

The Semantic Ontology of Agent and Theme: A Case Study with Event Partitioning Quantifiers in Japanese

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Overview: In this research, I discuss the semantic ontology of the meaning of *Agent* and *Theme* by showing that *Agent* and *Theme* are quantified independently of subject DPs and object DPs when a sentence involves *Event Partitioning Quantifiers* (EPQs), which are newly discovered adverbial quantifiers in Japanese. Typically, EPQs take forms such as “hito-ri x -kai” and “hito-ri x -ko,” where x expresses an arbitrary number. (1-2) are examples of EPQs.

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| <p>(1) Gakusei-ga <u>hito-ri-ik-kai</u> hashit-ta.
 Student-nom <u>1-cl-1-cl</u> ran-Past
 ‘Students run at least once per a student.’</p> | <p>(2) Gakusei-ga usagi-o <u>hito-ri-ip-piki</u> tukamae-ta.
 Student-nom rabbit-acc <u>1-cl-1-cl</u> catch-Past
 ‘Students caught a rabbit per one student.’</p> |
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This independent quantification of *Agent* and *Theme* directly requires semantic representation to prepare variables for the thematic predicates Agent (e, x) and Theme (e, y), which is distinct from variables for nominal predicates. Thus, it is a piece of evidence for the *Neo-Davidsonian* “separation” in the sense of Schein (1993), which requires that semantic decomposition is accomplished in the logical syntax.

Issues: In the field of semantics that treat the notion of event, it has been controversial whether the arguments of a verbal predicate are expressed as the variables of a polyadic predicate as in (4) or a variable of each two-place thematic predicate as in (5).

- (3) Brutus stabs Caesar.
(4) $\exists e[\text{Stab}(e, \text{Brutus}, \text{Caesar})]$
(5) $\exists e[\text{Stab}(e) \wedge \text{Agent}(e, \text{Brutus}) \wedge \text{Theme}(e, \text{Caesar})]$

Though there are pieces of evidence for the separation of the thematic predicates Agent (e, x) and Theme (e, y) from verbal predicates, none of them shows their semantic independence of subject DPs or object DPs. The primary aim of this research is to show that Agent (e, x) and Theme (e, y) are quantified independently of subject DPs and object DPs when an EPQ is involved in a sentence. Specifically, I will show that there is an instance in which there are two numeral quantifiers (NQs) for an argument of a verbal predicates and these two NQs differs in readings. That is to say, an EPQ must induce a distributive reading and a non-EPQ NQ must induce a cumulative reading. It suggest that Agent (e, x) and Theme (e, y) must have their variables independently of subject DPs and object DPs, and thus the separation of Agent (e, x) and Theme (e, y) from verbal predicates is necessary.

Analysis: Though there are some unique properties of EPQs, the most important one is that when a sentence involves an EPQ, Agent (e, x) and Theme (e, y) of the quantified event exhibit their semantic independence of the subject DP and the object DP. First of all, I will briefly discuss some distinctions between EPQs and kind of NQs. First, an EPQ can co-occur with other kinds of NQs, though they cannot redundantly occur in a sentence.

- (6) San-nin-no gakusei-ga/Gakusei-san-nin-ga/Gakusei-ga san-nin (*hito-ri) hasit-ta.
3-cl-gen student-nom / student-3-cl-nom / student-nom 3-cl 1-cl run-Past
‘Three students ran.’
- (7) San-nin-no gakusei-ga/Gakusei-san-nin-ga/Gakusei-ga san-nin hito-ri-ik-kai hasit-ta.
3-cl-gen student-nom / student-3-cl-nom / student -nom-3-cl 1-cl-1-cl run-Past
‘There are three students such that each student ran at least once.’

Second, floated NQs have to be adjacent with the subject DP when they quantify it, whereas EPQs do not.

- (8) *Gakusei-ga usagi-o hito-ri tukamae-ta.
Student-nom rabbit-acc 1-cl catch-Past
‘One student caught a rabbit.’

- (9) Gakusei-ga usagi-o hito-ri-ik-kai / hito-ri-ip-piki tukamae-ta.
 Student-nom rabbit-acc 1-cl-1-cl / 1-cl-1-cl catch-Past
 ‘Students caught at least one rabbit per one student.’

Third, when an EPQ is involved, the NQ of the subject (not EPQ) must induce a distributive reading whereas that of the object must induce a cumulative reading.

- (10) San-nin-no gakusei-ga nana-satsu-no hon-o yon-da.
3-cl-gen student-nom 7-cl-gen book-acc read-Past
 ‘Three students read seven books.’

- (11) San-nin-no gakusei-ga nana-satsu-no hon-o hito-ri-ni-satsu yon-da.
3-cl-gen student-nom 7-cl-gen book-acc 1-cl-2-cl read-Past
 ‘Three students read two books, respectively. In total, there are seven books that are read by at least one of the three students.’

In (10), an interpretation in which there are twenty one books is available, whereas not in (11). Even when the object is dislocated by scrambling, the NQ of the subject must induce a distributive reading and the NQ of the object must induce a cumulative reading. In other words, it allows no interpretation in which there are more than three students or more than seven books, as long as an EPQ appears in the sentence. Moreover, the internal word order of an EPQ must be the same as that of the sentences without scrambling.

- (12) Nana-satsu-no hon-o san-nin-no gakusei-ga hito-ri-ni-satsu / *ni-satsu-hito-ri yon-da.
7-cl-gen book-acc 3-cl-gen student-nom 1-cl-2-cl 2-cl-1-cl read-Past
 ‘Three students read two books, respectively. In total, there are seven books that are read by at least one of the three students.’

These observations suggest that EPQs quantify events and corresponding variables x and y of Agent (e, x) and Theme (e, y). As (11-12) indicate, it is not the number of entities which are true of the predicate expressed by the nominal predicate in DP, but the number of events and corresponding occurrences of an agent and a theme of the events that is quantified. For example, there are six events of reading and, correspondingly there are six occurrences of an agent and a theme in (11-12). And then, those six occurrences of an agent are chosen from the three students and those six occurrences of a theme are chosen from the seven books. Thus, the quantifier “san-nin” and “nana-satsu” in (11-12) express the total number of individuals who participate at least one event expressed by the sentence. On the other hand, the EPQ “hito-ri-ni-satsu” expresses the number of themes per an agent and requires every individual expressed by the subject to exhaustively participate an event which is specified by it. Thus, the quantification of an EPQ and the quantification of a non-EPQ NQ are independently accomplished. This independence of quantification over agents and themes of event from quantification over nominal predicates requires the semantic representation to distinguish variables of nominal predicates from variables of Agent (e, x) and Theme (e, y). Thus, this is a piece of evidence for the separation of Agent (e, x) and Theme (e, y) from the verbal predicate.

Selected References: [1] Schein, Barry. 1993. *Plurals and Events*. Cambridge, MA: MIT Press.