Verbs and Constructions:
Where Next?

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Constructional and projectionist approaches are often contrasted, yet both incorporate the same important assumption about the nature of the meaning of sentences with verbs and their arguments, although they differ in how much meaning is allocated to the syntax and how much to the lexicon.

FOCUS OF THE TALK: a facet of meaning that both approaches see as lexical,
> a notion of core meaning or root—i.e., what differentiates *break* from *shatter*.
THE QUESTION: What challenges does it pose for the approaches?

An Overview of the Approaches

PROJECTIONIST APPROACHES (e.g., Rappaport Hovav and Levin 1998)

BOTTOM LINE: A verb's lexical semantic representation determines the morphosyntactic realization of its arguments.

A lexical semantic template—now often called an event structure—which a verb shares with other verbs in the same semantic class, is one of two components of verb meaning. The other is an idiosyncratic part of meaning or "root", which distinguishes a verb from other verbs in its class.

(1) VERBS OF CHANGE OF STATE: bend, break, crack, dry, empty, freeze, harden, lengthen, melt, open, warm, widen, . . .

(2) [[x ACT] CAUSE [BECOME [y *<STATE>*]]]
> *dry*: [[x ACT] CAUSE [BECOME [y *<DRY>*]]]
> *empty*: [[x ACT] CAUSE [BECOME [y *<EMPTY>*]]]
> *warm*: [[x ACT] CAUSE [BECOME [y *<WARM>*]]]

A root has an ontological type, which constrains the event structures it may be associated with; the root has often not been considered linguistically interesting, but see Levin (1999), L&RH (in press).

When a verb has multiple argument realizations, it must have distinct event structures,
> each giving rise to the appropriate argument realization.

QUESTION: How do these multiple event structures arise?
> — From lexical rules that map one event structure onto a second.
> — From roots with multiple ontological categorizations.

CONSTRUCTIONAL APPROACHES (e.g., Borer 1994, 1998, 2003; Goldberg 1995, 1997; Hoekstra and Mulder 1990; Hoekstra 1992; Jackendoff 1997; Michaelis and Ruppenhofer 2000, 2001)

BOTTOM LINE: Constructions are meaning-form pairings, so many aspects of the interpretation of a verb's arguments are carried out outside of a verb's lexical entry.

(3)　　Ditransitive:
　　　　Example: *Pat faxed Bill the letter.*
　　　　Form: Subj V Obj Obj2
　　　　Meaning: X causes Y to receive Z (Goldberg 1998:206, Table 1)

Traditional constructional approaches vs. neoconstructional approaches:
— Traditional approaches allow for arbitrariness in meaning-form pairing (Goldberg 1995).
— Neoconstructional approaches take constructional meaning to be compositionally derived and represented via a syntacticized semantic representation (Borer 1994, 1998, 2003).

Verbs have minimally specified lexical entries; they are associated with a 'concept' and, thus, may specify the number of arguments they require (although even this is controversial).

Verbs are inserted into a construction, if their core meaning is compatible with the construction's.

(4)　　COMPATIBILITY CONSTRAINT:
　　　　Meaning contributed from a given source must be compatible with meaning contributed from all other sources. (Ghomeshi and Massam 1995:199, (5))

When a verb has multiple argument realizations, it is because verbs may be freely inserted into multiple constructions.

QUESTION: Why aren't all verbs found in all argument structure constructions?
　　　　i.e., How are limitations in variation in argument structure dealt with?
　　　　Attributed in part to a compatibility constraint, but question remains largely open.

THE SIMILARITY BETWEEN THE CONSTRUCTIONAL AND PROJECTIONIST APPROACHES

Both approaches make a root/event structure—or verb/construction—distinction.

Commonality is underscored by the fact RH&L's (1998) theory of lexical semantic representation, though often said to be projectionist, is also described as constructional (Goldberg 2004:1.10). WHY? Most likely because it makes the root/event structure distinction.

OPEN QUESTIONS: What generalizations, if any, describe the ways in which verbs are paired with constructions? What do these generalizations imply for the two approaches?

Gradience in Auxiliary Selection

In some languages intransitive verbs differ with respect to their past tense auxiliary.

(5)　　a.　　Gianni è arrivato.
　　　　　　　Gianni is arrived
　　　　　　　'Gianni arrived.' (Italian)

b.	Gianni ha parlato.
	Gianni has talked
	'Gianni talked.' (Italian)

Sorace (1993, 2000, 2004) shows auxiliary choice in such languages can be characterized with reference to a hierarchy of verb types.

