat*

- The 'parade' resultative restriction paradigm:

  The sea **ate** *(away) the beach.

  The groom **ate** the wedding cake. (F&H 2005: 95, (1b); 96, (2))

- Only animate entities are capable of eating; hence, the restriction to animate subjects observed with simple transitive *eat.* (F&H 2023: 8)

- Simple transitive *eat* lexicalizes a particular action of animate entities.

- But eating also involves the gradual consumption of the object, which is an incremental theme.

An aside: The much cited verb *eat*

The sea **ate** *(away) the beach.

Proposal:

- Uses of *eat* with inanimate subjects represent a non-literal sense of the verb: it lexicalizes the gradual disappearance of the object, maintaining the incrementality of the object of literal *eat.*

- Thus, this is a result sense as the manner has fallen away.

- Concomitantly, there is no longer an animacy restriction on the subject.

An aside: The much cited verb *eat*

- Such non-literal uses can occur with result phrases that explicitly indicate the progress of event, consistent with the resultative restriction.

- But as they instantiate a result sense, they fall outside the restriction.

- In fact, result phrases are not necessary when the context emphasizes the incrementality of the theme:

La   mareggiata   ha **'mangiato'**   metri di arenile …

the   rough seas   have eaten   meters of sandy shore …

'The rough seas have **'eaten'** meters of sandy shore [and destroyed at least ten beach huts].' (Italian; Ostia, la mareggiata 'mangia' la Pinetina; 2/28/2016; web)

(See Mateu & Rigau 2010: 264, (42c) for similar examples)

Shortcomings of the resultative restriction

Shortcomings of the resultative restriction

- The restriction is now often taken for granted.
  - 'causer (inanimate) subjects require a bi-eventive structure' (Martin & Arunachalam 2022: 20)

- Yet there are repeated claims that the restriction is not so clearcut. (Bruening 2010; Mateu & Rigau 2010: 264; Rappaport Hovav 2016: 272)

- Even F&H (2008; especially 2023) acknowledge its claim needs to be moderated.

- **Next step:** Examine how the result restriction falls short by focusing on a subset of manner verbs: verbs of contact – hitting and wiping.

Shortcomings of the resultative restriction

- Manner verbs show simple transitive uses with inanimate subjects.
- Examples involve:
  - a range of verbs
  - a range of inanimate NPs
- Illustrative data is drawn from a corpus study of verbs of contact in COCA (Davies 2008), supplemented with other examples:
  - <u>Hitting verbs:</u> *bang, batter, bump, pound, slap, smack, smash*
  - <u>Wiping verbs:</u> *rub, scrape, scratch, sweep, wash*
  - <u>Other:</u> *jab, poke, splash*

Shortcomings of the resultative restriction: The wiping verb *sweep*

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/)

Shortcomings of the resultative restriction: The wiping verb *scrape*

Branches and undergrowth slashed at their jackets, **scraping** the fabric with slithering sounds.

... a branch **scraped** the bedroom window like fingernails.

... he was thrown down against the bottom and felt the sand **scrape** his skin.

Shortcomings of the resultative restriction: The hitting verb *smack*

A slice of pickled jalapeno **smacked** the hardwood floor.

Clinton swings, and his ball **smacks** the tree and ricochets …

The wet washcloth **smacks** the water behind her …

Branches cracked like bull whips, **smacking** goggles, … clawing pants …

Rain **smacked** the windshield …

… the snow spray **smacked** her hard … (C. Berry, *A Dream of Death*, Crooked Lane, 2019, p. 303)

Shortcomings of the resultative restriction: The hitting verb *batter*

Ice, metal fragments, and exploding munitions **battered** his body.

dust particles traveling fifty times faster than the speed of a bullet continually **battered** it [=the spacecraft].

But rushing water filled with debris and pollutants also **batters** structures.

The waves **battered** the cliffs.

... a chill wind was **battering** the reeds along the water channels ... (A. Thirkell, *Peace Breaks Out*, Knopf, 1947, p. 13-14)

Shortcomings of the resultative restriction: Diverse verbs and inanimate subjects

Hitting verbs:

The shutters **banged** the wall.

A stout leather map tube **bumps** his back.

The rain **pounded** the roof.

Wiping verbs:

His front tire **rubbed** the rear tire of the bike ahead.

The rain **washed** the beets.

