

Case and Coordination in Japanese

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1 Non-constituent coordination

The Japanese particle *to* ‘and’ is generally considered a coordinator of nominals. It is phonologically weak and cliticises onto an immediately preceding element, as illustrated in (1). The examples in (2) show that it indeed cannot coordinate two verbs or adjectives.

- (1) John-ga [Mary-to Bill]-o mita
John-Nom Mary-and Bill-Acc saw
‘John saw Mary and Bill.’
- (2) a. *sono inu-ga John-o oikake/oikakete-to kanda
that dog-Nom John-Acc chase.INF/chase.GER-and bit
‘That dog chased and bit John.’
b. *John-wa akai-to aoi ringo-o tabeta
John-Top red-and blue apple-Acc ate
‘John ate red and green apples.’ (Koizumi 2000: 275)

Interestingly, *to* can coordinate two conjuncts which do not appear to be syntactic constituents (Koizumi 1995, 2000). In (3), each conjunct consists of an indirect object, a direct object and a quantifier associated with the latter. (CL = classifier). I will refer to such conjuncts as ‘non-constituents’ in this paper. Other kinds of non-constituents, such as [subject, direct object], [subject, indirect object, direct object] and [adverbial, subject, quantifier] can also be coordinated by *to* (see Koizumi 1995, 2000, Fukui & Sakai 2003 for data).

- (3) Mary-ga [[John-ni ringo-o 2-tu]-to [Bob-ni banana-o 3-bon]] ageta
Mary-Nom John-to apple-Acc 2-CL-and Bob-to banana-Acc 3-CL gave
‘Mary gave [two apples to John] and [three bananas to Bob].’

Considering that only constituents can usually be coordinated, data such as (3) are puzzling and have generated much discussion in the literature on how the coordination should be derived. There are two schools of thought. One argues that the conjuncts are remnant VPs, created by across-the-board movement of the verb (Koizumi 1995, 2000), while the other claims that the conjuncts are complex nominals, derived by a particular operation or base-generated as such (Fukui & Sakai 2003, Fukushima 2003, Takano 2002).

As one piece of evidence for their nominal approach, Fukui & Sakai (2003) note a further peculiarity of *to*, namely that it may be duplicated on the second conjunct and be optionally followed by a case marker, as shown in (4). They argue that since only nominals are case-marked in Japanese, the whole coordinate structure must be a nominal, providing the bracketing indicated. (see also Fukushima 2003). The duplication is also found in NP-coordination, as exemplified by (5), in which case the appearance of a case marker following *to* is obligatory.

- (4) Mary-ga [[John-ni ringo 2-tu]-to [Bob-ni banana 3-bon]-to]-o ageta
Mary-Nom John-to apple 2-CL-and Bob-to banana 3-CL-and-Acc gave
‘Mary gave [two apples to John] and [three bananas to Bob].’ (Fukui & Sakai 2003: 345)

- (5) John-wa [Mary-to Bill-to]-o mita
 John-Top Mary-and Bill-and-Acc saw
 'John saw Mary and Bill.'

In this paper, I will argue that the case marker that seems to appear outside the coordination in (4) belongs syntactically to the direct object inside the second conjunct, but appears in the observed position due to a reordering process that takes place between the coordinator *to* and the case marker. Consequently, data such as (4) do not in fact provide support for treatment of non-constituent conjuncts as nominals. Moreover, I will show that the remnant VP approach is compatible with the proposed account, capturing new data, while the nominal approach makes some incorrect predictions. For reasons of space, I will concentrate on non-constituent conjuncts of the pattern in (3) and (4), but the discussion applies directly to the other types of non-constituent coordination mentioned above. I will first spell out the details of the two approaches in the following section.

2 Two approaches to deriving non-constituent coordination

Koizumi (1995, 2000) argues that the non-constituent conjuncts are remnant VPs, derived by across-the-board movement of the verb to a higher functional head such as T. The particle *to*, which generally coordinates only nominals, can coordinate remnant VPs in this instance, as it can cliticise onto a nominal-like element, namely the quantifier:

- (6) S [_{VP} [_{VP} IO DO Q t_v] *to* [_{VP} IO DO Q t_v]] V-T

Koizumi argues furthermore that this type of coordination is not an instance of gapping, in which the verb is necessarily inside the second conjunct, as in (7). The whole coordinate structure may undergo scrambling to a position higher than the subject leaving the verb behind, as in (8), which is predicted to be impossible under the gapping analysis in (7).