(6)	THE AUXILIARY SELECTION HIERARCHY
	Change of location (e.g., 'arrive', 'come', 'fall', 'go')
	Change of state (e.g., 'descend', 'rise'; 'bloom', 'decay', 'wilt')
	Continuation of a preexisting state (e.g., 'last', 'persist', 'remain', 'stay', 'survive')
	Existence of state (e.g., 'be', 'exist', 'belong'; 'lie', 'sit', 'stand'; 'seem' 'suffice')
	Uncontrolled process (e.g., 'cough', 'ring', 'shine', 'skid', 'sweat', 'tick', 'tremble')
	Controlled process (motional) (e.g., 'dance', 'run', 'swim', 'walk')
	Controlled process (nonmotional) (e.g., 'play', 'talk', 'work')
	(Sorace 2004:256, (9))

• Within a language, verbs at the very top of the hierarchy select BE and those at the very bottom of the hierarchy select HAVE, independent of contextual factors.

• Within a language, some verbs in the middle range of the hierarchy may select both auxiliaries, with the choice depending on properties of the context.

In Italian, verbs of continuation of preexisting state prefer BE, but are found with HAVE, particularly with potentially agentive subjects; in contrast, verbs of change of location take BE, independent of the agentivity of their subject.

(7)	a.	La guerra è/?ha durato a lungo.
		the war is/has lasted for long
		'The war lasted a long time.' (Sorace 2000;867, (15b))

	b.	Il presidente è/ha durato in carica due anni.
		the president is/has lasted in post two years
		'The president last in post for two years.' (Sorace 2000;867, (15c))

(8)	a.	Maria è caduta apposta per farci spaventare.
		Maria is fallen on purpose to make.us scare
		'Maria fell on purpose to scare us.' (Sorace 2000;864, (5a))

	b.	Il bicchiere è caduto dal tavolo.
		the glass is fallen from.the table
		'The glass fell from the table.' (Sorace 2000;864, (5b))

• Across languages, verbs at the very top of the hierarchy invariably select BE, while those at the very bottom invariably select HAVE.

(9)	Change of location verbs:

	a.	Maria è venuta alla festa.
		Maria is come to the party
		'Maria came to the party.' (Italian; Sorace 2000:863, (1a))

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b. Der Zug ist spät angekommen.
   the train is late arrived
   'The train arrived late.' (German; Sorace 2000:864, (1d))

(10) Controlled, nonmotional process verbs:

a. I colleghi hanno chiaccherato tutto il pomeriggio.
   the colleagues have chatted whole the afternoon
   'My colleagues chatted the whole afternoon.' (Italian; Sorace 2000:874, (33a))

b. Kurt hat den ganzen Sonntag gearbeitet.
   Kurt has the whole Sunday worked
   'Kurt worked all day Sunday.' (German; Sorace 2000:874, (33d))

• Languages vary as to how far down the hierarchy BE selection extends and how far up the hierarchy HAVE selection extends.

Verbs of continuation of preexisting state: invariably select HAVE in French,
      but are inconsistent in Italian, Dutch, and German.

(11) Mes parents *sont survécus/ont survécu au tremblement de terre.
     my parents are survived/have survived to.the earthquake
     'My parents survived the earthquake.' (French; Sorace 2000:868, (16))

AUXILIARY DISTRIBUTION: CONCLUSIONS AND IMPLICATIONS

• Each auxiliary is associated with a core semantic class of verbs; other classes form an implicational hierarchy according to their propensity for being found with a particular auxiliary.

• Judgments about whether verbs outside the core may be found with a particular auxiliary may not be firm, and such verbs may only be found with this auxiliary in certain contexts.

• Insights from auxiliary choice into how verbs are paired with constructions:
      — Possible pairings vary in systematic ways across languages.
      — Verb-construction "compatibility" is apparently a gradient notion.

Beyond Auxiliary Selection: The Ditransitive Construction

The pattern of uniformity and variation documented for auxiliary choice is not isolated.
Comparable patterns are found with respect to the ditransitive construction.

The ditransitive (or double object) construction in English:

(12) a. Terry gave Alex a present.

b. Terry sent Alex a present.

c. Pat threw Terry the ball.

