McCAWLEY AND LOGIC

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McCawley [1] proposes a semantic representation underlying the surface sentence, namely, a 'proposition' plus a set of noun phrases, where the 'proposition' stands for a "'contentive' plus a set of indices" corresponding to the noun phrases (177). The 'contentive' may be understood as predicate in ordinary logical parlance, but his use of the term 'proposition' is rather unique. McCawley [2] urges us to believe that the propositional form in quantificational logic has a certain linear order, headed by the predicate, and seeks to derive the English surface form S-V-O by left and right permutations. Obviously, he does not subscribe to this error in [1], only to commit an even more grievous error: "it is not clear that there is any ordering relation on the nodes of the trees which I am proposing as semantic representations" (171). Of course there is an order, for the n-tuple collected under a predicate is necessarily an ordered set. Only a linear order from left to right is irrelevant.

But the principal thesis of McCawley [1] is based on misconceptions concerning the nature of logic and language. He makes the assertion that in symbolic logic there is no way to express correctly the sentence

(1) *The man killed the woman*

which he symbolizes as

(2) $E_y [\text{kill}_y(x_1, x_2) . \text{past} (y)] . \text{man} (x_1) . \text{woman} (x_2)$

adding that he does not incorporate the meaning of *the*, the definite article. Then he claims that the sentence

(3) *I deny that the man killed the woman*

does not deny (2). McCawley [1], pp. 172-3 states:

> To deny a conjunction is to assert that at least one of the terms is false. However, in [(3)] the speaker is not merely asserting that one of the three terms is false: it would not be correct to say [(3)] when one means that x_1 did in fact kill x_2 but that x_1 is not a man.

So, he argues, (2) is no good, and therefore symbolic logic is to be discarded or 'seriously' modified in favor of his semantic representation.

The fact is that (2) is not the correct representation of (1), for the variables, x_1 and x_2, should be bound in (2), just as much as y is. If this binding had been carried out properly and if the existentially bound conjunction had been denied, McCawley would have avoided the fallacy of concluding that (2), being a conjunction, should become, upon negation, an alternation of negated component statements. (1) has the form:

(4) $K(\imath M, \imath W, \imath P)$

where K is the three-place predicate 'kill (at a certain time)'; $\imath P$, $\imath M$, and $\imath W$ are descriptions: $(\imath z)P(z)$, $(\imath u)M(u)$, and $(\imath v)W(v)$, the predicates P, M, and W meaning, respectively: 'is the past time that I know,' 'is the man you and I know,' and 'is the woman that you and I know.' By quantificational logic and by the axioms of identity, namely, $x = x$, and $x = y \,.\, F(x) \supset F(y)$, we have the following equivalences (cf. Quine [3], pp. 12 and 40):

(5) $F(y) \equiv (\mathrm{E}x)(x = y \,.\, F(x))$
(6) $F(y) \equiv (x)(x = y \supset F(x))$

That is, (4) is equivalent to any of the following representations:

(7) $(\mathrm{E}y)(\mathrm{E}x_1)(\mathrm{E}x_2)\,[\,y = \imath P \,.\, x_1 = \imath M \,.\, x_2 = \imath W \,.\, K(x_1, x_2, y)]$
(8) $(y)(x_1)(x_2)\,[\,y = \imath P \,.\, x_1 = \imath M \,.\, x_2 = \imath W \supset K(x_1, x_2, y)]$

The negation of (4), namely,

(9) $\sim K(\imath M, \imath W, \imath P)$

is therefore derived by denying either (7) or (8). Let us select (8), the negation of which is

(10) $(\mathrm{E}y)(\mathrm{E}x_1)(\mathrm{E}x_2)\,[(y = \imath P \,.\, x_1 = \imath M \,.\, x_2 = \imath W) \,.\, \sim K(x_1, x_2, y)]$

By (5), (10) is equivalent to (9). Furthermore, (10) entails:

(11) $(\mathrm{E}y)(\mathrm{E}x_1)(\mathrm{E}x_2)\,[(y = \imath P \,.\, x_1 = \imath M \,.\, x_2 = \imath W) \,.\, (\mathrm{E}y)(\mathrm{E}x_1)\,(\mathrm{E}x_2)(\sim K(x_1, x_2, y))]$

from which we cannot have McCawley's interpretation 'that x_1 did in fact kill x_2 but that x_1 is not a man.'

If the proposal to isolate noun phrases from a sentence leaving instead a skeleton proposition with blanks or indices is correct, then we understand thereby an operation corresponding to (7), but that is nothing new, for that is how we always understood a sentence with noun phrases. McCawley [1] is in the unfortunate position of either being trivial or completely misrepresenting logic.

REFERENCES

[1]   McCawley, J. D., "Where do noun phrases come from?" in *Readings in English transformation grammar*, ed. by Roderick A. Jacobs and Peter S. Rosenbaum, Waltham, Massachusetts (1970), pp. 166-183. The paper is reprinted, with no

essential changes bearing on this critique, in D. Steinberg and Leon Jakobovits, eds. *Semantics: an interdisciplinary reader in philosophy, linguistics and psychology*, Cambridge University Press (1971), pp. 217-231.

[2] McCawley, J. D., "English as a VSO language," *Language*, vol. 46 (1970), pp. 286-299.

[3] Quine, W. V., *Set theory and its logic*, Harvard University Press, Cambridge, Massachusetts (1963).

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