The Case of *hit* and *break*:
A problem in the semantics of recognition grammars

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The familiar example of *hit* and *break* serves to show the need for semantic postulates that are sensitive to distinctions actually present in language.

In Wheeler (1980), I consider the problem of providing a grammar that can be used for the recognition and interpretation of natural language. Part of this problem is the development of a suitable notation for expressing "who did what to whom", the sort of thing that case relations, alias thematic roles, alias participant roles, have been used for.

In recognition grammar, however, the game-rules are somewhat different from those of generative or descriptive grammar. One no longer requires a base form from which surface forms are to be derived; on the contrary, the surface forms are already given, sometimes "ungrammatically", and what is required is a plausible interpretation. The notation for expressing this interpretation must be sufficiently complex to capture the relevant information about who is doing what, but it also must not require information that is unavailable to the grammar. That is, the notation must be sensitive to just those distinctions which are a part of language, and to no others. This requirement is true of all aspects of semantics, I am sure, but I will argue for it by discussing a classic problem from the theory of case grammar.
Fillmore (1970) discusses a syntactic difference between the verbs *hit* and *break*: for a sentence (1)

(1) John broke the window.

there is a partial paraphrase (2),

(2) The window broke.

but for the corresponding sentence (3),

(3) John hit the window.

there is no paraphrase (4),

(4) ≠(3) The window hit.

Indeed, the interpretation of (4) is a partial paraphrase of (5),

(5) The window hit something.

as in the contexts (6) and (7):

(6) We were throwing furniture and stuff from the tenth floor onto the car below; the chair and kitchen sink missed but the window hit.

(7) We were throwing stuff out onto the ground; when the window hit, it broke.
Fillmore accounts for the data (1)-(4) in a case grammar framework. John would be 'agent'; the window would be 'affected' (to borrow a term from Halliday 1968:185). By a general principle, an agent has priority over an affected for filling the role of surface subject; only if an agent is missing does the affected become subject (as in (2) The window broke). Finally and crucially, it must be specified that hit and similar verbs obligatorily take an agent, while break and similar verbs optionally take an agent. Thus break-verbs can have the affected as subject, but hit-verbs cannot because they always have an agent. The paraphrase relations of (1)-(4) then follows.

There are a number of objections one could raise to this analysis, including one that Fillmore (1977) regards as crucial, namely, that there is no agreed or principled definition of the cases agent, affected, etc.; nor even any agreement on how many cases there should be. I suggest that the correct number and definition of the cases can be argued for on the basis of those distinctions that are present in language itself. In other words, the correct case system is just the one that would be suitable in the semantics of a recognition grammar.

In Wheeler (1980), I propose a system called Player-Pose which draws on the analogy of a theatre player who strikes a pose both when he is doing something and when he is having something done to him. In sentence (8),

(8) John runs.

or any of its propositional equivalents, such as
John ran or John is running, John represents the Player and runs represents the Pose. The structure can be digrammed as (9):

(9) Player:John \rightarrow \text{Pose:run} \quad 'John ran' \\

In a two-argument sentence, there are two Players usually. For each Player there is a Pose. Thus (3) John hit the window is represented semantically as (10):

(10) Player:John \rightarrow \text{Pose:hit} \\
     \quad \uparrow \quad 'John hit the window' \\
     \quad \text{Player:window} \rightarrow \text{Pose:()}

where the window's Pose is part of the semantic structure, though it is unnamed in the surface form. (The Player-to-Pose arrow indicates that the Player is engaged in that Pose while the Pose-to-Pose arrow indicates that the one Pose is subordinate to, i.e. comes later in time than or as a result of, the other Pose.)

