Pounding up the stairs and slamming into the wall:
Hitting verbs in directed motion event descriptions

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Manner verbs in directed motion
event descriptions
Manner verbs in directed motion event descriptions

- English figures prominently in the literature on motion events.

- Why? Verbs whose meaning is unspecified for direction occur in descriptions – morphosyntactic realizations – of directed motion events.

  Pat sauntered into the room.
  Kim limped slowly to the chair.

- Directed motion event participants:
  - Theme (the entity that moves)
  - Path (along which the entity moves; includes a reference object)

- This option is not available to so-called verb-framed languages.
Manner verbs in directed motion event descriptions

- English directed motion event descriptions can include either directed motion or manner of motion verbs.

Directed motion verbs: arrive, ascend, come, go, ...

Pat came into the room.

Manner of motion verbs: jog, run, swim, walk, ...

Pat sauntered into the room.
Kim limped to the chair.
Manner verbs in directed motion event descriptions

- Manner of motion verbs do not lexicalize direction – i.e. path of motion.
- Direction is introduced in a PP (or particle).
- That is, English has morphosyntactic resources that allow manner of motion verbs in directed motion event descriptions.
  (i.e. making it a satellite-framed language)
Manner verbs in directed motion event descriptions

• In principle, these resources should allow verbs from other manner subclasses in directed motion event descriptions.
• Indeed, members of other subclasses are attested:

  – Verbs of sound emission
    The truck rumbled into the driveway.
    The elevator creaked to the third floor.

  – Verbs of substance emission
    The water gushed into the gutter.
    The grease seeped out of the paper bag.
Manner verbs in directed motion event descriptions

• The availability of these resources is not always sufficient to allow such uses of manner verbs.

• Some manner verbs cannot be used in directed motion event descriptions.

*The clowns laughed out of the room.
*The politician boasted onto the podium.
*Smith muttered to the counter.
*The dog barked over to the intruder.
Manner verbs in directed motion event descriptions

• In contrast, the *way* construction can be used for a wide range of manner verbs.

  The clowns laughed their way out of the room.  
  The politician boasted his way onto the podium.  
  The dog barked his way to the fence.

• This ‘complex’ construction can be used to express directed motion events, as well as more abstract event types.
Manner verbs in directed motion event descriptions

• Thus, there are constraints on manner verbs in (simple) directed motion event descriptions.

• An investigation of verbs from other manner subclasses in directed motion event descriptions should help better understand these constraints.

• **This talk:** Examines a subset of contact verbs: hitting verbs: bang, batter, bump, hit, pound, slam, slap, smack, ...
Manner verbs in directed motion event descriptions

• Hitting verbs lexicalize the exertion of a force on a ‘surface’.

• They are usually used in the description of simple surface contact events:

  The angry customer slammed the door.
  The mugger hit the passerby.

• But aren’t limited to such event descriptions.
Manner verbs in directed motion event descriptions

Hitting verbs occur in two types of directed motion event descriptions:

• Motion involving **multiple** instances of contact over a spatially extended ground:

  The tired hiker pounded up the steep trail.
  The truck bumped along the rutted track.

• Motion involving **one** instance of contact with the ground:

  The ball slammed into the fence.
  The run-away truck banged into the wall.
Manner verbs in directed motion event descriptions

• Some manner verbs occur in putting event descriptions, a type of caused directed motion. (These uses will not be a focus of this talk.)

  Verbs of force exertion: pull, push, shove, tug, yank, ...

  Pat shoved the clothes into the closet.
  Kim pushed the trolley into the room.

• Hitting verbs are among them.

  Pat pounded the nail into the board.
  The chef banged a dish into the rack.
  The pilots smacked the planes onto the deck.
Manner verbs in directed motion event descriptions

Understanding why hitting verbs are found in directed motion event descriptions requires identifying their lexicalized meaning.

**Lexicalized meaning:**
The meaning associated with a verb across all its uses.

Lexicalized meaning is best identified by looking at both:
- the whole range of uses available to hitting verbs
- the entire hitting verb inventory
Manner verbs in directed motion event descriptions

A preview of the conclusion:

• Hitting verbs lexicalize a force, which must be instantiated in an event participant.

• Some of these ‘force bearers’ engage in directed motion by virtue of being imbued with the relevant force.

• Hence, the presence of hitting verbs in directed motion event descriptions.
Manner verbs in directed motion event descriptions

Roadmap:

• Uses of hitting verbs
  – Contact uses
  – Directed motion uses
• The lexicalized meaning of hitting verbs
• Contact uses revisited
• Directed motion uses revisited
• Final thoughts
Uses of hitting verbs
Uses of hitting verbs

• Fillmore’s (1971) seminal study contrasts English hitting verbs and breaking verbs.
  Breaking verbs: break, crack, shatter, ...