- (7) S [[IO DO Q ~~V-T~~] *to* [IO DO Q V-T]]

- (8) [[John-ni ringo-o 2-tu]-to [Bob-ni banana-o 3-bon]]_i Mary-ga t_i ageta
 John-to apple-Acc 2-CL-and Bob-to banana-Acc 3-CL Mary-Nom gave

An alternative approach to the non-constituent coordination argues that the conjuncts are nominals, derived from VPs by particular operations (Fukui & Sakai 2003, Takano 2002) or base-generated as such (Fukushima 2003). Fukui & Sakai (2003), for instance, argue that the conjuncts are VPs in the narrow syntax, but in the PF component the verb in the first conjunct is deleted under identity with the verb in the second conjunct and the latter undergoes morphological merger with the tense morpheme in T in the sense of Marantz (1988). The remaining elements are subsequently reanalyzed as NPs and this is what allows the conjuncts to be assigned case. The process is illustrated below.

- (9) a. Syntax:
 [_{VP} [_{VP} John-ni ringo 2-tu age] to [_{VP} Bob-ni banana 3-bon age]]-ta →
 John-to apple 2-CL give and Bob-to banana 3-CL give-Past
- b. Phonology:
 [_{NP}[_{NP} John-ni ringo 2-tu ~~age~~] to [_{NP} Bob-ni banana 3-bon](to)]-o age-ta
 John-to apple 2-CL give and Bob-to banana 3-CL-and-Acc give-Past
 (cf. Fukui & Sakai 2003: 350)

Takano (2002) and Fukushima (2003) argue that the conjuncts are complex NPs in the syntax. The former proposes that they are derived by successive adjunction of the items in the conjuncts to the last element in the second conjunct, while the latter claims that the conjuncts are base-generated as such. Although the analyses within this approach obviously differ in their details, the crucial point is that the non-constituents are treated as nominals. In the following section, I will argue directly against the idea that the whole coordinate structure is case-marked.

3 Syntax-Phonology mismatch

3.1 *The distribution of the accusative marker o*

Consider again the example in (4), repeated below, which Fukui & Sakai cite in support of their nominal approach. In addition to the appearance of the coordinator *to* and the accusative case marker *o* following the second conjunct, this example differs from examples without *to* and *o* on the second conjunct, such as (3), in another respect. The direct objects in the two conjuncts in (4) appear without case markers.

- (4) Mary-ga [[John-ni ringo 2-tu]-to [Bob-ni banana 3-bon]-to]-o ageta
 Mary-Nom John-to apple 2-CL-and Bob-to banana 3-CL-and-Acc gave
 ‘Mary gave [two apples to John] and [three bananas to Bob].’

It is well-known that Japanese allows case markers to be dropped under certain circumstances. However, their absence in (4) does not seem to be due to case marker drop. It is possible for the direct object in the first conjunct to carry a case marker, but not in the second conjunct, as the following example illustrates.

- (10) Mary-ga [[John-ni ringo-o 2-tu]-to [Bob-ni banana(*-o) 3-bon]-to]-o ageta
 Mary-Nom John-to apple-Acc 2-CL-and Bob-to banana-Acc 3-CL-and-Acc gave

Further examination reveals that there are potentially three elements on which the accusative marker *o* can be realised in the second part of the coordination: the direct object *banana*, the quantifier *3-bon* ‘3-CL’ and the coordinator *to*. There are further restrictions on its distribution, yielding the three distributional patterns illustrated in (11). The first option in (11a) indicates that *o* can appear on *to*, in which case it cannot also appear on *banana*, as we just saw in (10), or on *3-bon*. Secondly, (11b) shows that it can be realised on *banana*, if it is not also realised on *to* or *3-bon*. Finally, it can attach to *3-bon*, if it is not realised on *banana* and if *to* is absent, as in (11c). Recall that *to* on the second conjunct is optional.

