B-5 "A movement account of the Japanese verbal suffix -*sugi*"
Yuki A. Seo

Abstract

This study investigates the long-distance association between the Japanese verbal suffix -*sugi* and gradable elements and proposes a movement analysis of -*sugi* to better account for the data. *Sugi* has been claimed to be able to only modify objects but not subjects (Yumoto 2005, Nakanishi 2007), while an experimental study (Toji 2019) shows otherwise and -*sugi* can actually modify subjects as well. The analysis that I propose will allow for the possibility of modification of an element both within subjects and objects. In the movement account, -*sugi* starts where the gradable elements are in the structure and moves to the position where it can morphologically be adjoined to, which is called *sugi*P in this paper. (115 words)

1. Introduction

This study investigates the long-distance association between the Japanese verbal suffix -*sugi* and gradable elements and proposes a movement analysis of -*sugi* to better account for the empirical data. The function of -*sugi* is to add the meaning of excessiveness to gradable elements (e.g., degree, amount and numerals) in its scope. Also, -*sugi* is subject to a morphological restriction on what it can be attached to. *Sugi* attaches to verbs, adjectives and "na"-adjectives, but can modify nouns and adverbs as well. What is interesting about -*sugi* is it can modify what it morphologically attaches to but also modifies gradable elements in its scope indirectly, as in (1).

(1) Kare-wa   ookii   ie-o   tate-**sugi**-ta.   (Yumoto 2005: 242)
     He-Top   big   house-Acc   build-sugi-Pst
     'He built too big a house. / He built too many big houses.'

In (1), -*sugi* can modify the adjective 'big' despite attaching to the verb and the number of the big houses to mean the excessive number of the big houses. In previous analyses (Yumoto 2005, Nakanishi 2007), -*sugi* was claimed to be able to modify only objects, but not subjects. However, a recent experimental study (Toji 2019) found -*sugi* to be able to modify subjects. To account for subject modification, I will argue in this paper, -*sugi* originates where the gradable elements are in the structure and moves to where it can morphologically be attached to, as a part of a verb compound. This movement analysis will allow for the possibility of modification of an element within the subject as well as the object.

2. The association between -*sugi* and subjects

Nakanishi (2007) accounted for the association between -*sugi* and objects by claiming that there is a requirement in this association, which is a correlation between the event denoted by the verb and the degree of an adjective modifying the object, as seen in an example like (2).

(2) John-ga   fukai   ana-o   hori-**sugi**-ta.   (Nakanishi 2007: 223)
     John-Nom   deep   hole-Acc   dig-sugi-Pst
     Lit. 'John dug a deep hole(s) too much.'
     Interpretation: too deep a hole / too many deep holes

In (2), -*sugi* can modify the excessive depth of the hole because there is a correlation in the event of digging a hole or holes; the more you dig the hole, the deeper it gets.

However, the results from a recent acceptability judgement test (Toji 2019) show new empirical

evidence in which elements in subject position can actually be modified by *-sugi* and the correlation is not always necessary. In the experiment, 50 participants were asked to provide a binary acceptability judgement on the sentences with *-sugi*, and the results were calculated by obtaining the average percentage of "acceptable" responses. The following sentence in (3) is one of the examples from the experiment which scored 46% acceptability in the context where *-sugi* modifies the adjective modifying the subject. The context is provided in the parenthesis.

(3) (The role which has been played by an experienced actress, but today,)   (Toji 2019)
    Wakai joyuu-ga   enji-**sugi**   te (, she could not show her strong stage presence much.)
    Young actress-Nom play-sugi because
    Lit. '…because the young actress played the role too much,…'
    Interpretation. Too young an actress was playing the role.

In the reported results by Toji, the average acceptability of object modification is 63% and that of subject modification is 45%. These numbers suggest that almost half of the population find *-sugi*'s subject modification acceptable. Also, in (3), the youth of the actress and the event of playing a role have no correlation, which suggests that the correlation is not always required in the association between *-sugi* and gradable elements. The following example shows that the number of the subject can also be modified by *-sugi*.

(4) Jugyoo tyuu   gakusei-ga   ne-**sugi**   te (, the professor could not continue the class.)
    Class   during students-Nom   sleep-sugi because
    'Because the students were sleeping too much / too many students were sleeping in class.'

