

Verb Classes Within and Across Languages

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Verb classes are sets of semantically-related verbs sharing a range of linguistic properties, such as:

- possible realizations of their arguments
- interpretation associated with each possible argument realization

A big question posed by the Valency Project:

Which facets of verb classification are universal and which language particular?

Overview:

- Review my general perspective on verb classes.
- Introduce a development in my work on verb classes.
- Consider its implications for future crosslinguistic studies of verb classes.

1 Introduction: The appeal of semantic verb classes—or valency classes

Fillmore’s “The Grammar of *Hitting* and *Breaking*” (1970) shows the importance of verb classes as:

- devices for capturing patterns of shared verb behavior
- a means of investigating the organization of the verb lexicon
- a means of identifying grammatically relevant elements of meaning

Fillmore’s study focuses on *break* and *hit* as representatives of two larger classes of verbs (1970: 125, (15)–(16)), whose members share elements of meaning and patterns of behavior.

- (1) a. *Break* VERBS: bend, **break**, crack, fold, shatter, split, snap, . . .
b. *Hit* VERBS: bash, bump, **hit**, kick, pound, slap, strike, stroke, tap, whack, . . .

The *break* verbs and *hit* verbs show considerable divergences in their argument realization options.

- (2) Availability of transitive use and instrumental *with* phrase:
- a. The boy broke the window (with a ball).
 - b. The boy hit the window (with a ball).
- (3) Availability of the causative alternation (V-transitive = ‘cause to V-intransitive’):
- a. The boy broke the window./The window broke.
 - b. The boy hit the window./*The window hit.
- (4) Availability of the *with/against* alternation (Fillmore 1977: 74–78):
- a. Perry broke the fence with the stick. ≠ Perry broke the stick against the fence.
 - b. Perry hit the fence with the stick. = Perry hit the stick against the fence.

- (5) Availability of body-part possessor ascension, i.e. “external possession” (Fillmore 1970: 126, (23)–(26)):
- a. I broke his leg./*I broke him on the leg.
 - b. I hit his leg./I hit him on the leg.
- (6) Availability of the conative alternation:
- a. Janet broke the vase/*Janet broke at the vase.
 - b. Carla hit the door./Carla hit at the door.

Concomitantly, the members of each set of verbs share the same broad semantic characterization:

- (7) a. *Break* VERBS: Change of state verbs: involve a change of state in an entity.
 b. *Hit* VERBS: Surface contact verbs: involve (often forceful) contact with an entity, without entailing a change in its state.
- (8) Evidence bearing on whether a change of state is lexicalized:
- a. # The rocks broke the windshield, but luckily it wasn’t damaged.
 - b. The rocks hit the windshield, but luckily it wasn’t damaged.

2 Moving beyond Fillmore’s “The Grammar of *Hitting* and *Breaking*”

- That classes of verbs with similar meanings—Fillmorean classes—show characteristic argument realization patterns suggests the patterns follow from meaning facets common to their members.
- Many (subsequent) studies—both large- and small-scale—have confirmed and extended Fillmore’s findings (e.g., Apresjan 1967, Dixon 1991, Faber & Mairal Usón 1999, Green 1974, Gruber 1967, Jackendoff 1990, L&RH 1991, Willems 1981, Zwicky 1971).

AN EXAMPLE: My book *English Verb Classes and Alternations* (Levin 1993) classifies English verbs that do not (exclusively) take sentential complements in two ways:

— according to their SEMANTIC CONTENT: manner of motion verbs, directed motion verbs, sound verbs, change of state verbs, perception verbs, verbs of gestures and sign, weather verbs, . . .

⇒ yields a fairly fine-grained semantic classification: 48 broad classes or 192 smaller classes.

Among the largest broad classes: change of state verbs, manner of motion verbs, sound verbs, and experiencer object psych-verbs.

— according to their PARTICIPATION IN ARGUMENT ALTERNATIONS: causative alternation, conative alternation, dative alternation, locative alternation, *with/against* alternation, . . .

⇒ yields a coarser-grained semantic classification, which appears to have more grammatical relevance than the other (e.g., Fillmore’s *hitting* and *breaking* study): 79 alternations.

- The two dimensions of lexical classification lead to distinct and different-sized verb classes: The class of verbs showing a certain alternation often includes several semantic verb classes.

