The Semantics of *-ing* and the Problem of Indirect Access

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In this paper I will argue against the recent conclusion reached in Zucchi (1999) regarding what he calls the problem of indirect access. It is a problem about how we determine the semantics of uninflected predicates. Suppose that they are predicates of events. Do they denote sets of complete events or incomplete events (or undetermined between the two)? The choice is important to how we approach the imperfective paradox of the progressive. If we decide to treat bare predicates as denoting only sets of complete events, call it a complete-event analysis, it is necessary to regard the progressive as an intentional operator, as argued in Dowty (1979) and Landman (1992). If on the other hand we decide that the events in the denotation of bare predicates may be incomplete events, as Parsons (1990) does, call it an incomplete-event analysis, such a theory is immune to the imperfective paradox. Zucchi claims that there is no conclusive evidence to choose one or the other as far as English progressive is concerned, but suggests, on the basis of the semantics of infinitival complements, that bare predicates in English denote sets of complete events.

I examine noun-modifying participles, and suggest a different conclusion; the semantics of noun-modifying participles is better explained under the incomplete-event analysis.

It has often been assumed that participles modifying a noun have an 'imperfective (progressive)' meaning. This can be seen in examples like (1), which give rise to the imperfective paradox.

(1) a. The man building a house over there is my uncle
     b. I said hello to the woman crossing the street

Where does this meaning come from? Under the complete-event analysis, the most straightforward answer to the question is that it comes from the morpheme *–ing*. It is an intentional operator. This simple hypothesis under the complete-event analysis faces a problem, however, when we consider the following fact, noted in Williams (1975). Compare (2) and (3).

(2) a. * The man is knowing the system
     b. * A woman was resembling my mother

(3) a. The man knowing the system can usually cheat easily
     b. A woman resembling my mother was at the conference

Stative predicates like *know* and *resemble* are incompatible with the progressive. The ungrammaticality is often attributed to the incompatibility of stative predicates with the semantics of the progressive operator (see Vlach 1981.) If the morpheme *-ing* is the realization of the progressive operator, then we expect that both (2) and (3) are bad. Yet the sentences in (3) are grammatical. If it is not, then where does the imperfective meaning come from in sentences like (1)?

The incomplete-event analysis, such as Parsons' (1990), where progressive sentences like (4a) are assigned a translation like (4b), has advantages over these issues.

(4) a. Susan was crossing the street
     b. $\exists e \exists t[t < now$ & crossing(e) & Agent(e)(Susan) & Theme(e)(the street) & Hold(e)(t)]

First, it gives a straightforward explanation to why the imperfective meaning is available to sentences like (1); bare predicates denote sets of events that may or may not be completed. Second, if the imperfective meaning is not attributed to the semantics of *-ing*, the grammaticality of sentences like (3) is not a problem. What does the morpheme *-ing* mean then? How do we get to (4b) compositionally? Where does the operator *Hold* come from? I will answer these questions, which I believe will lead to an explanation for the contrast between (2) and (3). I analyze *-ing* as stativizer, as proposed in Vlach (1981). Ontologically, I assume a set of eventualities E, some of which belong to S, a subset of E, the set of stative eventualities, in addition to the set of individuals and intervals. The participle morpheme *-ing* takes sets of eventualities and returns sets of stative eventualities in which the original eventualities are in progress (what Parsons calls "in-progress states" (IP-state) of an eventive eventuality), as in (5a). Furthermore, I propose that *Hold* is introduced by the imperfective operator under Aspect, whose semantics of given in (5b).

(5) a. -ing $\lambda P_{<s,t>}\lambda e_s \forall e[P(e) \rightarrow \text{IP-state}(e) = e_s]$
     b. Imp $\lambda P_{<s,t>}\lambda t \exists e[P(e)\ \&\ \text{Hold}(e, t, P)]$,
         where $\text{Hold}(e, t, P)$ iff for all $t' \subseteq t$, $\exists e'[e' \leq e\ \&\ \tau(e') = t'\ \&\ P(e')]$

When *-ing* applies to non-stative eventualities, the resulting eventualities are stative ones. This gives us the right truth conditions for progressive sentences like (4a). When it applies to stative eventualities, the operation is semantically vacuous. (2a) and the sentence *the man knows the system* are semantically equivalent, and the latter is preferred due to a Grician principle. In the case of noun-modifying participles, sentences like *the man know the system can usually cheat easily* are ungrammatical perhaps for morpho-syntactic reasons, and thus do not compete with grammatical versions like (3).

   The system has further advantages. (i) It explains the incompatibility of non-stative eventualities with the operator *Hold*, which was simply stipulated in Parsons (1990). Under the proposed analysis, it is because non-stative eventualities (including activities) cannot be true at an instant. (ii) We may attribute the ungrammaticality of sentences like *the man know the system can usually cheat easily* to their semantics. If nouns denote stative eventualities, there arises a type mismatch when we try to intersect noun denotations and verb denotations. The *-ing* form of verbs on the other hand denote stative eventualities under our analysis, therefore they may intersect with noun denotations.

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