- (11) a. banana(*-o) 3-bon(*-o) to-o
 banana-Acc 3-CL-Acc and-Acc
 b. banana-o 3-bon(*-o) to(*-o)
 c. banana(*-o) 3-bon-o (*to(-o))

A generalisation that emerges from (11) is that the accusative case marker can appear only once on one of the three elements, and *to*, when present, must attach directly to the quantifier, disallowing the case marker to intervene between *to* and the quantifier.

The fact that it is impossible to realise the case marker on the direct object and *to* simultaneously suggests that *o* following *to* is actually an instance of the realisation of accusative case associated with the direct object in the second conjunct, rather than with the whole coordinate structure as argued by Fukui & Sakai (2003) and Fukushima (2003). I claim therefore that *o* following *to* syntactically belongs to the direct object, but is realised in a position following *to* due to a reordering process that takes place between the two particles.

More specifically, in Japanese, when a quantifier follows its host noun, it can be realised in one of two structures. It may appear as a distinct constituent lower in the structure with the host noun bearing case, as in (12a), or it may still form a constituent with the host noun, in which case it phonologically bears the case marker, as in (12b). In the latter instance, the host noun and the quantifier together behave syntactically as an argument.

- (12) a. NP-case ... Q
 b. [NP Q]-case

I propose that when *o* appears on *to* on the second conjunct, the direct object and the quantifier in the second conjunct have the syntactic form [NP Q], as in (12b). *To*, being a coordinator, attaches to the

right edge of the conjunct, with the consequence that it initially appears after the case marker *o* in the phonology, as in (13a). However, the two particles *o* and *to* are subsequently reordered, as in (13b).

- (13) *Reordering*
 a. ... [NP Q]-o-to →
 b. ... [NP Q]-to-o

Why should such reordering occur? One possible answer may be found in the phonological nature of the particle *to*. Koizumi (2000: Appendix A) claims that *to* must be realised on a nominal-like element and a case marker does not qualify as such. Thus, even in a simple NP-coordination, a case marker cannot precede *to* in either conjunct:

- (14) John-wa ringo(*-o)-to banana-to-o/*-o-to tabeta.
 John-Top apple-Acc-and banana-and-Acc/Acc-and ate
 'John ate apples and bananas.'

On the other hand, a quantifier qualifies as a relevant nominal-like element for *to*. This claim seems reasonable, as quantifiers in Japanese do have some nominal-like characteristics. For example, they can bear case and function independently as arguments, as (15) shows.

- (15) 3-nin-ga sono 5-satu-o mottekita.
 3-CL-Nom those 5-CL-Acc brought
 'Three people brought those five books.'¹

Thus, the strict phonological requirement of the particle *to* forces reordering between itself and the case marker phonologically attached to the quantifier in the second conjunct, yielding an appearance that the case marker is outside the coordination in examples such as (4).

3.2 *Reordering and cross-correspondence*

The reordering process in (13), however, is not available to the first conjunct: a case marker cannot follow the coordinator attached to the first conjunct, as demonstrated below.

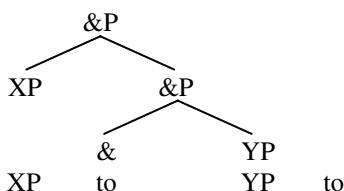
- (16) *Mary-ga [John-ni ringo 2-tu]-to-o [Bob-ni banana 3-bon]-to-o ageta
 Mary-Nom John-to apple 2-CL-and Bob-to banana 3-CL-and-Acc gave
 'Mary gave [two apples to John] and [three bananas to Bob].'

I argue that this contrast between the first and the second conjuncts falls out naturally from the difference in the nature of *to* on each conjunct.

To on the second conjunct differs from that on the first conjunct in two obvious ways: (i) it is optional and; (ii) it does not function as a coordinator. The first property was already noted in section 1. The second property is demonstrated by the fact that (5), for example, does not mean 'John saw Mary and Bill and'. Based on these distinctions, I propose that while the first *to* corresponds to the head of &P in the syntax, the second *to* is not represented in the syntax and is simply duplicated in the phonology. The point is illustrated below. This claim also conforms to Zwart's (2005) claim that *and*-coordination is universally head-initial.

