V-*SUGIRU* 'V TOO MUCH' IN JAPANESE AS A COMPARATIVE QUANTIFIER
Kimiko Nakanishi, University of Pennsylvania

Japanese has a verb -*sugiru*, which attaches to another verb and roughly means 'too much'.

(1) John-ga   Sue-ni   ai-<u>sugi</u>-ta
    John-NOM Sue-DAT   meet-too much-PAST   'John met Sue too much (too many times)'

When -*sugiru* occurs with non-floating (ex.2a) or floating quantifiers (FQs) (ex.2b), we observe dramatically different semantic interpretations: while both sentences can mean that John overdid the reading of three particular books, only (2b) can mean that John read three more books than he should have (e.g. he was supposed to read five, but ended up reading eight).

(2)   a. John-ga [san-satu-no hon]-o   yomi-<u>sugi</u>-ta
          John-NOM [three-CL-GEN book]-ACC   read-too much-PAST
          'John read three books too much (too many times)'
    b. John-ga   hon-o   **san-satu**   yomi-<u>sugi</u>-ta
          John-NOM   book-ACC   three-CL   read-too much-PAST
          'John read three books too much' or 'John read three too many books'

The non-FQ in (2a) directly combines with the NP *book*, thus it only means 'the relevant three books'. The FQ in (2b) can obtain the same reading with the mechanism proposed in Nakanishi (2003). The central question addressed in this paper is how to obtain the second reading of FQs.

Assumptions It is generally assumed that gradable adjectives denote functions of type <d,et> (in 3a). Moreover, I assume that a complex degree phrases such as *-er than six feet* is of type <dt,t> (in 3b,c). With (3), the interpretation of 'John is taller than six feet' comes out as in (4). That is, the maximal degree to which John is tall exceeds six feet.

(3)   a. $[\![tall]\!]$ = $\lambda d_d.\lambda x_e.$ tall(x,d)
        b. $[\![$*-er than six feet*$]\!]$ = $\lambda P_{<d,t>}.$ max(P) > 6'
        c.   max(P) := ιd. P(d) = 1 ∧ ∀d'[P(d') = 1 → d' ≤ d]   (Heim 2000)
(4) $[\![$*John is taller than six feet*$]\!]$ = max{d: tall(j,d)} > 6'

We can apply this analysis to the interpretation of 'John is too tall', given in (5). C is a contextually sensitive variable, which in this case denotes a standard degree of tallness.

(5) $[\![$*John is too tall*$]\!]$ = max{d: tall(j,d)} > C

It has been proposed that the same analysis applies to a complex determiner such as *more than six* (Hackl 2000): *more than six* is decomposed to *many* followed by *-er than six*, where the DegP *-er than six* has the same denotation as the one in (3b). For example, 'more than six boys danced' is interpreted as in (6): the maximal degree to which d-many boys danced exceeds six. The denotation of 'too many boys danced' naturally follows from the denotation in (6), assuming 'too many' means more than the expected/intended number C (* indicates pluralization).

(6) $[\![$*more than six boys danced*$]\!]$ = max{d: ∃x[*boy(x) ∧ *dance(x) ∧ |x| = d]} > 6
(7) $[\![$*too many boys danced*$]\!]$ = max{d: ∃x[*boy(x) ∧ *dance(x) ∧ |x| = d]} > C

Lastly, *one feet* in 'John is one feet taller than Mary' is a differential (von Stechow 1984), which denotes an amount obtained by subtracting max{d: tall(m,d)} from max{d: tall(j,d)}.

The Semantics of V-*Sugiru* 'V too much' It has been claimed that -*sugiru* expresses the excess of a certain gradable semantic concept in its complement clause (Kikuchi 2001). In (1), it expresses the excessive degree of some semantic concept derivable from the complement clause [John met Sue]. In the above examples, the degree is associated with adjectives (*d-tall*) or the amount of individuals (*d-many boys*). I propose that, in (1), the degree is associated with the amount of events in $[\![$*John met Sue*$]\!]$, where $[\![$*John met Sue*$]\!]$ = λe.meet(e)∧AG(j,e)∧PAT(s,e). The notion of 'excess' is expressed in the same way as *too* in (5) and (7) above.