• Hitting verbs specify contact with an entity, but unlike breaking verbs do not entail any change in this entity.
  The ball hit the window, but luckily it didn’t break.
Uses of hitting verbs

• Draw on a study of 6 hitting verbs in COCA: 
  *bang, batter, bump, pound, slap, smack*

• Identify recurring classes of examples – ‘uses’ – that should figure in the analysis.

• ‘Use’ is being used pretheoretically here.

• The following slides introduce these uses in a descriptive fashion.
Uses of hitting verbs

• Will present the uses in groups:
  – Uses involving contact event descriptions
  – Uses involving directed motion event descriptions
• Within each group will consider transitive and intransitive uses separately.
• Will largely ignore unintentional actions.
• Not every verb will show every use.
Uses of hitting verbs

• Event participants are given informal names inspired by nature of the event description:
  – Contact: agent, surface, instrument or body part, natural phenomenon
  – Directed motion: theme of motion, path (subsuming source and/or goal)

A goal: Identifying the facet of a hitting verb’s meaning that allows (many of) these verbs to be found in both types of event descriptions.
Uses of hitting verbs: Contact

• Transitive: subject – agent; object – surface
  Pat banged the drum.
  Pat pounded the meat.
  Pat slapped the intruder.

• Transitive: subject – agent; object – surface; with
  PP – instrument or body part
  Pat banged the drum with her palm.
  Pat pounded the meat with the hammer.
  Pat slapped the intruder with her right hand.
Uses of hitting verbs: Contact

- Transitive: subject – agent; object – instrument or body part; unexpressed – surface
  Pat banged the gavel/her fist.
  Pat pounded the gavel/her fist.

- Transitive: subject – agent; object – instrument or body part; locative PP \(\text{against, on}\) – surface
  Pat banged the spoon on the table.
  Pat pounded her fist against the armrest.
Uses of hitting verbs: Contact

• Transitive: subject – non-agent (theme?; e.g., natural phenomenon, physical object, body part); object – surface
  The shutters banged the wall.
  The rain pounded the roof.
  The waves battered the cliffs.
  The truck smacked the sedan.

Note: Usual semantic roles don’t fit subject well.
Uses of hitting verbs: Contact

• Intransitive: subject – agent; locative PP (on, against) – surface; unexpressed – body part or instrument
  Pat banged on the table.
  Pat pounded on the table/door.
Uses of hitting verbs: Contact

• Intransitive: subject – non-agent (theme?; body part, natural phenomenon, physical object); locative PP (against, on) – surface
  The shutters banged against/on the window.
  The waves pounded against the cliffs.
  Kim slammed against the wall.

  **Note:** Usual semantic roles don’t fit subject well.

  **Note:** Entire entity makes contact with surface.
Uses of hitting verbs: Contact

Key point: These uses do not involve ‘directed motion’.

• None describe the necessary displacement of an event participant to a new position.
• Even though an instrument, body part, or other entity moves into contact with the surface, this motion does not qualify as ‘directed motion’.
• This entity may still return to another position.
  The shutters banged against the window.
• In fact, due to its nature, this entity may not be truly displaceable: e.g., branches, shutters.
Uses of hitting verbs: Contact

• Most often the final location of this entity is left unspecified, even if sometimes inferable.
  Pat pounded the meat with a hammer.
  Pat pounded her fist against the table.

• When the surface is expressed in a PP, it is a locative (not directional) PP (cf. Rohde 2001):
  Pat pounded on/*onto the desk.
  The shutters banged on/*onto the wall.
  The baby banged the spoon on/*onto the table.
Uses of hitting verbs: Contact

• More evidence that the PP is locative.
  – Prepositions allowing locative and directional interpretations show the first interpretation:
    *Lieutenant Scheisskopf smacked his hands over his eyes in exasperation.* (COCA)
    *Ivan Drake slapped his palm across the offender's reedy neck ...* (COCA)
  – The PPs describe the hand’s/hair’s configuration with respect to the eyes/face and not the path traversed by the hands/hair (cf. Rohde 2001).
Uses of hitting verbs: Contact

Additional observations:

• Contact matters more than the motion or final position of the entity that comes into contact with the surface.

• Reflected in the oddness of those bare transitive uses with a body part/instrument object (and the surface unexpressed).

  Pat banged the gavel/her fist.
Uses of hitting verbs: Directed motion

• Intransitive: subject – theme of motion; directional PP – path of motion
  The car smacked into the retaining wall.
  The ball banged off the wall.
  The truck slammed into the pedestrian.