Shortcomings of the resultative restriction: Implications of the attested inanimate subjects

Types of attested inanimate NPs:

- <u>Natural forces and other natural phenomena:</u> flames, waves, wind
  - (including) <u>Precipitation:</u> rain, snow spray/flurries
- <u>Physical objects:</u>
  - <u>Artifacts:</u> ball, map tube, shutters, tire
  - <u>Natural kinds:</u> branches, dust, sand

Shortcomings of the resultative restriction: Implications of the attested inanimate subjects

Implications for the resultative restriction:

- Natural forces are problematic for the broad 'causer' formulation.
- Natural forces qualify as teleologically capable, so are not problematic for the narrower F&H formulation.
- Physical objects seem problematic for the F&H formulation.
- Physical objects fall outside the broad 'causer' formulation, but presumably are nevertheless problematic.

Shortcomings of the resultative restriction: Empirical takeaway

Inanimate subjects are much less frequent than animate subjects in simple transitive uses of manner verbs:

- Natural forces/phenomena are more common than physical objects as subjects, but both are much less common than human NPs.

- *Batter* is the only verb found with a considerable number of inanimate NPs, especially natural forces, in the corpus study.

Shortcomings of the resultative restriction: Further takeaway

- Better understanding of the distributional tendencies behind the intuition that there is indeed a 'resultative restriction'.
- They relate to the confluence of the following observations:
  - Inanimate subjects are much less frequent than animate subjects in simple transitive uses of manner verbs.
  - Many causative event descriptions include a result state.
  - Causative event descriptions allow a range of non-agentive subjects.

Shortcomings of the resultative restriction: Implications for argument realization

- The overview of exceptions highlights the range of semantic types of NPs found as subjects of simple event uses of manner verbs.

- Only some types are acknowledged in the formulation of an argument realization principle for subjects.

- Such principles usually appeal to a coarse-grained label such as 'effector', 'initiator', or 'originator'.

  - Physical objects do not seem to easily qualify for these labels.

Next step: Examine what allows NPs of these semantic types to fall under the subject argument realization principle.

The subject argument realization principle

The subject argument realization principle

Major semantic types of NPs found with verbs of contact:

- Humans (and other animates)

- Machines

- Implements/tools (certain ones only)

- Natural forces (and some other natural phenomena)

- Physical objects

The subject argument realization principle

A representative principle: An effector (Van Valin & Wilkins 1996) is a subject.

(Roughly, Borer's 2005 'originator' or Ramchand's 2008 'initiator')

How NPs of the most discussed semantic types qualify as effectors:

- **Humans:** intentional entities capable of initiating actions and self-motion; i.e. they are 'traditional' agents

- **Machines/natural forces:** self-energetic; capable of autonomous motion

- **Implements:** only those with own energy source (and thus, able to function independently of an agent) are found as subjects (Grimm 2007; Marantz 1984: 247; Ono 1992; Wojcik 1965: 165; Wolff et al. 2010)

The subject argument realization principle

Question: What criterion allows the physical objects found as subjects of verbs of contact to qualify as effectors?

- Both artifacts and natural kinds are attested, so this ontological distinction is irrelevant.

- But all are **necessarily** in motion without the clear presence of a human agent or natural force during the event.

- **Key criterion:** They are 'projectiles'. (Kearns 2000: 241; Levin 2020; Grimm 2007)
  - Entities that move due to their own kinetic energy.
  - They are able to **impart this energy** to another entity through contact.
  - In this respect, they resemble human agents, natural forces, and machines.
  - Hence, they qualify as effectors.

The subject argument realization principle

Independent evidence for construing projectiles as effectors:

They pattern with animate agents, natural forces, and machines with respect to the *What X did was* diagnostic (Cruse 1973: 19-20; Levin 2020: 210-211):

What the ball did was break the window.
What Kit/the wind/the crane did was break the window.   (Change of state verb)

What the ball did was hit the tree.
What Cat/the lightning/the crane did was hit the tree.   (Hitting verb)

What the branch did was scrape the wall.
What Sam/the truck did was scrape the wall.   (Wiping verb)

On the lexicalized content of contact verbs

Root licensing and argument realization

- Roots are associated with a verb's lexicalized conceptual content:
  - Some facets distinguish among roots of the same abstract conceptual type.
  - Some facets are shared by roots of the same conceptual type; these include facets that 'interface' with argument realization principles; i.e. they are grammatically privileged.