TERMINOLOGICAL NOTE: "Ditransitive" is used here to refer to three-argument constructions across languages whether a double object construction, as in English, or other syntactically comparable constructions: usually, subject, object, and a dative NP (Siewierska 1998), but also a clitic doubled dative, as in Spanish (Bleam 2003; Demonte 1995), or a genitive NP, as in Greek (Anagnostopoulou 2003).

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(13)   Verbs found in the ditransitive construction:

      a.   Verbs that inherently signify acts of giving: *give, pass, hand, sell, pay, trade, lend, loan, serve, feed*

      b.   Verbs of sending: *send, mail, ship*

      c.   Verbs of instantaneous causation of ballistic motion (Verbs of throwing): *throw, toss, flip, slap, kick, poke, fling, shoot, blast*

      d.   Verbs of continuous causation of accompanied motion in a deictically specified direction: *bring, take*

      e.   Verbs of future having: *offer, promise, bequeath, leave, refer, forward, allocate, guarantee, allot, assign, allow, advance, award, reserve, grant*

      f.   Verbs of type of communicated message: *tell, show, ask, teach, pose, write, spin, read, quote, cite*

      g.   Verbs of instrument of communication: *radio, e-mail. telegraph, wire, telephone, netmail, fax*

      (Gropen et al. 1989:243-244)

(14)   Verbs not found in the ditransitive construction:

      a.   Verbs of fulfilling: *credit, present, entrust, supply, trust*

      b.   Verbs of continuous causation of accompanied motion in some manner: *carry, pull, push, schlep, lift, lower, haul*

      c.   Verbs of manner of speaking: *shout, scream, murmur, whisper, shriek, yodel, yell, bellow, grunt, bark*

      d.   Verbs of communication of propositions and propositional attitudes: *say, assert, question, claim, think aloud, doubt*

      (Gropen et al. 1989:244)

THE CLASSIFICATION ABOVE IS TOO BLACK-AND-WHITE

• Although verbs from some semantic classes are said not to be attested in the ditransitive construction, they may sometimes be attested.

This observation is reminiscent of the variable judgments some verbs show in auxiliary choice.

— Verbs of continuous causation of accompanied motion in some manner:

Green (1976:80, 85) includes them among the verbs found in the ditransitive construction,
    but Pesetsky (1995:137) and Pinker (1989:103, 110-111) do not.

Ditransitive examples occur in very large text corpora (e.g., the Web).

(15)   a.   As player A pushed him the chips, all hell broke loose at the card table.

      b.   He pulled himself a steaming piece of pie

      c.   "Well … it started like this …" Shinbo explained while Sumomo dragged him a can of beer and opened it for him …

      (Bresnan and Nikitina 2003:6, (8))

— Verbs of manner of speaking:

Also said not to occur in the ditransitive construction, but are attested on the Web.

(16) a. Shooting the Urasian a surprised look, she muttered him a hurried apology

  b. You just mumble him an answer.

  c. Finally a kind few (three to be exact) came forward and whispered me the answer.

  (Bresnan and Nikitina 2003:7-8, (11))

Bresnan and Nikitina point out examples with such verbs are indeed judged less acceptable,
    especially when out of context, than comparable examples with verbs clearly found in them.

• Some verbs occur in the ditransitive construction only for specific argument choices.

(17) Jones sent Smith/*London the package.
  Robin threw Marion/*the basket the ball.
  Sam brought Terry/*the party a cake.

THE DISTRIBUTION OF VERBS IN THE DITRANSITIVE IS SIMILAR IN OTHER LANGUAGES

Greek ditransitive construction (Anagnostopoulou 2003:12-13)

(18) Verbs found in the accusative NP–genitive NP construction:

  a. Verbs that inherently signify acts of giving: *dhino* 'give', *dhanizo* 'lend/loan', *per-nao* 'pass', *plirono* 'pay', *kseplirono* 'repay', *nikiazo* 'rent', *pulao* 'sell', *serviro* 'serve', *charizo* 'give as a present, award', *epistrefo* 'return', *sistino* 'recommend, introduce'

  b. Verbs of future having: *afino* 'leave', *prosfero* 'offer', *iposchome* 'promise', *klironomo* 'will', *'epitrepo* 'allow', *anatheto* 'assign'

  c. Verbs of continuous causation of accompanied motion in a deictically specified direction: *ferno* 'bring', *perno* 'take', *pao* 'take'

  d. Verbs of sending: *tachidhromo* 'mail', *stelno* 'send'