¹ Japanese quantifiers consist of a numeral and a classifier. Classifiers identify the kind of item whose number is specified by the numeral. Thus, *nin* is used for counting human beings, while *satu* is used for counting books, allowing an intelligible interpretation for examples such as (15) in which no nominal appears as an argument.

(17) a. Syntax:



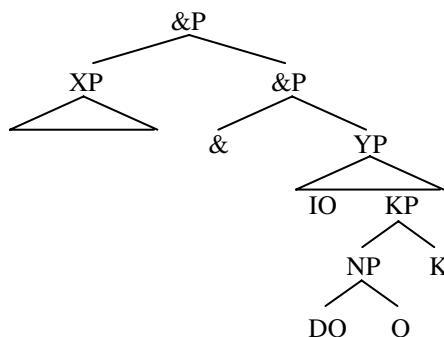
This type of mismatch between syntax and phonology (one-to-many correspondence) is generally disfavoured, but is not rare. It is found, for example, in English *-er* nominalisation with particle verbs, such as *picker upper*, *taker outer* and *putter downer* (Yip 1978, Marantz 1984, 1988, Sproat 1985, Ackema & Neeleman 2004). Considering that a *picker upper* is ‘someone who picks up something’, rather than ‘someone who picks and someone who ‘ups’’, it seems reasonable to claim that the morpheme *ER* is realised only once in the (morpho-)syntax, but is spelled out twice in the phonology.²

(18) a. Syntax: [PICK UP]-ER
 b. Phonology: picker upper

In non-constituent coordination then, putting aside the issue of whether the conjuncts are remnant VPs or complex NPs, the second conjunct would have a syntactic structure like YP in (19a).³ (For ease of exposition, the internal structure of the indirect object is omitted here.) *To* is inserted only in the phonology, where it is subsequently reordered with the case marker, as shown in (19b).

(19) 2nd conjunct

a. Syntax:



b. Phonology: (i) *to*-insertion: IO DO Q-o-to
 (ii) reordering: IO DO Q-to-o

By contrast, *to* on the first conjunct is a syntactic head. As a consequence, reordering this *to* with a case marker in the first conjunct would result in what is commonly known as ‘cross-correspondence’, where two syntactic heads are realised in a reversed order in the phonology. Although cross-correspondence is often observed in languages with templatic morphology, such as Chichewa and Chimwi:ni (see Hyman 2003 and references therein), and in second position clitics (Schütze 1994, Marantz 1988), Japanese does not exhibit either of these characteristics. Besides, even in cases where cross-correspondence does occur, a head in a peripheral position in a constituent does not usually undergo cross-correspondence with another head that is not contained in the same constituent (Marantz 1988:267, Embick & Noyer 2001:563). It seems therefore reasonable to claim that reordering of *to* corresponding to & in (20a) with the case particle contained in the first conjunct, XP, as shown in (ii) in

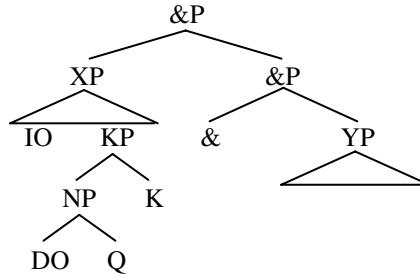
² The duplication of *to* in Japanese and that of *er* in English are obviously not an identical phenomenon. The former is optional, while the latter shows variation depending on the lexical item involved (e.g. *picker upper* vs. *passer by(*-er)*). The important point here, however, is that one-to-many correspondence between syntax and phonology is not a feature exclusive to the Japanese non-constituent coordination.

³ I assume that Japanese case markers head a separate functional projection, KP (Lamontagne & Travis 1987, Bittner & Hale 1996, Fukui & Takano 1998).

(20b), is prohibited. An initial phonological realisation in which no reordering has taken place, shown in (i) in (20b), would also be disallowed, as *to to* is not realised on a nominal-like element.