Note: Theme ends up at new location.
Uses of hitting verbs: Directed motion

• Intransitive: subject – theme; PP – (extended) path

The car banged through the potholes.
The pickup truck bumped along the trail.
Pat pounded up the stairs.

The PP is headed by a preposition such as along, over, through, that can be used to define a spatially extended path over the ground.

Note: Theme ends up at new location.
Uses of hitting verbs: Directed motion

Directed motion uses are distinct from intransitive *against* uses:

- The moving entity – the theme – ends up at a new location, contrasting with the moving entity in the *against* uses.

- Verbs that aren’t contact verbs, e.g., manner of motion verbs, are found in directed motion event descriptions, but aren’t always felicitous with *against* on the relevant meaning.

  I ran to/*against the wall.

  The bird flew into/*against the window.
Uses of hitting verbs: Caused motion

• Transitive: subject – agent, object – theme; PP – path; (with PP – instrument or body part)

He banged the dish into the rack.
He pounded the nail into the wall (with a hammer/his fist).

Note: theme ends up at new location.
Hitting verbs: Lexicalized meaning
Hitting verbs: Lexicalized meaning

The uses of hitting verb surveyed differ across several dimensions:

• Presence of an agent
• Whether the surface is expressed
• Whether the entity (e.g., instrument, body part) which makes contact is expressed
• Whether there is a locative or directional PP
• Alternate expressions of the event participants
Hitting verbs: Lexicalized meaning

However, these uses share facets of meaning:

• All involve an entity imbued with a force which comes into contact with another entity.

• Without this **force bearer**, there would not be an event nameable by a hitting verb.

• But the presence of a **force bearer** can play out in different ways; hence, the various uses of hitting verbs.
Hitting verbs: Lexicalized meaning

- **Proposal**: A hitting verb lexicalizes a force vector that ends in contact at a point (Goldschmidt & Zwarts 2016)

- A force has an origin, a magnitude, and a direction. (G&Z 2016)

- Each hitting verb lexicalizes a distinct type of force.

- This force vector must be instantiated in a participant in the event, the **force bearer**.
Hitting verbs: Lexicalized meaning

• A consideration of the English hitting verb inventory shows that the meanings of hitting verbs differ along several dimensions.

• These dimensions reflect properties of forces.

• Thus, they provide further support to the force analysis.
Hitting verbs: Lexicalized meaning

Relevant dimensions:

• **Magnitude of force:** pat, tap vs. slap, smack
• **Necessarily repeated contact:** pound vs. slap
• **Force bearer is a body part:** elbow, kick, peck
• **Force bearer is an instrument:** bat, club, whip
• **Contact is characterized by a specific sound:** bang, thud, whack
How hitting verb uses arise
How hitting verb uses arise

• Certain event types may have a participant ‘construable’ as a force bearer and, thus, involve a force vector.
  – Contact events, by their very nature
  – Directed motion events, in some circumstances

• Instances of such events can be named by the hitting verb that lexicalizes the characteristics of the relevant force vector.
How hitting verb uses arise

• Since a particular force vector may be found in different event types, the hitting verb that lexicalizes its characteristics will occur in different types of event descriptions.

• Will now revisit the hitting verb uses from this perspective.

• Will pay special attention to the force bearer.
How contact uses arise

When an agent is involved in the event:

• When an agent uses a body part or an instrument to make contact with a surface, the body part or instrument is the force bearer.

• That is, the force vector is instantiated in the body part or instrument.
How contact uses arise

• English has two distinct morphosyntactic realizations for this scenario, as reflected in two choices of object:
  – Instrument/body part – i.e. force bearer – as object:
    The vandal banged the stick against the car.
  – Surface as object:
    The vandal banged the car with the stick.
How contact uses arise

Agent uses (cont.):
Pat pounded the gavel./Pat banged her fist.

• Just the instrument/body part – i.e. force bearer – and not the surface is expressed.

• This expression is often dispreferred perhaps because information is left out.

• It mainly occurs in frequent collocations, which may show additional connotations.
How contact uses arise

Agent uses (cont.):
Pat banged the drum./Pat pounded the meat.

• The force bearer is not expressed but may be inferable from the type of activity that the agent usually engages in (cf. Talmy’s ‘metonymic clipping’ 2000; Van Valin & Wilkins 1996).

• In some languages this option is only available with animate surfaces.
How contact uses arise

Agent uses (cont.):
Pat banged on the drum.

• The force bearer is not expressed.
• In some languages this is the preferred argument realization option, at least with inanimate surfaces.
How contact uses arise

When an agent is not involved in the event:

The car bumped the truck.
The hurricane pounded the coast.

• A natural phenomenon, machine, or other physical object imbued with kinetic energy is the force bearer and makes contact with a surface.