  e. Verbs of instantaneous causation of ballistic motion: *petao* 'throw, pass', *richno* 'throw', *varao* 'throw in an abrupt manner'

  f. Verbs of transfer of message/communicated message: *zitao* 'ask', *dhichno* 'show', *leo* 'tell', *grafo* 'write', *dhidhasko* 'teach', *metafero* 'transfer (a message)', *protino* 'suggest, propose', *epanalamvano* 'repeat', *omologo* 'confess', *dhilono* 'declare', *dhiighume* 'narrate', *ipaghorevo* 'dictate', *dhiavazo* 'read'

  g. Verbs of instrument of communication: *tilegrafo* 'telegraph', *?tilefono* 'phone'

  h. Verbs of fulfilling: *embistevome* 'trust, entrust', *parusiazo* 'present'

(19) Verbs not found in the accusative NP–genitive NP construction:

  a. Verbs of communication of propositions and propositional attitudes ('say' verbs): *paradhechome* 'admit', *dhiatipono* 'express', *ipostirizo* 'state, argue', *ischirizome* 'claim', *kiriso* 'preach', *anakiriso, dhiakiriso* 'declare', *parapembo* 'refer'

  b. Verbs of manner of speaking: *ghrilizo* 'growl', *urliazo* 'scream', *ksestomizo* 'say something that is difficult to say'

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Observations from Anagnostopoulou that reinforce the Greek-English parallel:

— Intuitions concerning Greek verbs of continuous causation of accompanied motion in some manner are unstable, so they aren't included in the lists; again, this parallels English.

— Some Greek manner of speaking verbs are found in the accusative NP-genitive NP construction (e.g., 'shout'), while others are not (e.g., 'murmur').

— Certain verbs, including verbs of sending, occur in the accusative NP-genitive NP construction only for certain argument choices, paralleling English.

Fongbe ditransitive construction (Lefebvre 1994:117-118)

(20)   Verb types found in the double object construction:

    a.   possessional verbs whose Goal is animate: 'give'

(21)   Verb types not found in the double object construction:
"verbs for which there is no possession relationship between the Theme and the Goal cannot participate in the double object construction" (Lefebvre 1994:117)

    a.   animate control verbs: 'pass', ?'pay', 'sell', 'loan'
    b.   verbs of an informational dimension with an animate Goal: 'tell/say', 'show', 'teach'
    c.   positional verbs with an animate Goal: 'throw'

Mandarin Chinese ditransitive construction (Chung & Gordon 1998:113)

(22)   Verb types found in the double object construction:

    a.   verbs of giving : *gei3* 'give', *mai4* 'sell'
    b.   verbs of communication: *gao4su4* 'tell', *jiao1* 'teach'

(23)   Verb types not found in the double object construction:

    a.   motion verbs: *diu1* 'throw', *ti1* 'kick', *na2* 'take', *dai4* 'bring'
    b.   verbs of sending: *ji4* 'send', *chuan2zhen1* 'fax'

Yaqui ditransitive construction (Guerrero Valenzuela 2002 and p.c.)

(24)   Accusative-accusative verbs: *miika* 'give', *maaka* 'give', *majta* 'teach', *reuwa* 'lend', *bittua* 'show'

(25)   Accusative-directional verbs: *mana* 'serve/offer', *nenka* 'sell', *teuwa* 'tell', *bwise* 'pass/reach', *waata* 'put/throw', *bittua* 'send'

Although these verbs are not put into semantic classes, it appears that verbs inherently signifying acts of giving are ditransitive (i.e., take double accusatives), while verbs of sending and throwing are not. Verbs of communication of information seem to split across the constructions.

A DITRANSITIVE HIERARCHY?

Croft proposes a hierarchy based on three verbs in English, Icelandic, German, Dutch:

(26)   Ditransitivity Hierarchy: 'give' < 'send' < 'throw'
        (i) If there are constraints on the distribution of a ditransitive construction the construction
        will be associated with the higher end of the Ditransitivity Hierarchy;
        (ii) If there are constraints on the distribution of an oblique construction, especially a spatial
        oblique construction, the construction will be associated with the lower end of a Ditransi-
        tivity Hierarchy.
        (The Manchester Cognitive Collective 2001:2)

The verbs in this hierarchy are representative of classes figuring in lists of ditransitive verbs:
        'give' — Verbs that inherently signify acts of giving
        'send' — Verbs of sending
        'throw' — Verbs of instantaneous causation of ballistic motion

In the languages documented here, the patterns of data are consistent with (26),
        filling it out somewhat.

