Title: On Binding of DP-internal Amount/Degree Variables
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In this paper I present an analysis of the syntactic binding of the DP-internal variables by the operator outside DP. Specifically, I consider two types of the variables of "type *d(egree)*." These two types correspond to the numeral expressions in (1): the numeral+classifier (*5-hon* in (1a)), which expresses the amount of the modified countable noun (*kasa* 'umbrella(s)'), and the numeral+unit (*70-cm* in (1b)), which expresses the degree of its individual property (e.g., length). In Japanese, both of the numeral expressions seem to appear in "pseudo-partitives." Schwarzchild (2002) argues that such numeral expressions are interpreted in terms of a measurement system and the basis for the measurement is "monotonic." Given that singular count nouns never provide a non-trivial part-whole relation, then, the non-monotonic numeral expressions ($^{\text{non-mono}}$NumEs) are unacceptable in pseudo-partitives though they can occur within compounds, as shown in English example (2). Thus, I argue that the two types are not in the same structural position in Japanese, either: (the variable of) the $^{\text{non-mono}}$NumE (*70-cm / d_{DEG}*) occupies the relatively lower position under NP closer to the modified head noun, whereas (the variable of) the $^{\text{mono}}$NumE (*5-hon / d_{NUM}*) occupies the higher position, namely Spec,NumberP, within DP as illustrated in (3).

The examples (4)-(8)' are the data on which I base my discussion. Only the $^{\text{mono}}$NumEs (i.e., number) can undergo "quantifier floating" ((4)). Only the *wh*-phrases of the monotonic type can be overtly extracted from within DP ((5)). The "excessiveness" of only the monotonic property of the noun can be expressed by attaching *-sugi(r)-* 'too' to the verb ((6)). The possibility of relativization of the "degree nominals (Sudo (2009))" is also sensitive to the distinction between monotonic and non-monotonic. The "degree relativization" is possible only when the "degree" is monotonic ((7)). Moreover, without "Comparative Deletion," the clausal comparatives in Japanese are acceptable only in the case where the monotonic property is the target of comparison ((8)').

Notice that in Japanese, an absolute numerical value that a noun possesses cannot be expressed by the measure phrase with the attributive gradable adjective, but is expressed only by the pseudo-partitive-like construction, as shown in (9) (Snyder et al. (1995), Hayashishita (2009)). What is at issue in Japanese when the operator binds the attributive amount/degree variable from the outside of DP is, thus, the structural position of the two types of type *d* variables: monotonic d_{NUM} and non-monotonic d_{DEG}. Given that the $^{\text{mono}}$NumE occupies the position c-commanding the $^{\text{non-mono}}$NumE in (3), and that a definite countable noun always projects NumberP that involves an implicit amount, some sort of minimality condition prohibits the DP-external-operator from binding the non-monotonic degree variable d_{DEG}, as illustrated in (10).

Furthermore, I argue that incremental THEME objects of the creation verbs only denote properties, and thus only project NP, since the attributive $^{\text{non-mono}}$NumEs modifying such objects can undergo floating ((11)), and can be bound by the operators outside DP ((12)-(13)). These objects are combined with the verb via a modified version of Dayal's (2003) semantics for pseudo-incorporation in line with the Chierchia (1998) and Espinal and McNally's (2010) analyses of "bare nominals" in Romance. These "bare nominals" have to describe an object which is typically a participant in the event described by the verb, and so do the incremental THEMEs in Japanese. NumberP being absent, there is no *d*-variable (d_{num}) intervening, and the non-monotonic *d*-variable (d_{DEG}) is successfully bound by the DP-external operator, as illustrated in (14).

(1)   [$_{DP}$ {5-hon /70-cm}-no   kasa]

        {5-CL70-cm}-GEN   umbrella(s)

(2)   *2pages of story / a 2-page-story   (Schwarzchild (2002))

(3)   [$_{DP}$ [$_{NumberP}$ [$_{MeasurePhrase}$ d_{NUM}] [$_{NP}$ [$_{DegP}$ d_{DEG}] N^0]Number^0]D^0]

(4)   Hanako-wa   [$_{DP}${5-hon-no/70-cm-no} kasa-o] {5-hon/*70-cm}   nakusita.

        'Hanako lost {5 umbrellas/a 70cm-long umbrella}.'

(5)   {Nan-hon/$^{?*}$nan-cm}   Hanako-wa   [$_{DP}${nan-hon-no/nan-cm-no} kasa-o] nakusita no?

        '{How many umbrellas/how long an umbrella} did Hanako lost?'

(6) a. Hanako-wa   [$_{DP}$takusan-no   kasa-o] nakusi-sugi-ta.

         'Hanako lost too many umbrellas.'

     b. Hanako-wa   [$_{DP}$nagai   kasa-o] nakusi-sugi-ta.

         'Hanako lost {*a too-long umbrella / too many long umbrellas}.'   (cf. Nakanishi (2010))

(7)   Hanako-ga   [$_{DP}$kasa-o] nakusita   {kazu/$^{?*}$nagasa}

        '(lit.) the {number/length} that Hanako lost the umbrella'   (Kawahara (ms.))

(8)   Taroo-wa Hanako-ga   nakusita yorimo {takusan-no/$^{??}$nagai} kasa-o nakusita.

        'Taroo lost {more umbrellas/a longer umbrella} than Hanako did.'   (Ishii (1991))

(8)'   Taroo-wa Hanako-ga   [$_{DP}$tue-o] nakusita yorimo {takusan-no/$^{?*}$nagai} bou-o nakusita.

        '(lit.) Taroo lost {more rods/a longer rod} than Hanako lost the stick(s).'   (Inada (2010))

(9)   the 2-meter-long umbrella (*English*) / 2-meetoru{*nagai/-no} kasa (*Japanese*)

                                    2-meter   {long/-GEN} umbrella

(10) $Op_{NUM/*DEG}$ … [$_{DP}$ [$_{NumberP}$ [$_{MP}$ d_{NUM}]   [$_{NP}$ [$_{DegP}$ d_{DEG}] N^0]Number^0]D^0] : Countable nouns

(11) a. Hanako-wa   [[200-peeji-no] ronbun-o] [200-peeji]   kaita.

         'Hanako wrote a 200-page-long paper.'

     b. Hanako-wa   [[3-meetoru-no] ana-o]   [3-meetoru] hotta.

         'Hanako dag a 3-meter-deep hole.'

(12)   ?Taroo-wa Hanako-ga   [ronbun-o] kaita   yorimo nagai syoosetu-o kaita.

         '(lit.) Taroo wrote a longer novel than Hanako wrote a paper.'

(13)   Hanako-wa   [nagai ronbun-o] kaki-sugi-ta.

         'Hanako wrote {a too-long paper/too many long papers}.'   (Nakanishi (2010))

(14) Op_{DEG} … [$_{NP}$[$_{DegP}$ d_{DEG}] N^0] : Incremental THEME of creation verbs

Selected References:

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