- **Licensing condition on a root:** Its essential content must be instantiated in a context of use. (cf. RH&L 1998; Levin 2017)

- That is, any participants entailed by this content must be realized (or recoverable in context).

The lexicalized content of contact verbs

- The conceptual content of contact roots involves interacting motion and contact components.

- The motion is determined by a force. (Goldschmidt & Zwarts 2016; cf. Jackendoff's 1990: 34 'action patterns')

- The contact may be with a point – hitting roots – or over a region – wiping roots. (Levin 2017)

- The specific characteristics of the force, motion, and contact are unique to each root; these nuances will be ignored.

The lexicalized content of contact verbs

The abstract conceptual content associated with the root √*SCRAPE*:

> "x realizing an imbued force **moves** across a planar surface y while maintaining sustained **contact**"
>
> (cf. McNally & Spalek 2022 on *sweep*)

The abstract conceptual content associated with the root √*SMACK*:

> "x realizing an imbued force **moves** on a trajectory that ends in **contact** with y"

Note: Will not keep mentioning the force

The lexicalized content of contact verbs

Evidence for including both motion and contact components:

If the roots include both components, they should be found in both contact and directed motion event descriptions.

Hitting and wiping verbs **are** found in event descriptions of both types:

- Contact event descriptions – already illustrated

- Motion event descriptions:

> The flood **swept** across the flats to the sea ...
> The chill water **washed** over her.   (Wiping roots)

> The ball **slammed** into the fence.
> The truck **bumped** along the rutted track.   (Hitting roots)

The lexicalized content of contact verbs

- Contact verbs show distinct argument realizations in the two types of event descriptions:
  - <u>Contact event description:</u> transitive
  - <u>Directed motion event description:</u> intransitive (unaccusative + PP)
- Attribute to flexibility in which general argument realization principles apply to the root's essential content:
  - If the participants associated with this content are realized as on a contact construal, certain principles apply.
  - If the participants are realized as on a directed motion construal, other principles apply.
- **Focus:** The simple (bare transitive) contact event descriptions.

The argument realization of contact verbs: Focus on simple transitives

Argument realization: Basic principles

- An **effector** (Van Valin & Wilkins 1996) is a subject.
- A **force recipient** (affected entity broadly construed) is an object.
  (Beavers 2010; RH&L 2001)
- 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.

Next step: Illustrating how these principles play out with hitting and wiping roots in contact event descriptions.

Non-agentive simple transitive *scrape*

√*SCRAPE*: "x moves across a planar surface y while maintaining **sustained contact**"

In a contact event description:

- Both x and y are expressed, ensuring the essential content of *scrape* is instantiated.

- x falls under the notion 'effector' and is realized as a subject:
  - If a natural force, by its very nature.
  - If a physical object, by bearing a force that qualifies it as a projectile.

- y, the surface, is a force recipient; thus, realized as direct object.

Branches$_x$ **scraped** the fabric$_y$.

... the sand$_x$ **scraped** his skin$_y$.

Non-agentive simple transitive *smack*

√*SMACK*: "x moves on a trajectory that ends in **<u>contact</u>** with y"

In a contact event description:

- Both x and y are expressed, ensuring the essential content of *smack* is instantiated.

- x falls under the notion 'effector' and is realized as a subject:
    - If a natural force, by its very nature.
    - If a physical object, by bearing a force that qualifies it as a projectile.

- y, the surface, is a force recipient; thus, realized as direct object.

The washcloth$_x$ **smacks** the water$_y$.

Agentive simple transitive *smack*

√*SMACK*: "x moves on a trajectory that ends in **<u>contact</u>** with y"

In a contact event description where a human agent is manipulating x, a physical object, and imbuing it with a force:

• x is not self-energetic, so it will not qualify as an effector.

• The agent qualifies as the effector; thus, its subject realization.

• y, the surface, is again a force recipient; thus, realized as direct object.

Sam **smacks** the mosquito$_y$ (with a fan$_x$).

Agentive simple transitive *smack*

On the realization of x:

- As an entity manipulated by, and thus under the control of, an agent, it qualifies as an 'instrument' and may be realized in a *with* phrase:

  Sam **smacks** the mosquito$_y$ with a fan$_x$.

- More often, it is unexpressed:
  - Allowed because its existence is inferable: an agent will use an instrument/body part as necessary to impart the force on the surface.

