

# The Mental Representation and Processing of Light Verbs

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The mental representation of verbal argument structure alternations has been fascinating researchers for many years [1, 2], and has resulted in much compelling work on the representation and processing of, for example, the ditransitive alternation [3, 4, 5] and the locative alternation [6, 7]. In these cases, the syntactic arrangement of the nouns alternates, but the semantic argument structure does not. In contrast, we discuss here a case where the syntactic structure associated with a verb remains constant, but the argument structure and the meaning vary dramatically, depending on which noun combines with the verb.

For example, when verbs like “give”, “take”, “get” or “receive” have a direct object that is a concrete Thing, the object is simply the argument of the verb, usually associated with the semantic role Theme: “he gives her a rose”, “she takes a tulip from the vase”, “he gets an orchid”, “she receives a daisy”. But when the same verbs combine with an eventive object, the object becomes part of a light verb construction — a complex predicate where both the verb and object assign thematic roles to the nouns in a sentence. For instance, in “he gives her a kiss”, “she takes a walk around the lake”, “he got a punch” and “she receives an order”, the subject arguments acquire their thematic roles from both the verb and the object, resulting in meanings parallel to “He kisses her”, “she walks around the lake”, “somebody/something punched him”, and “somebody ordered her to do something”.

We aim to develop a detailed theory of the representation and processing of light verb constructions, arguing that

1. In establishing the complex predicate, the thematic roles of the object and verb match up systematically, building a shared argument structure. The thematic structure of the light verb trumps that of the noun in linking to syntactic arguments: In “he gives her a kiss”, the subject argument is an Agent, but in “he receives a kiss (from her)”, the subject argument is a Patient. In addition, the verb has a strong influence on the event representation: compare “he made a call at noon” to “he had a call at noon”. Fine-grained semantic constraints often influence which verbs and nouns can combine (cf. [8] for Persian).
2. Establishing the shared semantic argument structure is cognitively costly. Evidence for this comes from behavioral and on-line processing studies in English and German. These studies report increased reaction times [9, 10] and sustained negativities in Event-Related Potential [11] to light verb constructions, compared to standard verb-object constructions.
3. The mechanism establishing argument sharing is rooted in the semantic system, not in the syntactic system. Data from a recent production priming study [12] and electrophysiological evidence [11] support this view.

We argue, therefore, that light verb constructions provide a unique window into the different components of the mental representation of verbs, how they combine with their arguments, and how we might model the division of labor between syntactic and semantic structure.

## References

1. Levin, B. & Rappaport Hovav, M. (2005). *Argument Realization*, Research Surveys in Linguistics Series, Cambridge University Press, Cambridge, UK.
2. Goldberg, A. (1995). *Constructions: A Construction Grammar Approach to Argument Structure*. Chicago: University of Chicago Press.
3. Wasow, T. (2002). *Postverbal Behavior*. CSLI Publications.
4. Thothathiri, M., & Snedeker, J. (2008). Give and take: Syntactic priming during spoken language comprehension. *Cognition* 108(1): 51–68.
5. Bock, K., & Loebell, H. (1990). Framing sentences. *Cognition*, 35, 139.
6. Chang, F., Bock, K., & Goldberg, A. E. (2003). Can thematic roles leave traces of their places? *Cognition*, 90, 29–49.
7. Christensen, K.R. & Wallentin, M. (2011). The locative alternation: Distinguishing linguistic processing cost from error signals in Broca's region. *NeuroImage*, 56/3, 1622–1631.
8. Family, N. (2009). Mapping semantic spaces: A constructionist account of the "light verb" eat in Persian. In M. Vanhove (Ed.), *From polysemy to semantic change: Towards a typology of lexical semantic associations*. Amsterdam: Benjamins.
9. Wittenberg, E. & M.M. Piñango (forthc.). *Processing Light Verb Constructions. The Mental Lexicon*.
10. Piango, M.M., J. Mack & Jackendoff, R. (forthc.). *Semantic combinatorial processes in argument structure: Evidence from light verbs*. *Proceedings of Berkeley Linguistics Society*, 2006.
11. Wittenberg, E., Paczynski, M., Wiese, H., Jackendoff, R. & Kuperberg, G. (in preparation). *Light Verbs Make Heavy Work*.
12. Wittenberg, E. & Snedeker, J. (in preparation). *Priming Behavior in Light Verb Constructions*.