- (9) The English dative alternation: Pat gave Sam a pear./Pat gave a pear to Sam.
- a. *give* VERBS: give, pass, hand, sell, pay, trade, lend, loan
 - b. VERBS OF FUTURE HAVING: advance, allocate, allot, allow, assign, award, bequeath, forward, grant, guarantee, leave, offer, promise
 - c. *send* VERBS: mail, send, ship
 - d. *throw* VERBS: fling, flip, kick, lob, shoot, slap, throw, toss
 - e. VERBS OF CONTINUOUS CAUSATION OF ACCOMPANIED MOTION IN A DEICTICALLY SPECIFIED DIRECTION: bring, take

(based on Gropen et al. 1989: 243–244; “benefactive” and manner of speaking/communication verbs omitted for simplicity.)

3 Hitting and breaking beyond English

FURTHER SUPPORT FOR VERB CLASSES: Comparable semantic classes, again with distinct behavioral patterns, often paralleling those of their English counterparts, can be identified in other languages, such as Berber, Warlpiri, and Winnebago (Guerssel et al. 1985), Kimaragang Dusun (Kroeger 2010), and Lhasa Tibetan (DeLancey 1995, 2000).

ESTABLISHING THE CLASSES: The relevant morphosyntactic phenomena may vary somewhat across languages, depending on their morphosyntactic resources (e.g., Gerds 1993).

EXAMPLES: The conative alternation is not manifested in many languages (Bohnenmeyer 2007), nor is the resultative construction (Green 1973, Snyder 2001, Son & Svenonius 2008), while body-part possessor ascension (or “external possession”) takes different forms across languages (e.g., König & Haspelmath 1998). See also Osam (2008) on Akan alternations, and Hirschbühler (2003), Hunter (2008), and Kim (1999) on the locative alternation.

- (10) a. kick something shut/open
 b. fermer/ouvrir du pied
 ‘shut/open with the foot’ (Green 1973:269-270)

3.1 A digression: A caution concerning purported translation equivalents

The Italian verb *arrossire* and the Dutch verb *blozen* are both taken to mean ‘blush’.

Assuming auxiliary selection is largely semantically determined in some languages, then it seems unexpected that these two verbs select different auxiliaries.

- (11) Italian *arrossire* ‘blush’ takes the auxiliary *essere* ‘be’
 Dutch *blozen* ‘blush’ takes the auxiliary *hebben* ‘have’
- (12) Auxiliary selection criteria:
 Activity verbs take the auxiliary HAVE
 State and change of state verbs take the auxiliary BE

However, despite being translation equivalents, the two verbs are fundamentally different:

- (13) *blozen*: activity
- a. J heeft een uur lang gebluost
'J has one hour long blushed'
- b. *J heeft in een uur gebluost
'J has in one hour blushed' (McClure 1990: 314, Table 4)
- (14) *arrossire* (= *a-* + *rosso* + *-ire* 'become red'): change of state
- a. *G è arrossito per 10 minuti
'G blushed for 10 minutes'
- b. G è arrossito in un secondo
'G blushed in one second' (McClure 1990: 314, Table 4)

THE LESSON: Translation equivalents may differ precisely in a grammatically relevant component of meaning because they may represent different construals of the same happening.

3.2 Hitting and breaking in Kimaragang Dusun (Kroeger 2010)

Kimaragang Dusun (northern Borneo) makes a clear distinction between *hit* and *break* verbs.

As in other Philippine-type languages, the semantic role of the 'nominative' NP is indicated by a voice affix on the verb root.

- Roots of *break* verbs have both transitive and intransitive forms, paralleling the English causative alternation, though with distinct voice affixes, while roots of *hit* verbs have only a transitive form.

Break verbs (excerpted from Kroeger 2010: 4, Table 1)

Root	Gloss	Intransitive	Transitive
<i>babak</i>	'shatter'	<i>mabak</i>	<i>mamabak</i>
<i>kinis</i>	'tear (e.g., cloth)'	<i>kuminis</i>	<i>monginis</i>
<i>lapak</i>	'split'	<i>lumapak</i>	<i>mangalapak</i>
<i>lupi</i>	'fold (e.g., cloth)'	<i>lumupi</i>	<i>mongolupi</i>
<i>putut</i>	'break (rope etc.)'	<i>mutut</i>	<i>momutut</i>
<i>tipu</i>	'break (stick etc.)'	<i>tumipu</i>	<i>monipu</i>
<i>uyas</i>	'pull apart'	<i>muyas</i>	<i>monguyas</i>

Hit verbs (excerpted from Kroeger 2010: 4, Table 1)