    Sam **smacks** the mosquito$_y$.

Note: Realization of agentive simple transitive *scrape* is comparable.

Agentive simple transitive *smack*

Why are agentive subjects prevalent among the simple transitive uses of *smack, scrape,* and other contact verbs?

- Most of these verbs lexicalize a manner which is carried out by humans to conventionally bring about a particular result state.

- Further, the agentive uses of these verbs describe the prototypical instantiation of this lexicalized manner (see L&RH 2022 on *sweep*).

- Thus, there is an association between agentivity and these verbs.

Animates in non-agentive contact event descriptions

Pat whirled suddenly**, bumping** the apparatus.

- A person is acting unintentionally; thus, *Pat*'s subject realization is not due to agentivity.

- The subject refers to the person's whole body, which is understood as a moving entity bearing the force. (cf. DeLancey 1984)

- That is, the person is being construed as a physical object and thus qualifies as a projectile, giving rise to the subject realization.

- There are comparable uses with body part subjects:

Pat whirled suddenly, and her elbow **bumped** the apparatus.

Directed motion event descriptions: *scrape*

√*SCRAPE*: "x **moves** across a planar surface y while maintaining sustained contact"

Both x and y must be expressed to ensure the essential content is instantiated:

- 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: [$_{vP}$ *scrape* [$_{PP}$ x [$_{PP}$ P y]]]

Something$_x$ scraped across the floor$_y$ …

The sound of silverware$_x$ **scraping** on ceramic plates$_y$ seemed amplified …

Directed motion event descriptions: *scrape*

Such descriptions only arise when there is no external causer:

- The moving entity x must be understood as capable of self-motion due to an imbued force. (RH&L 2022; RH 2014)
- That is, x must be a natural force, animate entity, or projectile.

Something$_x$ **scraped** across the floor$_y$ …

Hitting verbs receive a comparable analysis. (Levin to appear)

Note: Will not discuss causative directed motion event descriptions.

The event descriptions compared

√*SMACK*: "x moves on a trajectory that ends in contact with y"

- Contact event descriptions:
  - x understood as an effector, hence a subject;
  - y understood as a force recipient, hence an object.

- Directed motion event descriptions:
  - x understood as a moving entity, hence a subject of an SC;
  - y understood as reference object, hence realized in the predicate of the SC.

Conclusions re (non)agentivity and (a)telicity

Initial question revisited: Is there an interdependence between the agentivity of the external argument and the properties of the VP complement as suggested by the resultative restriction?

- Considerable data show that non-agentive external arguments, like agentive external arguments, can occur in contexts without expressed or inferred result states.

- Identified the factors determining the realization of non-agentive arguments as subjects of contact verbs: these must be construable as effectors due to an imbued force (physical objects included).

Conclusions: Implications of the study

- Proposed that verbs of contact do not 'lexicalize' an agent. (L&RH 2022; Levin to appear; RH&L 2022)

- **A question for the future:** What does this mean for our understanding of agentivity**?**

Thank you!

References

Alexiadou, A., E. Anagnostopoulou & F. Schäfer (2015) *External Arguments in Transitivity Alternations*, OUP.

Alexiadou, A., F. Martin & F. Schäfer (2017) Optionally causative manner verbs: When implied results get entailed, handout, Roots V.

Beavers, J. (2010) The structure of lexical meaning: Why semantics really matters, *Language* 86, 821-864.

Borer, H. (2005) *Structuring Sense II: The Normal Course of Events*, OUP.

Bruening, B. (2010) Subject restrictions, particle verbs, and consumption verbs, Linguistics Commentary, blog post.

Cruse, D.A. (1973) Some thoughts on agentivity, *Journal of Linguistics* 9, 11-23.

Davies, M. (2008-) The corpus of Contemporary American English (COCA).

DeLancey, S. (1984) Notes on agentivity and causation, *Studies in Language* 8, 181-213.

References

Demirdache, H. & F. Martin (2015) Agent control over non-culminating events, in E. Barrajón López, J.L. Cifuentes Honrubia & S. Rodríguez Rosique eds., *Verb Classes and Aspect*, Benjamins, 185-217.

Dowty, D.R. (1979) *Word Meaning and Montague Grammar*, Reidel, Dordrecht.

Dowty, D.R. (1991) Thematic proto-roles and argument selection, *Language* 67, 547-619.