• Unlike scenarios with an agent, the force bearer must be expressed.
How contact uses arise

Uses not involving an agent (cont.):

Pat whirled suddenly and her elbow bumped the apparatus.

- The force bearer is a body part of a human acting unintentionally; these uses are analogous to those on previous slide.

Pat whirled suddenly, bumping the apparatus.

- A human is acting unintentionally; the subject refers to the person’s whole body, which is the force bearer (cf. DeLancey 1984); these uses too are comparable to those one slide back.
How contact uses arise

The force bearer plays distinct parts in the different uses:

• an instrument an agent brings into contact with a surface
• a body part which an animate entity brings into contact with a surface (either intentionally or unintentionally)
• a natural phenomenon/force or self-energetic entity, which due to its intrinsic energy moves into contact with a surface
• an animate entity that unintentionally brings its whole body into contact with a surface
How directed motion uses arise: 
Single contact

The car slammed into the wall.

- Certain **force bearers** move autonomously due to the kinetic energy that the force imparts to them.
- Such **force bearers** are ‘projectiles’ (Kearns 2000; cf. Cruse 1973, Wolff et al. 2010).
- They move along a path determined by the force until they make contact with a ground in their path – the goal of motion.
- A hitting verb that lexicalizes the appropriate force can be used in the description of such a directed motion event.
How directed motion uses arise: Multiple contact

A car bumped along the trail./Pat pounded up the stairs.

• As it moves, the theme of motion necessarily makes contact multiple times with the ground constituting the path of motion.

• The theme is the force bearer in each instance of contact.

• A hitting verb that lexicalizes the appropriate type of force can be used in the description of such an event.
A car bumped along the trail./Pat pounded up the stairs.

• The multiple instances of contact characteristic of such events require a spatially extended path.
• This constrains:
  – the preposition; e.g., *across, along, over, through*.
  – the ground: must have natural spatial extent; e.g., *field, stairs, track, trail*.  

How directed motion uses arise:
Multiple contact
How directed motion uses arise: Multiple contact

A car bumped along the trail./Pat pounded up the stairs.

- The contact is a necessary concomitant to theme’s motion.
- Thus, these uses are the hitting verb analogue of motion event descriptions with verbs of sound emission.

  The truck rumbled down the street.

- In some instances, the contact is even associated with a characteristic sound; e.g., bang, pound, thud.
How directed motion uses arise

**Prediction:** Given their lexicalized meaning, certain hitting verbs should show only the multiple contact directed motion uses.

- Some hitting verbs lexicalize necessarily repeated contact; others are indifferent and may apply to one or more instances of contact: *batter, pound* vs. *bang, bump, slam, slap*

- A hitting verb which lexicalizes repeated contact should only be found in those directed motion event descriptions which involve multiple instances of contact.

- A corpus study confirms this: *batter* and *pound* are only attested in such descriptions.
How directed motion uses arise: Continuous contact

Hitting verbs occur in directed motion event descriptions where a force bearer/theme moves while making either single or multiple instances of contact with the ground.

**Question:** Are there directed motion event descriptions where a force bearer/theme is in continuous contact with the ground?

**Answer:** Yes!

- A chair scraped across the floor.
- A storm swept through the valley.
How directed motion uses arise: Continuous contact

Attested instances involve another subclass of contact verbs:

**Wiping verbs:** rub, scrape, sweep, wash, wipe, ...

- Wiping verbs lexicalize contact with a ‘region’, unlike hitting verbs, which lexicalize contact at a ‘point’ (Levin 2017).
  - i.e. the force can’t be described with respect to a point on the surface.
- Thus, the **force bearer** is in contact with a spatially extended surface, allowing for continuous contact directed motion uses.
Final thoughts

• A hitting verb lexicalizes a specific force vector and form of contact.

• What unifies the contact and directed motion uses of a hitting verb is the presence of the lexicalized force vector and the force bearer instantiating the force.
Final thoughts

• The force bearer ‘aligns’ with a participant in each event type, as determined by the nature of the event type:
  – Contact: (agent), force bearer (i.e. instrument, body part, natural phenomenon, ...), surface
  – Directed motion: theme, path

• Thus, from the perspective of event type, the force bearer shows distinct ‘semantic roles’.
Final thoughts

• This study should help us better understand what allows manner verbs to be used in the expression of directed motion.

• It could be fruitful to look at hitting verbs in other languages:
  – Predict they would be unlikely to be found in directed motion event descriptions in verb-framed languages.
  – Perhaps even some satellite-framed languages would be less permissive than English, given variation in this respect with verbs of sound emission.
Thank you!

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References


References


References


References
