Coordination in Japanese

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Abstract

どの言語にも並列関係を表すメカニズムがある。しかし，ドイツ語や英語などと違って，日本語の並列関係を作るメカニズムが並列される成分の統語論的構造を明確にしている。さらに，日本語では，品詞により，並列関係のメカニズムが違っている。本文では，日本語の動詞，形容動詞，名詞，形容名詞の並列関係のメカニズムを紹介し，論じる。

1. General remarks on coordination

Coordination is a linguistic phenomenon that has long deluded and confused those who aimed at describing it. The most intruiging aspect of this business — and I speak as one who belongs to those who tried to tackle coordination and come up with a theoretically sound solution — may be the difference between using coordination and describing coordination. While I have yet to meet a person who has genuine problems with producing or understanding utterances that contain coordinated structures, I have encountered a plethora of theoretical proposals dealing with the issue, but only very few which make a convincing case.

I believe one main — perhaps *the* main — reason for this state of affairs is that different components of human speech — in particular in syntax — are not regarded as different enough. The explanation of coordination in early attempts was characterized by application of logics to basic syntax components. As a basic syntactic component I consider mechanisms that organize for instance case assignment, principal hierarchies between words, morpho-syntactic processes etc. After some time dealing with issues in coordination, I have come to think that coordination does not fall into this class of basic components of a syntax. For one, basic components are necessary to organize a linguistic structure so that it results in an acceptable utterance. Coordination, however, is not such a necessary component. Quite on the contrary, everything one can say in utterances containing a coordinated structure can be also expressed without using coordination. Second, utterances containing no coordination usually differ

from those that do in the way they are compiled by the basic syntactic components. For coordination to introduce enhancement features into human communication, compiler rules of basic components must be overridden often resulting in structures that appear severely compromised if seen from the working principles of the basic components. Third, compiling rules for coordination are more often than not facultative, i.e. they may apply or not, and if they apply, succeeding compiling rules may apply or not. To give one example, the next sentence

(1) Peter likes tea, and Paul likes coffee.

the coordinator *and* is not required *per se*. Since in both clauses the verb *likes* is identical, the second one — but only the second one — may be deleted. If so, the coordinator may appear or may not appear. Shortening (1), may result in three different possible utterances:

(2.1) Peter likes tea, Paul likes coffee.
(2.2) Peter likes tea, and Paul coffee.
(2.3) Peter likes tea, Paul coffee.

About the only aspect (2.1–3) share is that they are shorter than (1). The fact that they are shorter than (1) is probably the only reason why coordination exists at all. If human speakers could not frame shorter utterances when using coordination, there would be no need for coordination to have become an integral — though not basic — component of human syntaxes.

However, there is also a drawback: Every single instance of (2.1–3) is loaded with theoretical difficulties, even though they look harmless and are well enough used and understood by speakers of English. Yet, (2.1) is structurally compromised insofar as it is almost impossible to judge what the structure of the whole utterance should be. Every conjunct — the parts being coordinated — can be judged by itself, but the whole structure poses a difficulty because it is hard to say how the conjuncts syntactically relate to each other. In constituency theories, the problem could be formulated as the question whether the first conjunct is part of the second, or vice versa. In dependency theories, the question would have to be asked, whether the first verb *likes* depends or governs the second verb *likes*.

In (2.2) and (2.3), the second verb *likes* is missing from the second conjunct. Therefore, the second conjunct cannot be regarded as being properly compiled by the respective basic component. If the assumption is made that an additional component has recovered a basic component compilation, then this assumption amounts to claiming that a new component must have overridden it.

Furthermore, in (2.2) — as well as in (1) by the way — the status of the coordinator remains undecided. This is by no means a triviality. If instead of (1), the next — structurally equivalent — utterance is addressed

(3) Peter plays golf, and Paul likes to go out.

the subject in the second conjunct *Paul* could be replaced by a different expression, for example the pronoun *he*:

(4) Peter plays golf, and he likes to got out.

In this case, a person with a sufficient grasp of English, will usually understand that *Peter* and *he* refer to the same person. However, if *Peter* and the pronoun are substituted against each other, no such reading is possible:

(5) He plays golf, and Peter likes to go out.

(4) and (5) indicate that — at least — finite structures containing a coordinator cannot be equi-level. Because if they were, then there should be either a coreferential reading in both (4) and (5) or none.

The issues addressed above using the English examples (1–5) come into existence through two different causes: the serialization component of English syntax, and the fact that there exists a coordinative word-class in English. The serialization component allows word order in which the root of the structure requires its dependents on either side. In contrast, Japanese requires dependents to be to the left not only of the root, but of every governor. The existence of the word-class of conjunctions introduces coordinative processes into the syntactic structure insofar as words appear in the structure that fulfill this purpose. Again, in Japanese, there are no conjunctions.

The utterances (2.2) and (2.3) belong to a special case of coordination which is called *gapping*. Gapping demands that the root of the second conjunct is omitted. There are a variety of issues pertaining to gapping, such as the number of pre-gap and post-gap elements. Due to word-order principles in Japanese, gapping is impossible in Japanese.