Root	Gloss	Intransitive	Transitive
<i>bobog</i>	'beat (w. stick)'	* <i>mobog</i>	<i>momobog</i>
<i>duntuk</i>	'bump, knock'	* <i>dumuntut</i>	<i>mongoduntut</i>
<i>duntung</i>	'punch (w. fist)'	* <i>dumuntung</i>	<i>mongoduntung</i>
<i>lapis</i>	'slap'	* <i>lumapis</i>	<i>mangalapis</i>
<i>pasut</i>	'cane'	* <i>masut</i>	<i>mamasut</i>
<i>sudsur</i>	'poke'	* <i>sumudsur</i>	<i>monudsur</i>

- Normally, instruments can be expressed with the transitive prefix *poN-* plus the bare instrument voice (IV) form of the verb (i.e. zero affix); however, some *hit*-verbs also can express an instrument in the bare instrument voice form, with a change in the realization of the surface argument.

— The *poN-* + instrument voice form is available to verbs generally, including *break* and *hit* verbs.

- (15) Dunsul ot pinangababak dilot pampang.
 <in>0-poN-babak
 hammer NOM IV-TR-chop that rock
 ‘It was a hammer that that rock was broken up/shattered with.’ (Kroeger 2010: 10, (17b))
- (16) Gibang nopo ot pongoduntung ku dialo, aba no.
 0-poN-duntung
 left only REL IV-TR-punch 1SG.GEN 3SG faint PRTCL
 ‘Even if it is only my left (hand) that I hit him with, he will pass out.’ (Kroeger 2010: 10, (20b))

— The bare instrument voice form is available to *hit* verbs, but not *break* verbs; the surface is now marked with dative case.

- (17) *i-babak *i-putut *i-lupi *i-uyas etc.
 IV-shatter IV-break IV-fold IV-pull.apart (Kroeger 2010: 10, (17a))
- (18) N-i-duntung dialo sid tobon a tonggom yo
 PST-IV-punch 3SG DAT wall NOM fist 3SG.GEN
 ‘He punched his fist against the wall.’ (Kroeger 2010: 10, (20a))

Sentences with the bare instrument voice form have an interpretation comparable to the *against* variant of the English *with/against* alternation.

“certain roots in the *hit* class have secondary senses which describe a particular manner of moving a theme in order to bring it into contact with a surface.” (Kroeger 2010: 11)

- The non-volitive form of *break* verb roots describes (and entails) a result, whereas the non-volitive form of *hit* verb roots only describes an action.

- (19) Monomutut oku do wakaw nga’, amu n-o-putut.
 PST.AV.TR.break 1SG.NOM ACC rattan but not PST-NVOL-break
 ‘I (tried to) break some rattan, but it didn’t break.’ (Kroeger 2010: 6, (7c))
- (20) *Minamasut oku do karabaw nga’, amu n-a-pasut-0.
 PST.AV.TR.whip 1SG.NOM ACC buffalo but not PST-NVOL-whip-OV
 ‘I (tried to) whip a buffalo, but it didn’t whip/get whipped.’ (intended; Kroeger 2010: 6, ((8c))

- *break* verbs impose “selectional restrictions” on their patient, *hit* verbs on their instrument.

4 Behind hitting and breaking: The manner/result verb distinction

A dichotomy relevant to verb meaning and verb behavior: The manner vs. result verb dichotomy among nonstative verbs.

4.1 Hitting and breaking revisited

- *hit* and *break* jointly make for a compelling case study because certain events could be described by either one, yet the choice of one verb or the other has significance.

EXAMPLE: A vandal throws a rock at a store window and the window breaks.

This event could be described with either verb, though each describes a different facet of the event:

- (21) a. The vandal broke the window with a rock.
b. The vandal hit the window with a rock.

(a) asserts that the window is no longer intact, but is silent about how it happened: the window could have been hit, kicked, punched, or pounded and a variety of instruments could have been used: rocks, hammers, fists, sticks, balls, etc.

→ This is because *break* is a change of state verb.

(b) asserts that something forcefully came into contact with the window, but is silent as to whether this contact had any effect on the window. The verb does not entail that the window broke, though it may have, as it describes an action that often results in this change of state.

- (22) The rock that the vandal threw hit the window, but luckily it wasn't damaged.

→ This is because *hit* is a surface contact verb.

- Generalizing, verbs describing events in which physical objects are damaged fall into two classes:
 - verbs like *hit* that describe making surface contact with an object via forceful impact; these MANNER(/means) verbs describe ways of potentially damaging objects; e.g., *hit, kick, punch, slap, whack*.
 - verbs like *break* that describe changes in an object's "material integrity" (Hale & Keyser 1987); these RESULT verbs describe specific types of damage that often result from forceful impact; e.g., *break, crack, shatter, splinter, split*.