(20) *Ist conjunct*

a. Syntax:



- b. Phonology: (i) initial realisation: *IO DO Q-o-to (*to* not attached to Q)
 (ii) reordering: *IO DO Q-to-o (cross-correspondence)

The first conjunct therefore has two possible structures. The quantifier and the direct object may still form one nominal constituent, but the case marker must be obligatorily dropped, allowing the coordinator to attach directly to the quantifier in phonology. Alternatively, the direct object and the quantifier can be generated as separate constituents at the sentential level, in which case, the case marker would attach to the direct object, as in (12a).

In sum, reordering does not apply to *to* attached to the first conjunct, as it would result in cross-correspondence, which is disallowed in Japanese. On the other hand, reordering does apply to *to* attached to the second conjunct, as this *to* is not represented in the syntax and hence no cross-correspondence would ensue.

3.3 Other particles with similar behaviour

If the proposed approach to non-constituent coordination with *to* is on the right track, one would expect that there are other particles in the language that behave in a similar manner to *to*. The disjunctive particle *ka* ‘or’ is an example. Like *to*, it is phonologically weak, coordinates two nominals and can be duplicated on the second conjunct, in which case it must precede the case marker, as (21) illustrates. (22) shows furthermore that it can coordinate two non-constituents and be duplicated on the second conjunct, with the case marker optionally following it (cf. (4)).

(21) John-wa Tom-ka Mary-ka(-o) mita
 John-TOP Tom-or Mary-or-Acc saw
 ‘John saw Tom or Mary.’

(22) Mary-ga [[John-ni ringo-o 2-tu]-ka [Bob-ni banana 3-bon]ka](-o) ageta
 Mary-Nom John-to apple-Acc 2-CL-or Bob-to banana 3-CL-or-Acc gave

The distribution of a case marker with respect to *ka* is identical to that with respect to *to*.

(23) a. banana(*-o) 3-bon(*-o) ka-o
 banana-Acc 3-CL-Acc or-Acc
 b. banana-o 3-bon(*-o) ka(*-o)
 c. banana(*-o) 3-bon-o (*ka(-o))

Other particles exhibiting similar behaviour include *yara*, *toka*, and *nari*, all meaning ‘or’, which are all affixal. Phonologically independent coordinators, such as *sosite* and *katu*, both meaning ‘and’, display no comparable characteristics: they cannot be duplicated on the second conjunct. This distinction between affixal and non-affixal coordinators lends further support for the idea that the phonological properties of the particles involved are at play.

4 Non-constituents as remnant VPs

The proposed analysis is compatible with the remnant VP approach to non-constituent coordination. The second part of the example in (3) would have the syntactic representation in (24a) and the phonological representation in (24b) after *to*-insertion and reordering.

- (24) a. Syntax: [VP Bob-ni [NP banana 3-bon]-o t_v] ageta_v
 Bob-to banana 3-CL-Acc gave
 b. Phonology: Bob-ni banana 3-bon-to-o ageta
 Bob-to banana 3-CL-and-Acc gave

The analysis in (24) predicts that an adverbial may appear between the direct object and the quantifier if the case marker on the second conjunct is absent, but it may not if the case marker is present. Being VPs, the conjuncts should permit sentential adverbials inside them. However, the presence of a case marker on *to* necessitates an analysis of the direct object and the quantifier as one nominal constituent, as in (25a). An adverbial should be disallowed in such a constituent. On the other hand, the absence of a case marker on *to* allows for an analysis in which the quantifier is a distinct constituent at the sentential level, permitting an adverbial to intervene between the two constituents, as in (25b). The examples in (26) demonstrate that the prediction is borne out.