A two-argument sentence implies that there are two Poses in its underlying form. Typically, only one of the Poses will be named (e.g. by the verb) and therefore one is blank. There are two possible arrangements for one named and one unnamed Pose, the first as in (10) and the second as in (11):

(11) Player:John \rightarrow \text{Pose():( )} \\
     \quad \uparrow \quad 'John broke the window' \\
     \quad \text{Player:window} \rightarrow \text{Pose:break}
It is my intention that any portion of a Player-Pose diagramme should represent a partial paraphrase of the whole, to the extent that it specifies enough information to produce a sentence. Thus, the lower half of (11), given as (12),

(12) Player:window ➔ Pose:break 'The window broke'

represents (2) The window broke which is a partial paraphrase of (1) John broke the window represented by the whole of (11). The lower half of (10), however, given as (13),

(13) Player:window ➔ Pose:( ) 'The window ??'

does not say (4) The window hit, since there is no Pose:hit, and so (4) is not a partial paraphrase of (3) John hit the window. Thus, the Player-Pose diagrammes explain the pattern in (1)-(4) just as well as the case grammar explanation, and (once one is accustomed to the notation) at least as simply.

It is my contention, however, that the Player-Pose explanation has an advantage over the case-grammar approach in that it avoids some of the artificial and unmotivated distinctions made by case systems in general -- Fillmore's or anyone else's.

For two-argument clauses, Player-Pose allows for two possible types of one argument paraphrase, the hit-verb and the break-verb type. Indeed, since there ARE two possibilities, it predicts that both cases will occur. The existence of the hit-break distinction follows from the theory, specifically from the need to put a named
Pose in one of the two available positions.

Contrast this with the case-grammar explanation of the same data. The hit-break distinction is coded as a distinction between an obligatory agent (on hit-verbs) and an optional agent (on break-verbs). The distinction must be coded somehow but why is it coded this way? It seems to be quite arbitrary.

First the theory does not motivate the optional/obligatory distinction; it would be quite plausible and somewhat simpler to assume that all cases are optional or all obligatory. By not motivating the optional/obligatory distinction, the theory fails to predict the existence of the hit/break distinction at all.

Second, granting there is an optional/obligatory distinction, there are still logical possibilities established by the theory that remain unused. Why do verbs select for optional or obligatory agents but not, so it seems, for optional or obligatory affecteds. And where are the verbs that should select for obligatorily absent cases? That too is a logical possibility, once one introduces the notion of obligatory and optional cases, but it is not utilized.

Finally, consider (14) and (15):

(14) John worked his employees hard.
(15) His employees worked hard.

The employees are clearly "agent" under the criterion of being the animate performer of the action "work hard". Thus John must be in some other case, say "causer". By giving "causer" priority over "agent" as subject, and by
assigning work hard an obligatory agent but an optional causer, (14) and (15) can be accounted for, but at the expense of repeating the mechanism used for the break-examples (1) and (2). The temptation is strong to make John agent and his employees affected instead. Case-grammar faces the dilemma of whether or not to have two cases, agent and causer, and if so how to distinguish them while still bringing out their similarities, but if not, how to express the agent-ness of employees in (14) and (15):

But what do the facts of English justify? Only this: that in (14) and (15) what John does dominates what the employees do, and that what the employees do is work hard; that in (1) and (2), what John does dominates what the window does, and what the window does is break; and that in (3) and (4) what John does again dominates what the window does, and what John does is hit. There is no hierarchy of causer-agent-affected, and questions about agentivity, animateness, and causation are not settled by these patterns of language. Thus they need not be, indeed should not be, included in the notation that expresses the meaning of those patterns.

Player-Pose, by avoiding any reference to animate instigator vs. inanimate receiver of action, etc. avoids the need for more than one case. Every participant is a Player. Thus, it avoids the problems that come with making what I believe are artificial distinctions. Work, like break, is a subordinate Pose. That is all that needs to be said to account for the data, and indeed that is all that the data justifies one saying.
The moral that I would draw, then, is simply this. In positing representation of semantic structures (or underlying structures) one should represent a system whose parametric variations will be entirely used, and of course which adequately accounts for one's data. If the system says such-and-such a meaning is possible, there should be some evidence of such-and-such a meaning. Extraneous distinctions, which cannot be made on the basis of language patterns, such as the distinction between agent and causer, should be shunned. A moral about parsimony is an old lesson, but one that bears repeating in the context of current practice in semantics.

Note

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References