4.2 Beyond hitting and breaking: The pervasiveness of the dichotomy

The bifurcation in the "verbs of damaging" class is representative of a more pervasive split in the English nonstative verb inventory (L&RH 1991, RH&L 1998, 2010).

Other apparently "semantically coherent" verb classes of English can be similarly subdivided, giving rise to lexical domains with two subclasses of verbs:

- Manner verbs: specify manner of carrying out an action
- Result verbs: specify result of an action

	Manner verbs	vs.	Result verbs
— Verbs of damaging:	<i>hit</i>	vs.	<i>break</i>
— Verbs of putting — 2-dim:	<i>smear</i>	vs.	<i>cover</i>
— Verbs of putting — 3-dim:	<i>pour</i>	vs.	<i>fill</i>
— Verbs of removal:	<i>shovel</i>	vs.	<i>empty</i>
— Verbs of combining:	<i>shake</i>	vs.	<i>combine</i>
— Verbs of killing:	<i>stab</i>	vs.	<i>kill</i>

- The verb class defined by the Manner column is grammatically relevant despite the perceived semantic diversity of its members; the same holds of the class defined by the Result column.
- However, the "semantic classes" in the leftmost column are not grammatically relevant; they may be perceived as semantic classes since certain manner verbs and certain result verbs can sometimes describe the same events, just as *break* and *hit* do.

The source of this intuition most likely lies in the observation that:

- Many result verbs lexicalize results that are conventionally associated with particular manners.
e.g., *clean* and *clear* lexicalize states that may result from removing stuff from a surface in a prototypical manner.
- Many manner verbs lexicalize manners that are conventionally associated with particular results.
e.g., *wipe* and *scrub* lexicalize actions involving surface contact and motion, which are often used to remove stuff from a surface.

HOWEVER, such result verbs don't entail the manners, nor do such manner verbs entail the results.

- (23) a. I just wiped the table, but it's still dirty/sticky/covered in crumbs.
b. I cleaned the dress by soaking it in vinegar/pouring bleach on it/saying "abracadabra".

- A proposal concerning the origins of the dichotomy: it arises from a lexicalization constraint.

(24) MANNER/RESULT COMPLEMENTARITY: Manner and result meaning components are in complementary distribution: a verb lexicalizes only one (L&RH 1991, RH&L 2010).

(25) LEXICALIZED MEANING: Those components of a verb's meaning that are specified and entailed in all uses of the verb, regardless of context.

- RH&L (2010) propose this distinction is rooted in the notion 'scalar change' (Hay, Kennedy & Levin 1999, McClure 1994, Rappaport Hovav 2008).

- A comparable dichotomy is found in the motion domain, as reflected in Talmy's classification of motion verbs in terms of "conflation" of meaning components (1975, 1985, 2000):

— Motion and path verbs: e.g., *arrive, ascend, descend, enter*

e.g., *ascend* specifies a direction of motion, but not the manner in which the motion is effected.

— Motion and manner verbs: e.g., *amble, fly, jog, plod, run, saunter, swim, walk*

e.g., *jog* specifies a manner of motion, but is neutral as to the specific direction of motion.

→ Path (i.e. Directed motion) verbs, then, can be subsumed under result verbs.

- The notions "manner" and "result" apply to verbs that do not easily fit into larger lexical "domains" spanning the manner and result verb classes.

- (26) a. MANNER VERBS: cry, eat, exercise, mutter, scribble, shout, squeak, waltz, ...
b. RESULT VERBS: arrive, dry, come, destroy, gladden, melt, widen, ...

- The dichotomy figures in language acquisition (Behrend 1990, Gentner 1978).

4.3 A second case study: The verbs *clear* and *wipe* (L&RH 1991)

Goals:

— Reinforce the bottom lines of Fillmore's case study with another one.

— Determine whether some verb properties reflect membership in the manner or result verb class.

- *Clear* and *wipe* represent two classes of verbs, whose members share patterns of behavior.

- (27) a. Doug cleared the table.
 b. Kay wiped the counter.
- (28) a. *Clear* Verbs: **clear**, clean, ?drain, empty
 b. *Wipe* Verbs: buff, brush, erase, file, mop, pluck, prune, rake, rinse, rub, scour, scrape, scrub, shear, shovel, sweep, trim, vacuum, **wipe**, ...

• The *clear* and *wipe* verbs show considerable divergences in their argument realization options.

