The End Identifies The Means.
Unexpressed Objects and Path Phrases*

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This paper examines the behavior of path phrases following verbs with implicit instruments. Contra claims that instruments, like manner, are expressed by optional adverbial phrases, we argue that they are conveyed by genuine, albeit covert, arguments which participate in the event structure of their verb. The presence of implicit instruments affects the interpretation of the remaining arguments taken by the verb and blocks the appearance of path phrases.

1. Introduction

Meanings conveyed by verbs often imply the presence of a number of possible arguments, not all of which surface as overt forms. For example, the verb 'know' requires two participants, the knower and the fact known. Languages do not usually require a separate argument for the source of knowledge; if it is mentioned at all, it is normally an optional adverbial. A similar claim can be made about instrument arguments. They are not required by verbs like "kill" or "hit", and when they are realized, they are usually prepositional phrases like "with a gun". Recently, however, contrary voices have been heard. For example, Palmer et al. (2005) view them as present in the argument structures of all verbs of hitting. This is an extreme step, and perhaps fine grained distinctions should be made, but as we will show below, in many cases, unexpressed instruments are real complements whose presence is indicated by the behavior of path phrases.

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2. Movement toward an impossible goal

Verbs of hitting present curious argument structure frames. Some of them invite optional path phrases, whereas others sound noticeably odd when followed by phrases describing an end of a physical path, as is exemplified by 1a-c below.

(1) a. **The soldier stabbed the straw dummy against the wall.*
b. **The wasp stung the caterpillar against the leaf.*
c. **I pricked my arm against the table.*

The situations described are easy enough to imagine. In 1a, the straw dummy ends up on the wall as a result of the thrust force of the stab. The same interpretation pattern applies to 1b and 1c. By contrast, sentences 2a-b below describe seemingly similar scenarios (where one participant moves another against a stationary point) but there is no hint of grammatical anomaly. In fact, they represent ordinary sentences commonly found both in written and spoken language.

(2) a. *I pushed the bed against the door.*
b. *Ronaldo kicked the ball against the crossbar.*
c. *I hit my hand against the edge of the table.*

The difference between the two sets of sentences is that in the case of 1a-c, an extra participant argument is present which is not realized as an overt object of the verb. Specifically, we wish to postulate instrument arguments (parenthesized in 3a-c below) whose presence affects the event structure of the verb phrase.

(3) a. *The soldier stabbed (a knife into) the straw dummy.*
b. *The wasp stung (a sting into) the caterpillar.*
c. *I pricked (a needle into) my arm.*

As we will argue below, these implicit instruments block path phrases like the ones in 1a-c. Put differently, phrases describing an end of a path serve as a diagnostic for identifying hidden instrument arguments expressing the means of an action.

3. Conditions for Object Omission

Linguistic literature lists plenty of conditions for object omission (non-specificity, iterative vs. generic actions, predictability, omission in favor of "fake" object, to name just a few). Reviewing all of them here would be superfluous, so we will only focus on those relevant to our analysis of verbs with implicit instruments.

One such condition is predictability, a stipulation which requires that the hearer of the message be able to recover any omitted argument (Rice 1988, Fellbaum and Kegl 1989, Resnik 1993). When it comes to the verbs in 1a-c, there is a clear sense that they either entail the use of a specific single object, such as a sting, or a group of objects that share the same characteristic feature ("stab" usually involves sharp objects that can be used as a weapons).

Another condition which favors object omission is individuation (Olsen & Resnik 1997). The more strongly a verb selects its object, the more information about the object is carried by the verb itself, and thus the less individuated the object is from the verb. As is exemplified in 4, specifying less individuated instruments is not only unnecessary, but awkward.

(4) *He hammered the nail *(with a hammer).*

Upon closer inspection, however, instrument arguments in question do not exactly meet the above conditions. They are clearly associated with the meanings of the verbs, but they are not elliptical arguments on a par with implicit objects such as 'food' with the verb 'eat' or 'alcohol' with 'drink'. The crucial difference is that 'food' can, in most situations, be freely recovered and reinserted as a direct object of the verb:

(5) *We already ate (our lunch, food, something, etc.).*

Implicit instruments cannot serve as direct objects. Mentioning them yields awkward results like 6 below, which are considered only marginally grammatical by many speakers.

(6) *The soldier stabbed (?a knife, a sharp object, something into) the straw dummy.*

Additionally, understood instruments do not display certain characteristics typical of omitted objects. Goldberg (2001) shows that typically understood objects suggest repetition of the action in which the objects are indefinite, as is shown in 7a. By contrast, omitting definite objects yields ungrammatical results (7b).