(4) can describe a situation where the excessive number of subjects was involving the event of sleeping in class, and it ended up causing another issue provided as a context in parentheses. The provided examples (3) and (4) suggest that *-sugi* can also modify the gradability associated with elements in the subject position, in addition to the elements in the object position.
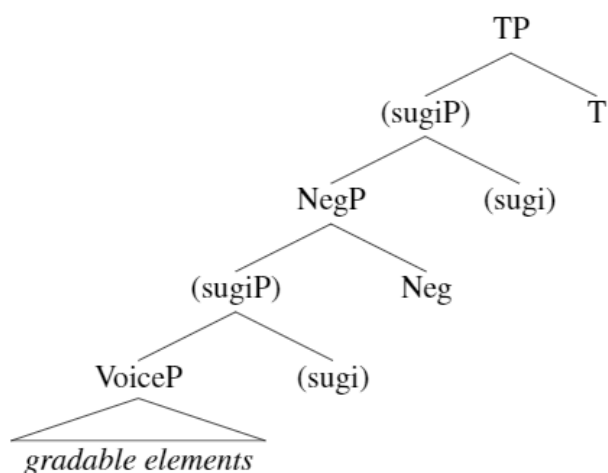
3. Movement of *-sugi*

In order to account for the data like (3) and (4), I propose that *-sugi* moves. In the movement analysis, *-sugi* is base-generated next to the gradable element it modifies and moves to the position where it can be morphologically combined with a verb. The adjoining position is below T, and is flexible between right below and right above negation, which I call *sugi*P in this paper. While there is a generalization of its adjoining position provided by Suzuki (2016), which claimed that the modality on the auxiliaries determines where *-sugi* can appear as a compound, the negation *-nai*, a non-modality auxiliary, does not follow the generalization because *-sugi* can appear both before and after *-nai* with different scopes. The examples in (5) and (6) describe each scope respectively; *-sugi* takes a scope over the event of Hiro's not studying in (5) and it does over Hiro's studying but the amount is not excessive in (6).

(5) Hiro-wa   benkyou-si-na-**sugi**-ru.   (6) Hiro-wa   benkyou-si-**sugi** nai.
     Hiro-Top   study-do-Ng-sugi-Pres   Hiro-Top   study-do-sugi   Ng
     'Hiro does not study too much'   'Hiro studies not too much'

The adjoining position of *-sugi* is shown in the following structure in (7). There are two *sugi*-positions specified because both positions are available for *-sugi* according to the examples in (5) and (6), though it only reflects two possible orders between *-sugi* and negation. They will not be occupied at the same time.

(7)

```
                    TP
                   /  \
             (sugiP)    T
             /    \
          NegP    (sugi)
         /    \
    (sugiP)   Neg
    /    \
VoiceP  (sugi)
  /\
gradable elements
```

4. Motivations of *-sugi*'s movement

In support of the movement of *-sugi*, this section will provide some evidence for the movement of *-sugi*. (8) describes *-sugi* as only capable of modifying one gradable element at a time and it is impossible to have the interpretations of too many professors choosing too difficult too many textbooks. The arrow in (8) includes one of the possible movements of *-sugi*, and this specific movement derives the interpretation of 'too difficult a textbook' since *-sugi* starts adjacent to the adjective 'difficult.'

(8) Sensei-ga   [muzukasii-sugi   kyoukasyo-o]$_{obj}$ erabi-**sugi**   te (, the students could not follow.)

                                                                  (Toji 2019)

     Professor-Nom difficult   textbook-Acc   choose-sugi because

     Lit. 'Because the professor chose difficult textbook too much,…'

     Interpretation. too difficult a textbook

Another evidence of *-sugi*'s movement is inability to move out of coordinate structure. It is well-known that coordinate structure forms an island (Ross 1967). In (9), it is impossible to have the interpretation of either the number of students or TAs being excessive.

(9) Seito   to   sensei-ga   hanashi-**sugi**-tei te   (, the professor could not continue the class.)

     Student and teacher-Nom talk-sugi-Prog   because

     'Because the students and the teachers were talking too much,'
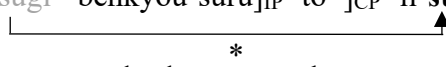
These examples in (8) and (9) rule out a binding analysis because binders are typically unselective and can bind more than one thing (Baker 2008).

In order for *-sugi* to modify multiple gradable elements, multiple *-sugi*s are required. (10)

includes -*sugi* as Adjective+*sugi* compound and the interpretation is inflexible. (11) includes two -*sugi*s, one as A+*sugi* and the other as V+*sugi*, and its most salient interpretation is 'the actress who was too young played the role too many times.' This indicates that -*sugi* on V cannot modify the adjective 'young.' In the movement analysis, this follows, because -*sugi* could not have moved from a position that is occupied by something else.

(10) Waka-**sugi**-ru   joyuu-ga   sono   yaku-o   enji-ta.
     Young-sugi-Pres   actress-Nom   the   role-Acc   play-Pst
     'The actress who is too young played the role.'
(11) Waka-**sugi**-ru   joyuu-ga   sono   yaku-o   enji-**sugi**-ta.
     Young-sugi-Pres   actress-Nom   the   role-Acc   play-sugi-Pst
     'The actress who is too young played the role too much.'

