Coordination and scope in Japanese:
an argument for verb movement with the verb phrase[*]

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Suppose Kyle has very little money on him when he runs into Kylie and Kai. Both Kylie and Kai are hungry, but Kyle can only buy an apple or a banana, not both. Kylie loves apples, but hates bananas. Kai eats bananas, but has an allergy to apples. So Kyle could satify Kylie's hunger by buying an apple for her and alternatively he could buy a banana for Kai, but he couldn't buy something for both of them. In Japanese, Kyle's dilemma can be reported by the following sentence.

(1)   Kyle-wa Kylie-ni ringo-o kau-koto-mo dekiru-shi Kai-ni
Kyle-TOP Kylie-DAT apple-ACC buy-fact-CONJ possible-CONJ Kai-DAT
banana-o kau-koto-mo dekiru
banana-ACC buy-fact-CONJ possible

'There's a possibility for Kyle to buy an apple for Kylie and there's also a possibility for Kyle to buy a banana for Kai.'

As in English, (1) isn't the most natural description of Kyle's predicament. That would involve disjunction, possibly with something akin to *or else* (Meyer 2016). But the acceptability of (1) is clear and we focus on that in the following.

What we find most surprising about (1) is that the coordinator *mo* seems to appear in the syntactic c-domain of the possibility modal *dekiru*. But the situation clearly excludes a $\Diamond(A \wedge B)$ interpretation for (1) and the weaker $\Diamond A \wedge \Diamond B$ interpretation must therefore be available for (1). We think that (1) argues that the Japanese modal *dekiru* must move from a position below *mo* to one above it similar to the type of movement suggested by Koizumi (1995) and Koisumi (2000) for Japanese and for Germanic languages by Johnson (2002, 2009) (see also Fukui & Sakai 2003, Vermeulen 2008, and others). To derive the $\Diamond A \wedge \Diamond B$ reading attested in (1), the movement of the modal then must undergo reconstruction.

We now sketch a more complete account of (1). Sentence (1) contains three morphemes related to coordination, two occurrences of *mo* and one of *shi*. Both are generally taken to mark conjunction; iterated *mo* in (2) expresses conjunction of nominals and untensed clauses, but not tensed clauses, while *shi* in (3) can mark conjunction of two tensed clauses, but not of smaller constituents.

(2) a. Kyle-wa natto-mo   anko-mo   tabe-ta
         Kyle-TOP savory soy bean-ACC-CONJ sweet soy bean-CONJ eat-PAST
     b. Kyle-wa natto-o   tabe-mo sake-o   nomi-mo
         Kyle-TOP savory soy bean-ACC eat-CONJ rice wine-ACC drink-CONJ
         shi-ta
         do-PAST
     c. *Satoshi-wa natto-o   tabet-ta-mo sake-o
         Satoshi-TOP savory soy bean-ACC eat-CONJ   rice wine-ACC
         non-da-mo
         drink-CONJ do-PAST

(3) a. *Satoshi-wa natto-shi   anko-o
         Satoshi-TOP savory soy bean-ACC-CONJ sweet soy bean-ACC
         tabet-ta
         eat-PAST
     b. *Satoshi-wa natto-o   tabe-shi sake-o
         Satoshi-TOP savory soy bean-ACC eat-CONJ rice wine-ACC
         nomi   shi-ta
         drink-CONJ do-PAST
     c. Kyle-wa natto-o   tabe-ta-shi sake-o   non-da
         Kyle-TOP savory soy bean-ACC eat-CONJ   rice wine-ACC drink-PAST

We take the cooccurence of the two coordinators in (1) to support the claim coordination is decomposed and *mo* and *shi* correspond to different pieces of a decomposed coordination as Mitrović & Sauerland (2016) propose. On this analysis, *mo* can only combine with a complement of the type of an individual or situation while *shi* would be interpreted as logical conjunction or intersection of sets. We assume that the nominalized clauses like *Kyle-wa Kylie-ni ringo-o kau-koto* denote entities of type *e*, e.g. the fact of Kyle buying an apple for Kylie. After reconstruction of the modal *dekiru* below *mo*, the modal must apply to these type *e* entities resulting in further entities of type *e*, to which *mo* can then apply. Though much more needs to be said about this, we assume that *dekiru* can map a situation *s* to the minimal situation s' where *s* is possible. The composition is sketched in (4):

(4) a. ⟦*Kyle-wa Kylie-ni ringo-o kau-koto dekiru*⟧ = the minimal situation *a*
          where it is possible that Kyle buys an apple for Kylie
      b. ⟦*Kyle-wa Kylie-ni ringo-o kau-koto dekiru + mo*⟧ = $\{X \subset D_e \mid a \in X\}$
      c. ⟦*Kyle-wa Kai-ni banana-o kau-koto dekiru*⟧ = a situation *b* where it is
          possible that Kyle buys an apple for Kylie
      d. ⟦*Kyle-wa Kai-ni banana-o kau-koto dekiru + mo*⟧ = $\{X \subset D_e \mid b \in X\}$

The two sets resulting in (4b) and (4d) could be combined by intersection, but then
subsequently we would still need to map sets of situation to propositions. Since *shi*
generally doesn't combine subclausal constituents, it is more plausible to proceed
the other way round — first apply the mapping *P* from situation sets to propositions,
and then apply logical conjunction. The mapping *P* is defined in (5):

(5) $P : \mathscr{P}(D_e) \longrightarrow D_{st}; \quad P(S)(w) = 1 \text{ iff. } \forall s \, [S(s) = 1 \rightarrow s \sqsubseteq w]$

As a result, we correctly derive for (1) the proposition true of those possible worlds
that contain a situation where it's possible that Kyle buys an apple for Kylie and
also a situation where it's possible that Kyle buys a banana for Kai. Note that the
account as sketched would furthermore predict that reconstruction must be obliga-
tory because applying the modal after *mo* would result in a type mismatch. At this
point, we haven't thought about how to test this prediction.

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