- (25) a. Syntax: *... [VP IO [NP DO Adv Q]-o t_v] V-T
 Phonology: ... IO DO Adv Q-to-o V-T (after *to*-insertion and reordering)
 b. Syntax: ... [VP IO DO(-o) Adv Q t_v] V-T
 Phonology: ... IO DO(-o) Adv Q-to V-T (after *to*-insertion)
- (26) Mary-ga [[John-ni ringo-o kinoo 2-tu]-to ...
 Mary-Nom John-to apple-Acc yesterday 2-CL-and
- a. [Bob-ni banana (*kyoo) 3-bon-to-o]] ageta
 Bob-to banana today 3-CL-and-Acc gave
 b. [Bob-ni banana(-o) kyoo 3-bon]-to] ageta
 Bob-to banana-Acc today 3-CL-and gave

5 Non-constituents as nominals

In principle, the proposed analysis in terms of reordering is not incompatible with an approach that treats the non-constituent conjuncts as complex NPs. Reordering does not specify the syntactic category of the conjunct to which *to* is attached. However, it is unclear how the observation in (26) can be accounted for under the nominal approach. In Takano's (2002) and Fukushima's (2003) analyses, where the non-constituent conjuncts are treated as complex NPs in the syntax, it should be entirely impossible for an adverbial to appear in the conjuncts. Even in Fukui & Sakai's (2003) analysis, which assumes that the conjuncts are VPs in the syntax, whether or not the reanalysed coordinate structure is case-marked should not affect the distribution of an adverbial inside the conjunct.

Furthermore, the claim, made explicitly by Fukui & Sakai (2003) and Fukushima (2003), that the whole coordinate structure is case-marked makes some incorrect predictions. Firstly, considering that a case marker can freely appear on the direct object in the first conjunct, the same option should be available to the direct object in the second conjunct. In particular, the presence of another case marker on *to* on the second conjunct should be irrelevant. However, as we observed in (10), repeated below, the case marker on the direct object in the second conjunct and that following *to* on the second conjunct are in complementary distribution.

- (10) Mary-ga [[John-ni ringo-o 2-tu]-to [Bob-ni banana(*-o) 3-bon]-to]-o ageta
 Mary-Nom John-to apple-Acc 2-CL-and Bob-to banana-Acc 3-CL-and-Acc gave

Secondly, some speakers of Japanese disallow a direct object to drop its accusative case marker if it undergoes long-distance scrambling:

- (27) *sono hon_i*(-o) John-wa [Mary-ga t_i kaita to] omotteiru*
 this book-Acc John-Top Mary-Nom wrote Comp think
 'John thinks that Mary wrote this book.'

For those speakers then, if the whole coordinate structure undergoes long-distance scrambling, it should be impossible to drop the accusative case marker on the second conjunct. (28) shows that this is not true, as the case marker remains optional.⁴

- (28) *[[John-ni ringo 2tu]-to [Bob-ni banana 3-bon]-to](-o)_i Jane-wa*
 John-to apple 2-CL-and Bob-to banana 3-CL-and-Acc Jane-Top
[_{CP} Mary-ga t_i ageta to] omotteiru.
 Mary-Nom gave Comp think
 'Jane thinks Mary gave John two apples and Bob 3 bananas'

Finally, if the whole coordinate structure is case-marked and hence in a sense functioned as the verb's direct object, it should be possible to passivise it. Specifically, the accusative case marker on the direct object in the first conjunct should remain unchanged, as this is not the constituent which is passivised, and the accusative case on the second conjunct should change to nominative case. However, as the following example illustrates, the prediction is not borne out.

- (29) **[[John-ni ringo-o 2-tu]-to [Bob-ni banana 3-bon]]-(to)-ga*
 John-to apple-Acc 2-CL-and Bob-to banana 3-CL-and-Nom
 Mary-niyotte wata-sare-ta
 Mary-by hand-Pass-Past
 '[Two apples to John] and [three bananas to Bob] were handed by Mary.'

6 Conclusion

This paper argued that data such as (3), in which the whole coordinate structure appears to be case-marked, cannot be taken as a piece of evidence for the nominal status of non-constituent conjuncts. I demonstrated that the case marker that seems to appear outside the coordination belongs syntactically to the direct object in the second conjunct. It is realised in a position following the coordinator in order to satisfy a strict phonological constraint on the distribution of the coordinator. Moreover, I showed that while the remnant VP approach is able to capture new data, the specific claim of the nominal approach that the whole coordinate structure is case-marked made some incorrect predictions.

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⁴ Some speakers allow case-marker drop on long-distance scrambled items. Out of my five informants, two accepted the example in (28) without the accusative case marker. However, crucially, the three who rejected the example in (28) without the case marker allowed case-marker drop in (29).

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