(8) $[\![$*John met Sue-**SUGIRU***$]\!]$ = max{d: ∃e[*meet(e) ∧ AG(j,e) ∧ PAT(s,e) ∧ |e| = d]} > C

The proposal that -*sugiru* applies to the amount of events can be confirmed with the example in (9a), which means that John met Sue twice more than he was supposed to. Since *ni-kai* 'twice' serves as a differential and refers to the amount of events, the most natural interpretation is that the degree is associated with events. It follows that (9a) is true iff the maximal number of John's-meeting-Sue events minus that of John's-intended-meeting-Sue events (a contextually salient variable C) is 2.

(9) a. John-ga   Sue-ni   **ni-kai**   ai-<u>sugi</u>-ta
         John-NOM Sue-DAT two-time meet-too much-PAST
         'John met Sue twice too much (too many times)'
     b. max{d: $\exists$e[*meet(e) $\wedge$ AG(j,e) $\wedge$ PAT(s,e) $\wedge$ |e| = d]} $-$ C = 2

Having established the proposal that -*sugiru* denotes the excessive amount of d-many events, let us apply such an analysis to (10a).

(10) a. John-ga   **san-jikan** ne-<u>sugi</u>-ta
          John-NOM three-hour sleep-too much-PAST   'John slept three hours too much'
      b. max{d: $\exists$e[sleep(e) $\wedge$ AG(j,e) $\wedge$ |e| = d]} $-$ C = 2 hours

(10b) does not work as it is, since, what is relevant is the event run times, not events themselves, which is clear from the differential *san-jikan* 'three hours'. This problem can be solved by introducing Krifka's (1989) homomorphism *h* from a set of events E to a set of event run times T, with $h(e_1 \cup_E e_2) = h(e_1) \cup_T h(e_2)$. This homomorphism is independently required to account for temporal adverbials (e.g. *for three hours*). With the help of *h* from E to T, we obtain (11), where d-many is associated with event run times $h(e)$, that is, the run times of the John's-sleeping event minus the run times of the intended John's-sleeping event is 2 hours.

(11) max{d: $\exists$e[sleep(e) $\wedge$ AG(j,e) $\wedge$ |h(e)| = d]} $-$ C = 2 hours

This analysis extends to the example in (2b) above. (2b) is semantically different from (12), where the differential *san-kai* 'three times' simply quantifiers over the number of events (e.g. John was supposed to read the book(s) five times, but he ended up reading eight times).

(12) John-ga   hon-o   **san-kai**   yomi-<u>sugi</u>-ta
      John-NOM book-ACC three-time read-too much-PAST
      'John read a book/books three times too much'

In (2b), the classifier phrase (ClP) *san-satu* 'three-CL' is considered to be a differential, and it necessarily indicates the number of books. Thus, what is required is a mechanism to map a set of events E to a set of individuals I, i.e. a homomorphism *h* from E to I (cf. Krifka's *h* from E to T). With *h* from E to I, we can now claim that d-many in (2b) is associated with $h(e)$, i.e. the book(s) read in event e. As a result, we obtain (13): the maximal number of books that John read minus the maximal number of books that John was supposed to read is three.

(13) max{d: $\exists$e[*read(e) $\wedge$ AG(j,e) $\wedge$ $\exists$x[*book(x) $\wedge$ TH(x,e)] $\wedge$ |h(e)| = d]} $-$ C = 3

Extension   The current analysis extends to (14), which has the same interpretation as (2b).

(14) John read <u>three books too many</u>.

(14) cannot mean that the number of books that John read is three more than the total number of things that he was supposed to read. In this sense, *books* functions like a classifier in Japanese, signaling *h* from E to {x$\in$I: x is a book}. The same formula obtains, as in (13).

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