(7) a. *Tigers love to kill.*
b. *When it comes to tasty ducks, tigers love to kill *(them).*

In this respect, understood objects behave differently. As is clear in example 8, they remain omissible even when they are specified by definite reference.

(8) a. Kruger pulled out a shiny dagger and stabbed his victim (?with it).

These facts could be taken as an indication that instruments are not understood objects at all (they may be mere adverbial modifiers, not required by the verb). However, we will argue that they are in fact true complements present in the verb's phrase structure.

4. Instruments act as true complements

Instruments may be either suppressed at some point in the derivation or may not be selected as complements at all, but there are reasons to believe that they are verbal arguments. Not only are they widely recognized as a major thematic role category, but their presence in a situation described by a verb is truly entailed. For the verb 'stab', the presence of a knife is an important ingredient of the verb's meaning. At least from the semantic point of view, without a knife, the event cannot be referred to as 'stabbing' at all:

(9) *Tim stabbed someone, *but without using a knife or any sharp object.*

4.1 Figure and Ground

Despite not being overt complements, implicit instruments "speak from hiding". What hints at the presence of a hidden instrument argument is that it acquires one of the two cognitive functions of reference, the Figure, always assigned to arguments in descriptions of motion and location. As has been pointed out by Talmy (1985, 2000), language uses a special system of cognitive reference. In this system, one entity, the Figure, is presented as moving or being located with reference to another entity, the Ground, whose location is assumed to be given. In sentence 10, the bed is framed as a Figure (F), and the door serves as a reference point, or the Ground (G).

(10) I pushed the bed (F) against the door (G).

In the defective sentences 1a-c, the anomaly can be explained in terms of a cognitive reference conflict, where arguments cannot be assigned their respective functions. To take the example of the verb 'stab' in a normal sentence such as *The soldier stabbed the straw dummy*, the function assignment would proceed as follows. The direct object of the verb 'straw dummy' is assigned the Ground function. The label Figure is assigned to the

instrument of stabbing, as it is an entity which moves relative to the straw dummy. The conflict arises when a locative phrase is attached. In the sentence **The soldier stabbed the straw dummy against the wall*, the status of the straw dummy becomes unclear. On the one hand, it can be conceptualized as a Ground for the implicit instrument, and then it is doubled by the Ground expressed as "the wall". On the other hand, "the straw dummy" is a Figure moving relative to the Ground, the wall, but then it is doubled by the Figure represented by the instrument. It is this Gestalt indeterminacy involving double Grounds and double Figures that is behind the ungrammaticality.

4.2 Uniqueness in language

Insisting that there be only one Figure and one Ground may seem like an exercise in pedantry for pedantry's sake. But similar examples of uniqueness have been identified which disallow multiplicity, and they are likely to be epiphenomena of the same linguistic constraint. A well-known example is Thematic Uniqueness (Carlson 1984), a requirement for thematic roles to be represented by only one argument per clause. For reasons of limited space, we cannot review all constraints favoring uniqueness, and we will only cite one example, as it is directly relevant to the question of implicit instruments and directional path phrases.

4.3 Unique Path Constraint

Goldberg (1993) noted that only one path can be predicated of an argument of a verb. Sentences like 11 are ungrammatical because two paths are predicated at the same time.

(11) **Jane pushed Shirley out the window down the stairs.*

While it may seem unsurprising that single entities cannot move along two distinct paths in the real world, the constraint is linguistic, not conceptual. It is a matter of event structures allowed within clauses, not movements allowed by

the laws of physics. One of its consequences is that it blocks sentences which describe otherwise possible situations:

(12) **She kicked him black and blue out the door.*

If one assumes metaphorical interpretation of the result phrase as equivalent to a goal of a physical path, then the resultative "black and blue" is in conflict with the path phrase "out the door".

The Unique Path Constraint is also behind the inaccuracy of sentences with unexpressed instruments. In the sentence **The soldier stabbed the straw dummy against the wall,* the event structure is such that the unexpressed instrument is moving along a path whose end is defined by the straw dummy. The phrase "against the wall" constitutes an additional path which violates the uniqueness constraint.

5. Summary

Positing abstract instrumental objects may be dismissed as being no more than just a supposition. However, the case for their existence is strengthened by the observation that path phrases are blocked with exactly those verbs whose meanings entail specific instruments that traverse a trajectory. This view assumes that the presence of implicit instruments affects the organization of cognitive reference within verb phrases, with instruments being construed as Figures and patients as Grounds. From the point of view of argument structure, implicit instruments are clearly in motion and therefore obtain the thematic role of "theme", forcing the patient into the goal slot, which explains why no additional goal phrase can be attached. The important point is that in order to be assigned any cognitive reference labels or thematic roles, implicit instruments must be present in the argument structure in the first place.

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