Folli, R. & H. Harley (2005) Consuming results in Italian and English: Flavors of V, in P. Kempchinsky & R. Slabakova, eds*., Aspectual Inquiries*, Springer, 95-120.

Folli, R. & H. Harley (2008) Teleology and animacy in external arguments, *Lingua* 118, 190-202.

Folli, R. & H. Harley (2023) Striking objects: Object drop and agency in English, slides, AIL 3.

Goldschmidt, A. & J. Zwarts. (2016) Force vectors in verb semantics, *SALT* 26, 433-450.

Grimm, S. (2007) The bounds of subjecthood: Evidence from instruments, *BLS* 33, 178-189.

Jackendoff, R.S. (1990) *Semantic Structures*, MIT Press.

.

References

Kearns, K. (2000) *Semantics*, St. Martin's.

Levin, B. (2017) The elasticity of verb meaning revisited, *SALT* 27, 571-599

Levin, B. (2020) Resultatives and constraints on concealed causatives, in E. Bar-Asher Siegal & N. Boneh, eds., *Perspectives on Causation*, Springer, 185-217.

Levin, B. (to appear) *Pounding up the stairs* and *slamming into the wall*: English hitting verbs in motion event descriptions, in E. Corre & L. Sarda, eds., *Neglected Aspects of Motion-Event Description: Deconstructing Motion Event*s, Benjamins.

Levin B. & M. Rappaport Hovav (2022) Conventionalized agentive activities and compositionality, in L. Stockall, L. Martí, D. Adger, I. Roy, and S. Ouwayda, eds., *For Hagit: A Celebration*, QMUL Occasional Papers in Linguistics 47.

Marantz, A.P. (1984) On the Nature of Grammatical Relations, MIT Press.

References

Martin, F. & S. Arunachalam (2022) Optional *se* constructions and flavours of applicatives in Spanish, *Isogloss* 8, 1-34.

Martin, F. & F. Schäfer (2014) Causation at the syntax-semantics interface, in B. Copley and F. Martin, eds., *Causation in Grammatical Structures*, OUP, 209-244.

Mateu, J. & G. Rigau (2010) Verb-particle constructions in Romance: A lexical-syntactic account, *Probus* 22, 241-269.

McNally, L. & A.A. Spalek (2022) Grammatically relevant aspects of meaning and verbal polysemy, *Linguistics* 60, 1943-1987.

Ono, N. (1992) Instruments: A case study of the interface between syntax and lexical semantics, English Linguistics 9, 196-222.

Ramchand, G. (2008) *Verb Meaning and the Lexicon: A First-Phase Syntax*, CUP.

Rappaport Hovav, M. (2014) Lexical content and context: The causative alternation in English revisited, *Lingua* 141, 8-29.

References

Rappaport Hovav, M. (2016) Grammatically relevant ontological categories underlie manner/result complementarity, *IATL* 32, MITWPL 36, 77-98.

Rappaport Hovav, M. & B. Levin (1998) Building verb meanings, in M. Butt & W. Geuder, eds., *The Projection of Arguments: Lexical and Compositional Factors*, CSLI Publications, 97-134.

Rappaport Hovav, M. & B. Levin (2001) An event structure account of English resultatives, *Language* 77, 766-797.

Rappaport Hovav, M. and B. Levin (2022) Ways of constructing agentivity, slides, Workshop on Agents: Grammar or Roots?, Annual Meeting of the Linguistic Association of Great Britain and Northern Ireland.

Ross, J.R. (1972) Act, in D. Davidson & G. Harmon, eds., *Semantics of Natural Language*, Reidel, 70-126.

Schäfer, F. (2012) Two types of external argument licensing – The case of causers, *Studia Linguistica* 66, 128-180.

References

Van Valin, R.D. & D.P. Wilkins (1996) The case for 'effector': Case roles, agents, and agency revisited, in M. Shibatani & S.A. Thompson, eds., *Grammatical Constructions*, Clarendon Press, 289-322.

Wojcik, R. (1976) Where do instrumental NPs come from?, in M. Shibatani, ed., Syntax and Semantics 6: The Grammar of Causative Constructions, Academic Press, 165-180.

Wolff, P., G. Jeon, B. Klettke & Y. Li (2010) Force creation and possible causers across languages, in B. Malt & P. Wolff, eds., *Words and the Mind: How Words Capture Human Experience*, OUP, 93-111.