

The Lexicon Project and its legacy

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The Lexicon Project: Basic facts

- **Project description:** Research in comparative lexicology
- **Principal investigators:** Ken Hale and Jay Keyser
- **Housed in:** The MIT Center for Cognitive Science
- **Funding source:** The System Development Foundation
- **Duration:** 1983-1989

The Lexicon Project: People

- **Principal investigators:** Ken Hale and Jay Keyser
- **Project coordinators:** Beth Levin (1983-1987), Carol Tenny (1987-1989)
- **Postdoctoral fellows:** Mohamed Guerssel, Mary Laughren, Josie White Eagle
- Plus many, many more who participated in various ways

The Lexicon Project: Major goals and activities

- A two-pronged research program in comparative lexicology:
 - Documenting the lexical resources of less studied languages
 - Developing a theory of lexical knowledge
- Other activities:
 - The Lexicon Seminar and various one-time events

The Lexicon Project: The goals elaborated

Documenting lexical resources of less studied languages, particularly:

- **Berber:** Mohamed Guerssel
- **Warlpiri:** Ken Hale, Mary Laughren, David Nash, Jane Simpson
- **Winnebago:** Josie White Eagle
- (And, though not lesser studied, **English**)

The Lexicon Project: The goals elaborated

Developing a theory of lexical knowledge:

- Formulating maximally simple lexical entries which account for a native speaker's lexical competence.
- Discovering elements of meaning which recur systematically in the definitions of words and the principles which determine the mapping from lexical semantics to morphosyntax.

See K. Hale and other members of the Lexicography Group (n.d.) "A Proposal for Investigations in Comparative Lexicography", MIT, Cambridge, MA. [1983/1984?]

The Lexicon Project: Guiding research principles

“We have, therefore, devoted a considerable amount of energy to the study of regularities in the behavior of lexical items, particularly verbs, in an effort to arrive at an adequate formulation of lexical rules accounting for observed alternations in syntactic behavior.” (Hale & Keyser, 2nd Report to SDF, 1985:2)

K. Hale & J. Keyser (2002) *Prolegomenon to a Theory of Argument Structure*, MIT Press, Cambridge, MA.

The Lexicon Project as reflected in current work

- Syntactic structures motivated by event structure considerations, including aspectual notions.
- The notion 'root', which shows the importance of a verb's core meaning to determining its argument realization properties.

Within a language:

“We assume that differences in the syntactic behavior of verbs within a language can be attributed to an appropriately specified lexical representation and the manner in which elements of this representation may be realized in an underlying syntactic representation.” (Guerssel et al. 1985:1)

Across languages:

If “lexical principles and parameters are intimately related to many of those characteristics in syntax and semantics which give to a language its overall typological cast, then it is imperative for scientific lexicography . . . that it be **comparative** . . . That is to say, it must attempt to determine the precise extent to which the syntactic and semantic characteristics of a given language type . . . are projected from the lexicon.” (Hale et al. n.d.:5)

Verbs of hitting:

The verb *hit* has long attracted interest, but usually as a counterpoint to *break*, which has received the real attention.

Hypothesis: Differences in the ways that languages encode particular event types reflect differences in their grammatical and lexical resources.

The verbs:

beat, hit, kick, pound, punch, slap, smack, tap, whack, . . .

Their arguments:

The boy hit the fence [*surface*] with the stick [*instrument*].

Argument realization options in English:

The boy hit **the fence** with the stick.

The boy hit the stick against **the fence**.

The boy hit at **the fence**.

The horse kicked **my shin**.

The horse kicked me in **the shin**.

The generalization:

The **surface** may but need not be the object.

Argument realization patterns attested across languages: (Some languages may instantiate more than one pattern)

- Surface as object.
- Surface as oblique.
- Surface as object if animate, oblique if inanimate.
- Surface as oblique with a V-N combination.

Verbs of hitting: Argument realization patterns

- **Surface as object:** English, Hebrew

Smith hit *the fence*.