(29) Availability of the causative alternation (V-transitive = ‘cause to V-intransitive’):

- a. Martha emptied the tub./The tub emptied.
 b. Sam mopped the floor./*The floor mopped.

(30) Availability of the conative alternation:

- a. Martha emptied the tub./*Martha emptied at the tub.
 b. Kay rubbed/scraped the counter./Kay rubbed/scraped at the counter.

(31) Availability of unspecified objects:

- a. Martha emptied the tub./*Martha emptied.
 b. Kay swept/wiped the floor./Kay swept/wiped.

(32) Availability of non-subcategorized objects:

- a. *Martha emptied the floor wet.
 b. Kay scrubbed her hands raw.

• Even the “names” of the verbs of each type are different in origin.

(33) The *clear* verbs are largely deadjectival:

- a. clean the blackboard; a clean blackboard
 b. clear the road; a clear road
 c. empty the drawer; an empty drawer

(34) No *wipe* verb is deadjectival; however, some are denominal:

- a. buff, erase, pluck, prune, rinse, rub, scour, scrape, scrub, shave, sweep, wipe, ...
 b. brush, file, mop, rake, shear, shovel, sponge, vacuum, ...

(35) Sylvia mopped the spots from the floor.

• Though the *wipe* verbs can be used to describe actions of removal, few *wipe* verbs lexicalize a notion of removal: for instance, many can be used in the description of putting events.

- (36) a. Kay wiped/rubbed the fingerprints from the counter.
 b. Kim scrubbed the soap scum out of the sink.
 c. Pat raked the leaves off the lawn.

- (37) a. Kay wiped/rubbed the polish over the table.
 b. Lynn raked the fertilizer into the lawn.
 c. Sylvia shovelled the gravel onto the path.

- What is basic to the *wipe* verbs is the description of an event of contact with a surface, but the verb itself need not entail a particular change to that surface.

(38) Evidence bearing on whether a change of state is lexicalized:

- a. Kay wiped the counter, but it was still dirty when she finished.
 b. # Kay cleaned the counter, but it was still dirty when she finished.

- The members of each set of verbs share the same broad semantic characterization:

- (39) a. *Clear* Verbs: Verbs of change of state: involve a change of state in an entity.
 b. *Wipe* Verbs: Verbs of surface contact: involve contact with an entity, without entailing a change in its state.

Thus, *wipe* verbs are manner verbs, and *clear* verbs are result verbs.

5 The grammatical relevance of the manner/result verb dichotomy

Not only do manner and result verbs differ systematically in meaning, but they differ in their argument realization options (RH&L 1998, 2005). (See Levin 1999, 2006, RH&L 1998 for a theory of event structure that accounts for these differences in behavior.)

5.1 The basic differences in argument realization

- Result verbs show the causative alternation, but manner verbs do not.

- (40) a. Kim broke the window./The window broke.
 b. Kim wiped the window./*The window wiped.

- More generally, manner verbs show considerably more and different argument realization options than result verbs. (RH&L 1998).

- (41) a. Terry wiped. (activity)
 b. Terry wiped the table. (activity)
 c. Terry wiped the crumbs off the table. (removing)
 d. Terry wiped the crumbs into the sink. (putting)
 e. Terry wiped the slate clean. (change of state)
 f. Terry wiped the crumbs into a pile. (creation)
 (likewise many surface contact verbs)

- (42) a. The dishes broke.
 b. Kelly broke the dishes.
 c. * Kelly broke again tonight when she did the dishes.
 d. * The clumsy child broke his knuckles raw.
 e. * Kelly broke the dishes off the table.
 (meaning: Kelly removed the dishes from the table by breaking the table;
 cf. *Kelly wiped the crumbs off the table.*)
 f. * Kelly broke the dishes off the table.
 (meaning: Kelly broke the dishes and as a result they went off the table;
 cf. *Kelly shoved the dishes off the table.*)
 (likewise many change of state verbs)

- The most significant differences between manner and result verbs involve objects, including object types and object alternations.

- Manner verbs, but not result verbs are found with unspecified objects without recourse to generic or repetitive contexts (RH&L 1998, Wright & Levin 2000, notwithstanding questions raised by Goldberg 2001).

- (43) a. Leslie swept/scrubbed (the floor) this morning.
 b. * Kelly broke again tonight when she did the dishes.

- Manner verbs, but not result verbs are found with nonsubcategorized objects.

- (44) a. The child rubbed the tiredness out of his eyes.
 Cinderella scrubbed her hands raw.
 b. * The clumsy child broke the beauty out of the vase.
 * The clumsy child broke his knuckles raw.