(12) demonstrates that -*sugi*'s movement is local and cannot cross a CP boundary, which makes it possible only to have the interpretation of excessive recurring event of Ken's saying, instead of how excessively well the child studied. The arrow in (12) indicates how the movement of -*sugi* is blocked since it is crossing the CP boundary.

(12) Ken-wa   [[kodomo-ga   yoku-sugi   benkyou-suru]ᵢₚ to]cₚ ii-**sugi**-ta. (Yumoto 2005: 259)
                                                                          *

     Ken-Top   child-Nom   well   study-do   that   say-sugi-Pst
     Interpretation. Ken said too much that the child studied./*Ken said the child studied too well.

5. Analysis
     In this section, I will show how the movement analysis is applied to the long-distance association between -*sugi* and adjectives and the derivation of the excessive number interpretation of an argument.
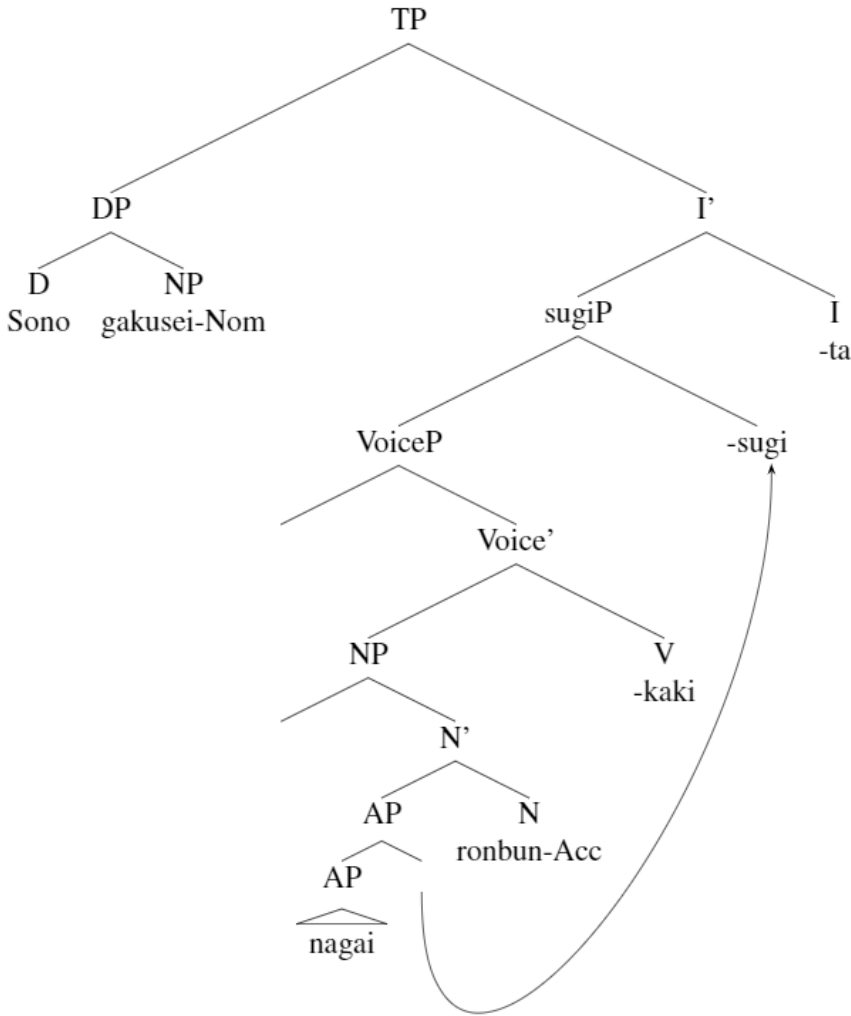
5.1 Association between -sugi and adjectives
     My analysis can derive associations between -*sugi* and adjectives modifying both objects and subjects. Here is an example where -*sugi* modifies the adjective modifying the object.

(13) Sono gakusei-wa   nagai   ronbun-o   kaki-**sugi**-ta.   (Yumoto 2005: 242)
     The   student-Nom long   thesis-Acc write-sugi-Pst
     Lit. 'The student wrote a long paper too much.'
     'too long a paper / too many long papers'

I will focus on how the "excessive length" interpretation is derived here. As the arrow indicates in (14), -*sugi* starts adjacent to the gradable element, the adjective 'long', and moves to the *sugi*P.