	Greek	English	Dutch	Chinese	Fongbe	Yaqui
GIVING	Yes	Yes	Yes	Yes	Yes	Yes
Future having	Yes	Yes	Yes	ND	ND	ND
SENDING	Yes	Yes	Yes	No	ND	No
Bring/Take	Yes	Yes	Yes	No	ND	ND
THROWING	Yes	Yes	No	No	No	No
Fulfilling	Yes	No	ND	ND	ND	ND
Continuous causation	No?	No?	No	ND	ND	ND
Communicated message	Yes	Yes	Yes	Yes	No	Yes/No
Instrument of communication	Yes	Yes	Yes	No	ND	ND
Manner of speaking	No?	No?	ND	ND	ND	ND
Communication of proposition	No	No	Yes	ND	ND	ND

(ND = no data available; Dutch data is from Colleman)

• The Ditransitivity Hierarchy distinguishes among verbs that fit what Goldberg (1992, 1995)
        identifies as the central sense of the ditransitive construction: all involve actual transfer.

(27)   Subj successfully causes Obj1 to receive Obj2.
        Verb classes:
        Verbs that inherently signify acts of giving
        Verbs of instantaneous causation of ballistic motion
        Verbs of continuous causation in a deictically-specified direction
        (Goldberg 1992:56)

Why might these differences be observed?
— 'give' inherently entails the meaning of the construction, even outside of it:
        He gave (money) to the poor.
— 'throw' differs from 'give'/'send'/'bring': it entails two arguments, while they each entail three.

• Verbs of future having differ from verbs that inherently signify acts of giving with respect to sub-
lexical modality (Koenig and Davis 2001; Croft 2003)—a modal component of meaning modifying
whether the transfer actually happens; yet, both verb types are apparently treated alike.

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• It is likely that the distribution of verbs involving sounds/communication in the ditransitive construction represents a different semantic dimension and should not be collapsed into (26).

— The table suggests that these verbs may form their own hierarchy, that is independent of (26): Languages differ with respect to subclasses of these verbs:
  if any are found in the ditransitive, 'tell' is;
  verbs of instrument of communication may be too,
  while verbs of manner of speaking and the verb 'say' are less likely to be found.

— The relevant subclasses again differ with respect to the number of arguments their members entail: three for 'tell', two for 'say', and one for manner of speaking verbs.

— Communication uses of the ditransitive construction may be licensed by the Conduit Metaphor (Reddy 1979): a communication travels from the speaker to the listener (Goldberg 1992, 1995).

• Other complications:
— Languages that allow verbs of possessional deprivation in the ditransitive construction: e.g., Mandarin (Chung & Gordon 1998), Dutch (Colleman n.d.), Yaqui (Guerrero Valenzuela 2002) (perhaps related to the set of morphosyntactic options available for three-argument verbs).
— Languages that extend ditransitive construction to verbs with benefactives (e.g., English).

VERB DISTRIBUTION IN DITRANSITIVES: CONCLUSIONS AND IMPLICATIONS

• There is a core semantic class of verbs found in the ditransitive construction;
  other classes show varying propensities for being found in this construction across languages.

• Judgments about whether verbs outside the core are found in the construction may be uncertain,
  and these verbs may be found only in certain contexts.

• The potential variation in and across languages may be modeled via hierarchies.

• Verb distribution in ditransitives again suggests the complex nature of verb-construction pairing.

Other Phenomena that May Involve Comparable Patterns

THE LOCATIVE ALTERNATION

(28) a. The gardener sprinkled seeds on the lawn. (locative variant)

  b. The gardener sprinkled the lawn with seeds. (*with* variant)

(29) Some subsets of the content-oriented verbs (Pinker 1989:126):

  a. Force is imparted to a mass, causing ballistic motion in a specified spatial distribution along a trajectory: *inject, spatter, splash, splatter, spray, sprinkle, squirt*

  b. Vertical arrangement on a horizontal surface: *heap, pile, stack*

(30) Some subsets of the container-oriented verbs (Pinker 1989:126):

  a. A mass of a size, shape, or type defined by the intended use of a container . . . is put into the container, enabling it to accomplish its function: *load, pack, stock*

  b. A mass is forced into a container against the limits of its capacity: *cram, crowd, jam, pack, stuff, wad*

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• Content-oriented verbs—or at least, subsets of these verbs—show the alternation only in some of the languages in which container-oriented verbs do (e.g., Hirschbühler 2003; Kim 1999); in other languages they are only found in the locative variant.