5.2 Further differences: Object alternations

Many well-known object alternations are found with manner—and not result—verbs (Levin 2006).

OBJECT ALTERNATIONS: Argument alternations involve 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.

- (45) Locative alternation — putting subtype:
 a. Jill sprayed paint on the wall.
 b. Jill sprayed the wall with paint.
- (46) Locative alternation — removing subtype:
 a. Jack wiped crumbs off the counter.
 b. Jack wiped the counter.

- (47) Material/product alternation:
- a. Martha carved a toy out of the piece of wood.
 - b. Martha carved the piece of wood into a toy.

- (48) Image impression alternation:
- a. Taylor embroidered peonies on the jacket.
 - b. Taylor embroidered the jacket with peonies.

- (49) *With/against* alternation:
- a. Sam hit the fence with a stick.
 - b. Sam hit a stick against the fence.

CAVEAT: Assume following RH&L (2008) 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, Levin 2006, Maling 2001, Marantz 1993).

- Verbs from some semantic classes do not 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*).

- (50) 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 verbs don’t allow unspecified and nonsubcategorized objects.

- (51) * Kelly broke/dimmed/filled/covered/obtained/inserted.

- (52) 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.

- Verbs attested in these object alternations are manner verbs (e.g., they don’t entail a result).

- (53) a. Locative alternation — adding subtype: dab, smear, splash, spray, sprinkle, ...
 b. Locative alternation — removing subtype: rake, rub, scrub, shovel, sweep, wipe, ...
 c. Image impression alternation: emboss, embroider, engrave, paint, ...
 d. Material/product alternation: carve, knit, sculpt, sew, weave, whittle, ...
 e. *With/against* alternation: beat, hit, pound, tap, whack, ...

- Object alternation verbs show key properties of manner verbs:
 they allow unspecified and nonsubcategorized objects.

(54) Shelly swept/scratched/hit/carved/sewed/knit.

(55) Locative alternation — removing subtype:

- a. Cinderella swept and scrubbed her way to a new ball gown.
 b. Cinderella swept and scrubbed herself into catatonia.

(56) Locative alternation — putting subtype:

- 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)

(57) Image impression alternation:

- a. Whether you’ve never put a needle to cloth, or you’re a tailor ‘extraordinaire’ you can **embroider** your way into a really classy piece of art ...
 (<http://www.sfx.ac.uk/groups.html>)
 b. To quickly drill through glass, use the tip of the cutting bit to **engrave** your way through the glass. (http://www.truebite.com/drill_degrouit/)

(58) Material/Product Alternation:

- a. Drew **sewed** her way to a job in the fashion industry.
 b. ... she could, and did, **knit** her way serenely through all the complications which murder produces ... (P. Wentworth, *Pilgrim’s Rest*, 1946; HarperPerennial, New York, 1993, p. 12)

(59) *With/against* alternation:

- a. And **kicked** himself into contention for the league’s Most Valuable Player honor. (J. Duarte, “Goal-Oriented: Rested Dougherty Has Hotshots Ready for the Title Run”, Sports Section, *The Houston Chronicle*, August 8, 1997, p. 6)
 b. 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)

5.3 Grain-size and verb classification

- The manner/result distinction does not obviate the need for Fillmorean verb classes (Levin 2010).

WHY THE MANNER/RESULT DISTINCTION MATTERS: It influences argument realization options: manner verbs show considerably more and different options than result verbs, particularly with respect to object types and object alternations (RH&L 1998).

WHY FILLMOREAN CLASSES MATTER: They determine quite specific argument realization options, such as types of objects allowed, participation in specific object alternations.

- Whether a verb shows an object alternation depends on its being a manner verb.
- Which object alternations a verb shows depends on the specific manner it lexicalizes: contrast *vacuum* which shows the removing form of the locative alternation to *hit* which shows the *with/against* alternation.

- SUMMARY: Manner/result classification determines the properties a verb may have available; finer-grained classification arising from further lexicalized elements of meaning determine how and whether these properties are actually instantiated.
- See Boas (2006, 2008) and Levin (2010) on whether even finer-grained verb classes are necessary.

6 Implications of the manner/result dichotomy for the Valency Project

A question for the Valency Project:

Does the manner/result verb dichotomy play a role in understanding the argument alternations and other verb-related phenomena of languages beyond English?

More specific questions for investigation:

- Do manner verbs show more argument realization options than result verbs in other languages?
- Do manner verbs show more variety than result verbs in their argument realization options across languages?

CASE STUDY: Argument realization options of surface contact verbs within and across languages.