[_{VP} V NP_{SURFACE-ACC}]

- **Surface as oblique:** Hebrew, Ingush, Lhasa Tibetan, Ulwa

Smith hit at *the fence*.

[_{VP} V NP_{SURFACE-OBL}]

[_{VP} V [_{PP} P NP_{SURFACE}]]

Verbs of hitting: Argument realization patterns

- **Surface as object or oblique depending on animacy:**
Dutch, German, Russian, Swedish

— **Animate surface as object:** Smith hit *Jones*.

[_{VP} V NPSURFACE-ACC]

— **Inanimate surface as oblique:** Smith hit at *the fence*.

[_{VP} V NPSURFACE-OBL]

[_{VP} V [_{PP} P NPSURFACE]]

Verbs of hitting: Argument realization patterns

- **Surface as oblique with a V-N combination:**

Ingush, Lhasa Tibetan, Portuguese, Spanish

The horse gave a kick to *my shin*.

[_{VP} V N NP_{SURFACE-OBL}]

[_{VP} V N [_{PP} P NP_{SURFACE}]]

N may be an instrument (e.g. *club*, *whip*) or otherwise provides semantic content (e.g. *kick*, *slap*) that can distinguish among types of hitting events.

Types of V-N combinations:

- V is a light verb: Portuguese, Spanish

e.g.: *give slapping* ‘slap’

- V is a ‘basic’ verb of hitting: Ingush, Lhasa Tibetan

e.g.: *hit fist* ‘punch, *hit knife* ‘stab’

- The V-N combination is a cognate object construction:
Vietnamese

e.g.: *hit_V hit_N* ‘hit a hit’

Verbs of hitting: Understanding the attested patterns

- What gives rise to the different realizations of the surface?
- What is the reason for the V-N combinations?
- Are there interactions between these two properties?

Verbs of hitting

These verbs are MANNER verbs, contrasting with verbs of breaking, which are RESULT verbs.

- Result verbs:

#I broke the vase with a hammer, but the vase stayed intact.

I broke the vase by hitting it with a hammer/dropping it on the floor/throwing it at the wall.

- Manner verbs:

I hit the vase with a hammer, but nothing happened to the vase.

#I hit the vase by dropping it on the floor/throwing it at the wall.

Verbs of hitting: The realization of the surface

- Result verbs show restricted argument realization options:

An argument that has a result predicated of it **MUST** be realized and **CAN ONLY** be realized as a direct object.
(RH&L 2005)

- Since the surface of a verb of hitting does not have a result necessarily predicated of it, there are no constraints on its realization.

⇒ Thus, it may be an object or an oblique.

Verbs of hitting: Animacy effects

Most likely, these arise from the special status of animates, which is known to affect their argument realization options elsewhere.

Two possible sources:

- Animate surfaces are affected, and affectedness, as a kind of result, is a determinant of objecthood (Dowty 1991, de Swart 2010, Lundquist & Ramchand in press).
- Animates tend to be information structurally prominent, and objects, as secondary topics, may be preferentially used for more prominent NPs.

Verbs of hitting: Expressing V-N combinations

- In languages with V-N combinations, the N is the object.
- Thus, the surface cannot be realized as the object, so an alternate realization is needed.
- The specific realization of the surface depends on the verb involved: location if 'put'/'hit', goal if 'give'.

Verbs of hitting: The source of V-N combinations

- These might be traced to differences among languages with respect to the size and nature of their verb inventory.
- Ways in which verb inventories can differ:
 - Whether they are comprised of only 6-12 light verbs.
 - Whether they include property-concepts (i.e. 'adjectival' notions).
 - Whether they include a reduced number of manner verbs.

Verbs of hitting: The source of V-N combinations

Studies of lexicalization patterns of motion events have documented smaller manner of motion verb inventories in 'path' languages such as French, Hebrew, Spanish, and Turkish than 'manner' languages such as English (Slobin 2006).