(14)

```
                              TP
                 ┌─────────────┴─────────────┐
                DP                            I'
            ┌────┴────┐              ┌─────────┴─────────┐
            D        NP            sugiP                  I
          Sono   gakusei-Nom   ┌─────┴─────┐            -ta
                            VoiceP         -sugi
                         ┌────┴────┐
                                 Voice'
                            ┌──────┴──────┐
                           NP             V
                        ┌───┴───┐       -kaki
                              N'
                         ┌────┴────┐
                        AP         N
                      ┌──┴──┐  ronbun-Acc
                     AP
                    nagai
```

This movement is obligatory since *-sugi* cannot be pronounced at the base-generated position. For -*sugi* to be pronounced at the base-position, it must be included in a relative clause, which prevents it from movement due to the locality condition of relative clauses. The arrow in (15) indicates how the movement is blocked.

(15) Sono gakusei-wa [naga-**sugi**-ru]_{CP} ronbun-o kai-ta.

The student-Nom long-sugi-Pres thesis-Acc write-Pst
'The student wrote too long a paper.'

In (15), *-sugi* is included in a relative clause modifying the object 'thesis'. Due to the locality condition of the relative clause, the interpretation is inflexible and *-sugi* can only modify the adjective because *-sugi* cannot move to the verb in the main clause.

Here is an example where *-sugi* modifies the adjective modifying the subject.

(16) (Though the player received a good pass,)   (Toji 2019)
      Hirikina senshu-ga   booru-o keri-**sugi** te   (, the goalkeeper easily saved.)
      Weak   player-Nom ball-Acc kick-sugi because
      Lit.'…because the weak player kicked the ball too much,…'
      Interpretations: too weak a player, too many weak players

The derivation of 'too weak a player' is provided in (17) with an arrow.

(17) Hirikina-sugi senshu-ga   booru-o keri-**sugi** te

As shown in (17), *-sugi* starts adjacent to the adjective 'weak' and moves to *sugi*P. Again, this movement is obligatory since it is impossible to pronounce *-sugi* at the base position unless it is included in a relative clause.

5.2 The excessive number interpretation

My movement analysis accounts for the NPs with the "excessive number" interpretation as well. Following Nakanishi's (2007) analysis, I adopt *MANY/MUCH*, which "takes a degree argument and yields the characteristic function of a set of individuals that are numerous to degree d" (Nakanishi 2007: 180). This is the proposed structure for the quantification of the event in the nominal domain.

(18)

$$
\text{NP } (<e,t>)
$$

DegP   *MANY/MUCH*$_x$
$(<dt,t>)$ $(<d,<et,et>>)$

                                                                  (Nakanishi 2007: 195)

(18) describes how *MANY/MUCH* links the event with a degree, which the event itself does not entail. Below, (8) is repeated as (19) to show how the 'too many difficult textbooks' interpretation is derived through the movement. *Sugi* starts at an adjacent position to *MANY/MUCH* and moves to the *sugi*P, as an arrow indicates.

(19) Sensei-ga   [muzukasii *MANY/MUCH*-sugi   kyoukasyo-o]$_{obj}$ erabi-**sugi**-ta.

     Professor-Nom difficult   textbook-Acc   choose-sugi-Pst
     'The teacher chose too many difficult textbooks.'

6. Conclusion

This study has investigated the long-distance relation between *-sugi* and gradable elements in sentences. Based on the new empirical evidence, *-sugi* modifies subjects as well as objects, which required a new analysis to account for. I proposed a movement of *-sugi*; it is base-generated adjacent to where the gradable elements are and optionally moves to the *sugi*P, which is lower than T and is specifically flexible between below and above negation depending on the scope. This analysis was

supported by the fact that -*sugi* only modifies one gradable element at a time and it cannot move out of coordinate structures, which rule out a binding analysis despite the fact that -*sugi* seems to look for any gradable elements. Also, the movement of -*sugi* is local and cannot cross CP boundary. Then I provided some applications of -*sugi*'s movement to the association between -*sugi* and adjectives and the excessive number interpretation of NP.

For future research, I will attempt to extend the analysis of the excessive number of the arguments to the excessive recurring events by applying Nakanishi's *MANY/MUCH*. The association between -*sugi* and adverbs will be further explored as well, since it seems to be the case where -*sugi* always prioritize modifying adverbs among the overt gradable elements, which no other analysis has an account for.

(20) Ken-ga   fukai   ana-o   hayaku   hori-**sugi**-ta.
      Ken-Nom   deep   hole-Acc   quickly   dig-sugi-Pst
      'Ken dug the deep hole too quickly.'

(20) includes a manner adverb 'quickly' and the only available interpretation is the excessive speed of Ken's digging holes. Without the adverb, (20) would have had the interpretations of the excessive number of the deep holes and one excessively deep hole as (2) showed.

7. References

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