6.1 The data

- HEBREW: The surface contacted is expressed in a PP headed by the locative preposition *be*.

(60) *ba'at* 'kicked', *dafaq* 'knocked/beaten', *halam* 'beaten/hit', *hika* 'beaten/hit', *naga* 'touched', *xavat* 'hit', ... (Botwinik-Rotem 2003: 10, Halevy 2008: 63)

- LHASA TIBETAN: The counterpart of English *hit* is not transitive: the argument denoting the surface contacted takes a locative marker. Concepts expressed by other surface contact verbs involve verb-noun combinations (DeLancey 1995, 2000).

(61) thub=bstan-gyis blo=bzang-la gzhus-song.
Thubten-ERG Lobsang-LOC hit-PERF
'Thubten hit Lobsang' (DeLancey 2000:6, (18))

- (62) shing-la sta=re gzhus-pa.
tree-LOC axe hit
'hit the tree with an axe' (DeLancey 2000:13, (61))
- (63) thub=stan-gyis blo=bzang-la mur=rdzog gzhus-song
Thubten-ERG Lobsang-LOC fist hit-PERF
'Thubten punched Lobsang' (DeLancey 2000:13, (64))
- (64) nga-s blo=bzang=la rdog=rdyag gzhus-pa yin
I-ERG Lobsang-LOC kick_N hit/throw-PERF/CONJUNCT
'I kicked Lobsang' (DeLancey 1995: (20))

Locative case is not found on the patient argument of change of state verbs.

• **INGUSH:** The counterparts of certain English surface contact verbs are also expressed via verb-noun combinations (Nichols 1982: 447, 1984: 188). With them, the surface is again expressed with an oblique case and the instrument with the nominative case—a case-marking pattern common across Caucasian languages (Nichols 1984: 188).

(65) *urs tuoxan* 'knife hit' means 'stab', not 'hit with a knife', *tuop tuoxan* 'rifle hit' means 'shoot', not 'beat with a rifle' (Nichols 1984: 189).

(66) as pḡagalna tuop qüössira.
I-ERG rabbit-DAT rifle-NOM threw
'I shot at the rabbit with a rifle.' (Jakovlev, 1940: 43; cited in Nichols 1984: 189, (12c))

• **PORTUGUESE:** While there are some surface contact verbs (e.g., *bater* 'hit'), the happenings described by many English surface contact verbs are only expressible via light verb-noun combinations, with the surface expressed in a PP (Baptista 2004).

These verb-noun combinations often involve what Baptista calls a "predicative violent action noun" formed by adding the suffix *-ada* to a concrete noun denoting an instrument that can be used to hit or hurt: *faca* 'knife' + *-ada* in the examples. (An exception is *dar pontapé* 'give kick_N'.)

- (67) a. O João deu uma facada ao Pedro.
'John gave a knife-*ada*, i.e. a stabbing to Peter.' (Baptista 2004: 33, (2a))
b. O João deu uma facada na perna do Pedro
'John gave a knife-*ada*, i.e. a stabbing in the leg of Peter.' (Baptista 2004: 33, (2a))
c. O João deu uma facada ao Pedro na perna.
'John gave a knife-*ada* to Peter in the leg.' (Baptista 2004: 33, (2b))
- (68) BASES FOR *-ada* NOUNS: *agulha* 'needle', *bastão* 'club, staff', *bengala* 'cane', *chibata* 'switch, rod', *faca* 'knife', *porra* 'club', ... (from Baptista 2004: 39–40)
- (69) *chicotear* 'whip_V' (cf. *chicote* 'whip_N'), *martelar* 'hammer_V' (cf. *martelo* 'hammer_N') (from Baptista 2004: 39–40)

The process of forming the nouns in *-ada* is productive, with nonce instances being encountered (e.g., *sapatada* 'shoe-*ada*', *cadeirada* 'chair-*ada*').

• **VIETNAMESE:** Surface contact verbs may express the surface as an object or take a cognate object with the surface expressed in a PP.