Verbs of hitting: The source of V-N combinations

Proposal: V-N combinations arise in languages with small manner verb inventories.

- Such languages must use other devices to express notions that are lexicalized as verbs in English.
- V-N combinations are one way to augment the lexical inventory.

Thus, English *kick_V* is translated as *dar pontapé* ‘give kick_N’ in Portuguese (Baptista 2004).

Verbs of hitting: Augmenting the lexical inventory

- There is another way of augmenting the verb lexicon:
V-ideophone—or mimetic—combinations.
- Their use is attested in Japanese in several manner domains, including manner of motion (Shibatani 1990, Wienold 1995).
- Such combinations may be used in Japanese to express various types of hitting events (Kageyama 2007).

Smith *the wall* bang-hit.

[_{VP} NPSURFACE-ACC ideophone V]

- In these combinations, V is a light verb or a ‘basic’ hitting verb.

Repercussions for argument realization:

- Augmentation via V-N combination

⇒ The surface cannot be expressed as an object.

- Augmentation via V-ideophone combination

⇒ The surface is still expressible as an object.

Verbs of hitting: Wrap-up

- Crosslinguistic diversity in the encoding of hitting events can be traced to differences in the basic lexical, syntactic, and morphological resources available to languages.

(See Beavers et al. (2010) for a study of motion event encoding with a similar conclusion.)

- This case study reinforces that “There are direct relationships between principles which operate in the lexicon and grammatical parameters which define the typological position of a language along particular dimensions.” (Hale et al. n.d.:4)

Hale's words are no less true today:

“Thus, while the lexicon is notoriously the domain of the idiosyncratic, it is becoming increasingly apparent that it is also the domain of principles of great generality. That is particularly evident in the relationship of syntax to lexical semantics . . .”
(Hale et al. n.d.:8)

Part of an entry from the Warlpiri dictionary

PAKA-RNI (V): 1. Contact/effect: xERG produces concussion on the surface of yABS, by some entity coming into contact with y:

(a) x is active: *hit, strike, bump, crash into, slap, kick, knock, whip, run into, beat, thrash, thresh.*

Turakirli puluku wirijarlur pakarnu parnkanjakarrarlur. The moving car hit a big bullock. *Rdakangku wirriya pakarnu kapirdinyanurlu.* His big sister hit the boy with her hand. *Purlja kalalu pakarnu wirliyarlu.* They used to strike the hair-string ball with their feet. *Mukakilpapala pakarnurra, pakarnurra...* *Kala mukakilpapala wayipurrurnu.* They threshed the branches of the native plum and continued threshing them. Then they gathered up all the plums. *Kajilpa yapangku wirliyarlangurlu palka-mantarla yuruturla – murdukayijangka pakarninjawarnu – marlu, ngula kajikanyanu kuyulku manirra.* If someone on foot for example, finds on the road a kangaroo run over by a car, then he can take off the animal for himself. *Kutururlu kalunyanu pakarni karntangkuju – mimayirli.* The women are hitting each other with wooden clubs out of jealousy. *Walingki kalunyanu pakarni karlingki kulungku.* Men hit each other with boomerangs in anger. *Kurdukari pakarnu jurru waliyakurlurlu kurdu yangka minjirnparliu.* That bullying child hit the other child with a stick.

(From Laughren & Nash 1983:131)

Sources of data

Dutch (de Swart 2010); German (Lundquist & Ramchand in press); Hebrew (Botwinik-Rotem 2003, Halevy 2007); Ingush (Nichols 1982, 1984); Japanese (Kageyama 2007, Kurumada p.c.); Lhasa Tibetan (DeLancey 2000); Portuguese (Baptista 2004); Russian (Nikitina p.c.); Spanish (Palancar 1999); Swedish (Lundquist & Ramchand in press, Viberg 2004); Ulwa (Koontz-Garboden p.c.), Vietnamese (Pham 1999).