TENSE, ASPECT AND TIME ADVERBIALS

Part I*

Preface

The perspective from which we shall approach the phenomena of tense, aspect and time adverbials will be that of analysis by means of logical form. Following the pattern of recent studies, we shall consider certain sentences containing paradigmatic instances and attempt to characterize their logical structure. In this way we hope to differentiate the kinds of semantic contribution which tense, aspect and time adverbials make to the truth conditions of a sentence. By exploiting the resources of model theory we also hope to indicate their special semantic content.

We would note that the logical formulas employed in the analyses will be understood as interpreted in a theory of types accommodating tense operators. The semantics will be essentially an interval semantics, in contrast to the more familiar point semantics. Having said this, we hasten to add that we shall not give a full formal specification of an appropriate type-theoretic language. To facilitate ease of comprehension we adopt a quasi-first-order language supplemented with certain propositional operators. Anyone familiar with predicate logic will find the formulas perfectly comprehensible. Those with a more technical turn of mind will have no difficulty envisaging a language which would render our intentions more precisely.

In our quasi-logical language we have three tense operators corresponding to the past, present and future tenses. We also have an operator whose semantic role corresponds to that of perfective aspect. This 'division of labour' ought not to be seen as necessarily predetermining how the facts of natural language are to be represented. Because our formal language contains a future-tense operator, it does not follow that English must be represented as having a future tense. It may be, as some have argued, that English has no future tense, only modal auxiliaries whose content is so-to-speak future oriented. We shall treat such auxiliaries, in particular will, as future-tense operators, but it is possible to render them as purely modal. Which analysis is the correct one is not pre-determined by the logic.
What will be determined, however, is that the present perfect cannot be represented as a tense on the semantics as specified. It can only be characterized as a combination of present tense and perfective aspect. There may be an inclination to feel that this must constitute a 'weakness' in our analysis since some languages appear to have a present-perfect tense. That there are such languages might be seen in certain morphological phenomena manifest on the verb. We do not wish to dispute the morphological criteria of tense, nor do we see our approach as potentially in conflict. Should the present perfect be morphologically discriminated as a tense, we would conclude that tense, as a feature of natural language, is not a uniform phenomenon. Some natural-language tenses can be analysed solely in terms of the 'logical' tenses of our formal language; other tenses, e.g. the putative present perfect and the related past perfect, can only be analysed in terms of a combination of the 'logical' tenses and perfective aspect.

This raises a general point about the relation between natural-language sentences and the formulas representing their logical forms. How are we to determine that a particular formula is the logical form of a given sentence? In Montague grammar there is an algorithm for translating natural-language sentences into their logical forms, i.e. into formulas of intensional logic. For the fragment over which the algorithm is defined each natural-language sentence has at least one translation in the language of the intensional logic, and if ambiguous, more than one. But the mere fact that there is a translation does not constitute an argument it is correct. This must be argued independently. In effect, an algorithm can be seen to be adequate only if the translations can be independently assessed as the correct ones.

The methodology of this paper will be to establish representative pairings of English sentences with their logical analyses given in a quasi-logical language. These pairs will be regarded as desiderata in developing an adequate translation algorithm of the Montague type. To realize this further objective we shall of course have to render the target formulas in a completely precise type-theoretic language. For our immediate purposes, however, it is enough to adumbrate a suitable language with a view to achieving an adequate translation algorithm.

Among the technical devices we shall exploit is that of lambda abstraction, which is a device that figures essentially in certain Montague formulations. Some may feel that abstraction is really an artefact of Montague grammar and has no genuine role in characterizing the semantic structure of natural language. We shall indicate, nevertheless, how abstraction might be crucial for capturing the import of tense