- (70) *da* ‘kick’, *dam* ‘punch’, *thui* ‘punch’, *cao* ‘scratch’, *cau* ‘pinch/nip’, *nen* ‘beat’, *quai* ‘beat’, *can* ‘bit’, *danh* ‘hit’, *tat* ‘slap’, *vuot* ‘stroke/fondle’, *liem* ‘lick’, *hon* ‘kiss’, *cu* ‘tickle’, *phang* ‘strike with a stick’, *quat* ‘strike’, ... (Pham 1999: 233)
- (71) Ti da toi.
Ti kicked me
‘Ti kicked me.’ (Pham 1999: 232, (10a))
- (72) Ti da mot da.
Ti kicked a kick
‘Ti kicked a kick.’ (Pham 1999: 233, (10b))
- (73) Ti da [mot da] [vao toi.]
Ti kicked a kick on me
‘Ti kicked me a kick.’ (Pham 1999: 233, (10c))

6.2 Is there unity in the attested diversity?

- While *break* is included among the canonical causative alternation verbs of language after language (e.g., Haspelmath 1993, Nedjalkov 1969, Nichols et al. 2004), even this cursory survey reveals a fair amount of variability in the argument realization options for surface contact verbs.
- An observation: across the languages surveyed there seems to be some resistance to expressing the surface as a canonical object.
- This observation is reflected in the placement of surface contact verbs in Tsunoda’s transitivity hierarchy (1981, 1985: 388–389).

- (74) Tsunoda’s Hierarchy (simplified):
change of state verbs > surface contact verbs > perception/cognition/emotion verbs

This implicational hierarchy organizes semantic classes of two-argument verbs according to how likely their members are to be transitive in a language.

TSUNODA’S PROPOSAL: The hierarchy is organized in terms of a decrease in “affectedness” of the second argument, based on an assessment of the semantic components of transitivity suggested by Hopper & Thompson (1980). (See Malchukov (2005) for a refinement of Tsunoda’s hierarchy, which recognizes two dimensions of variation, affectedness and agentivity.)

- The *against* variant of the English *with/against* alternation characteristic of *hit* verbs apparently reflects what is a primary argument realization option for such verbs in some languages: Caucasian, also (18) in Kimaragang Dusun, (62) in Tibetan.

- (75) *With/against* alternation: Sam hit the fence with a stick./Sam hit a stick against the fence.

This argument realization option appears to give moving arguments—themes in the Gruber/Jackendoff sense—priority as objects.

- Another observation: the manner is sometimes expressed outside of the verb, either as a complement to a light verb or as a cognate object.

— The light verb option is apparently accompanied by a reduced inventory of surface contact verbs.

— Studies of lexicalization patterns of motion events note that verb-framed languages tend to have reduced inventories of manner of motion verbs—and most likely manner verbs in general—when compared to satellite-framed languages (Baird 2008, Shi 2008, Slobin 2000, 2006, Wienold 1995).

Specifically, verbs specifying major gaits (e.g., the equivalents of English *walk*, *run*) tend to be lexicalized across languages, while their hyponyms are not (e.g., *jog*, *lope* or *amble*, *creep*, *prance*, *strut*), particularly in verb-framed languages (Malt et al. 2008; see also Slobin 2000, Wienold 1995).

— The notions expressed by some of the “missing” manner of motion verbs are expressed outside the verb via ideophones or other adverbial modifiers: e.g., Japanese (Wienold 1995: 320, Table 8).

Ideophone	Verb	Gloss
<i>yochiyochi</i>	<i>aruku</i> ‘walk’	‘toddle, totter’
<i>sutasuta</i>	<i>aruku</i>	‘walk briskly’
<i>burabura</i>	<i>aruku</i>	‘stroll’
<i>tobotobo</i>	<i>aruku</i>	‘trudge along, tread on’
<i>shanarishanari</i>	<i>aruku</i>	‘walk daintily’

— Wienold (1995: 320, Table 7) also points out that where English has a number of verbs of crying, Japanese has one verb, making finer distinctions via ideophones.

Ideophone	Verb	Gloss
<i>waawaa</i>	<i>naku</i> ‘cry’	cry
<i>mesomeso</i>	<i>naku</i>	weep
<i>kusunkusan</i>	<i>naku</i>	sob
<i>oioi</i>	<i>naku</i>	blubber
<i>shikushiku</i>	<i>naku</i>	whimper
<i>hiihi</i>	<i>naku</i>	pule
<i>yowayowashiku</i>	<i>naku</i>	mewl

— Thus, there is evidence that in other domains, manners that are lexicalized as part of English verb meanings are expressed outside of the verb.

- More immediately, the observations suggest that there may be an abstract behavioral unity across languages despite differences in their argument realization patterns.
- These observations suggest there is a still-to-be-uncovered logic underlying the diversity of argument realization options for surface contact verbs.

7 Conclusion

- Verb classes play an important part in characterizing verb behavior within and across languages (though most likely the classes are not primitive but emerge due to more fundamental meaning components).
- The manner/result verb distinction may contribute to our understanding of patterns of verb behaviors across languages.

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