(31) a. Yumi-ka chaek-lul chaeksang-ey ssa-ass-ta
          Yumi-NOM book-ACC table-LOC pile-PST-DECL
          'Yumi piled books on the table.'

      b. ∗ Yumi-ka chaeksang-ul chaek-elo ssa-ass-ta
          Yumi-NOM table-ACC book-WITH pile-PST-DECL
          'Yumi piled the table with books.'

      (Korean; Kim 1999:18, (24))

• Verbs like *fill*, which are said not to alternate in English, alternate in some languages (Hirschbühler 2003; Kim 1999). Even in English, occasional locative variant examples are attested.

(32) a. The gardener filled the basket with seeds.

      b. ∗ The gardener filled seeds into the basket.

(33) a. Yumi-ka mwul-ul cep-ey chaywu-ess-ta
          Yumi-NOM water-ACC glass-LOC fill-PST-DECL
          'Yumi filled water into the glass"

      b. Yumi-ka cep-ul mwul-lo chaywu-ess-ta
          Yumi-NOM glass-ACC water-WITH fill-PST-DECL
          'Yumi filled water into the glass"

      (Korean; Kim 1999:17, (23))

(34) Take a little of the mixture at a time and fill it into the zucchini. (cookbook)

• These observations suggest that the variants of the locative alternation may show the kind of verb distribution patterns already observed for the ditransitive construction.

THE CAUSATIVE ALTERNATION

On the basis of a crosslinguistic study, Haspelmath suggests verbs form an implicational hierarchy with respect to whether they can occur in the causative alternation.

(35) Scale of increasing likelihood of spontaneous occurrence:
      'wash' > 'close' > 'melt' > 'laugh' (Haspelmath 1993:105, (23))

L&RH (1995) suggest externally caused verbs, which correspond roughly to the left end of (35), show the causative alternation, but internally caused verbs, which correspond to the right end, don't.

L&RH show that verbs that don't clearly fit either semantic category vary as to whether they show the causative alternation in and across languages.

Haspelmath's survey suggests languages have different cut-off points for the causative alternation.

These observations suggest that the causative alternation variants might fit the previously described distributional patterns.

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Conclusions and Implications

• Certain semantic classes of verbs are invariably associated with certain constructions within and across languages; these verbs generally fit the statement in (36).

(36)　　… the most prototypical, the most common and the most universal case is one in which the verb designates an elaboration of the meaning of the construction. (Goldberg 1997:386)

• Languages, thus, agree on the "core" semantic class of verbs associated with a construction, but differ as to the extent they extend the construction to other verb classes, though the same classes seem to figure in extensions.

• Within a language, verb classes outside the "core" may be found in a given construction, but there is more likely to be uncertainty in judgments about the possibility of their being found.

• In some instances this distribution can be modeled by the choice of cut-off points on a hierarchy of verb classes, but more research is needed to determine whether such a description is always appropriate or feasible.

IMPLICATIONS FOR CONSTRUCTIONAL VS. PROJECTIONIST APPROACHES?

• A more complex notion of verb-construction pairing is needed to explain the observed patterns, since what qualifies as a possible pair changes across languages.

• Open questions: How should the generalizations reflected in the observed patterns be stated and what kind of linguistic representations do they require?

Lexical listing of verb-construction pairs is not the answer, as there is productivity, as well as the systematicity reflected in the implicational hierarchies of verb classes.

(37)　　"I'm reading a dirty book," I wrote, in Instant Messenger, to my friend Ralph across town. "Is it hot? Do you like it?" he IMed me back. (S. Nelson, *So Many Books, So Little Time*, Putnam, New York, 2004, p. 167)

• Since these patterns involve the distribution of verbs across constructions, they bear on the nature of the root. They suggest that understanding the lexical semantics of the root is important.

• What is needed is succinctly stated by Sorace (2000:886):

"A full explanation of the gradients requires a better understanding of the interplay of lexical and structural meaning and, in particular, a theory of the specific contribution of the idiosyncratic meaning of verbs and its interaction with verbs' structural meaning."

A step in this direction: Goldberg (1997) proposes that one option is for verbs outside the core to be integrated into constructions via a force-dynamic relation (e.g., means, instrument, result).

• A final open question: What might underlie these hierarchies? An answer would explain why languages differ and why the differences are the ones observed.

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