Coordination displays its abbreviation mechanism best if there is an element identical in both — or more — conjuncts. Identical elements form what Osborne (2003a,b) calls *shared material*. There are two possible ways in which shared material can be positioned: if the shared material is positioned in front of the conjuncts, *forward string coordination* (FSC) applies. If the shared material is positioned after the conjuncts, *backward string coordination* (BSC) applies. Both terms are taken from Osborne (2003a,b).

An English example for FSC is

(6) I like [tea and coffee].

where the brackets indicate the coordinated structure, and *I like* constitutes the shared material in front of it. On the other hand, an English example for BSC is

(7) [Peter and Paul] like coffee.

where *like coffee* is the shared material positioned after the coordinated structure. According to Osborne (2003a,b), gapping, FSC, and BSC constitute *coordination* with the difference that in gapped structures elements that do not constitute shared material are *matched*, while in FSC and BSC these elements are *conjoined*. Thus, conjunction and matching constitute coordination.

While it has already been pointed out that gapped structures do not exist in Japanese, and thus matching — in the sense introduced above — does not either, the question remains whether conjunction exists in Japanese. In order to answer this question one must first know what to understand by *conjunction*. In the traditional sense of grammar, coordination is distinguished from *subordination*. A structure which is subordinated to another structure, is not equi-level to it. On the other hand coordinated structures are equi-level to one another. Both subordination and coordination are expressed in English and other Indoeuropean languages by a word-class called *conjunctions*. There are at least two subclasses of conjunctions: 1. coordinating conjunctions, and 2. subordination conjunctions. An example for a coordinationg conjunction is the English word *and*, and an example for a subordinating conjunction is the English word *because*. I will abbreviate and call coordinating conjunctions *coordinators*, and subordinating conjunctions *subordinators*.

While the syntactic behavior of subordinators is — while not being crystal clear — on average not a problem, syntactic behavior of coordinators raises some problems. Among the foremost is the one I have addressed above: do coordinators build equi-level conjunct structures or not? An equi-level conjunct structure in Dependency Grammar (abbr.: DG) for sentence (7) would be the dependency tree below:

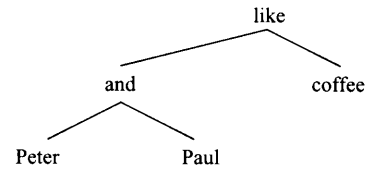

Fig. 1: Structure of (7)

In figure 1, the conjuncts *Peter* and *Paul* are equi-level to one another. The coordinator is positioned at a higher level, and the branches running from *and* to *Peter* and *Paul* indicate that the conjuncts *depend* on the coordinator; hence Dependency Grammar. There are a variety of problems that arise with a structure such as that in figure 1. For instance the subject is in no position to c-command its object, and for that matter any other element directly dependent on the verb. If anaphors appear as post-verbal dependents then they cannot be c-commanded by the subject and hence not be bound. These two reasons are basically enough to refute the structure in figure 1.

There is however a further possibility of an equi-level structure. See the tree below:

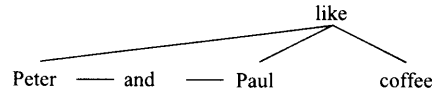

Fig. 2: Structure of (7)

In figure 2, *Peter* and *Paul* are still equi-level, but stay direct dependents of the verb — which was not the case in figure 1. The horizontal branches indicate that the coordinator somehow connects the proper nouns, but it is unclear exactly how it does so. The problems concerning figure 1 do not exist here, but the drawback of this structuring is that the verb must open two subject slots. A further — and perhaps

even more severe — problem is that the coordinator is neither governed nor dependent by another element. In DG, it is practically unheard of that an element of the sentence structure that is classified as a word lacks a hierarchy potential all together.

A further version of equi-level structuring that is similar to the one depicted in figure 2 can be seen in the figure below:

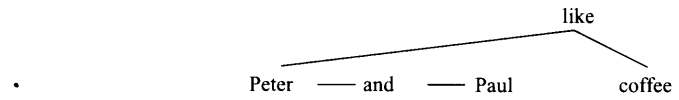

Fig. 3: Structure of (7)

The structure in figure 3 differs from that in figure 2 insofar as there is no branch running from *Paul* to the verb. This resolves the problem of the verb having to open two subject slots. It does, however, not resolve the problem that the coordinator still does not have a hierarchy potential.

If the working hypothesis is that coordinators must form structures either like that in figure 1 or like those in figures 2 and 3, then any attempt to find coordinators in Japanese will be hard pressed.

2. Basic grammatical concepts in Japanese

In this part, I shall give a very short introduction into Japanese morphology and syntax.

2.1. Japanese morphology

Japanese morpho-syntax provides seven word-classes (although I would rather prefer the expression *lexeme-classes*). Belonging to the inflectional word-classes are *verbs* and *adjectives*. Japanese verbs must be able to occur with the inflections + *Ru* (present tense) and + *Ta* (prefect tense), while adjectives must be able to occur with the inflections + *i* (present tense) and + *ku* (adverbial). The remaining five word-classes belong to the non-inflectional word-classes. These are *nouns, nominal adjectives, adverbs, adnominals*, and *interjections*. Each of these word-classes demands specific morphemes to cooccur.

The system of lexematic word-classes is also reflected in the system of bound morphemes (which I prefer to call *affixes*). There are two major groups: *prefixes* and *suffixes* (in the broader sense). Suffixes i.t.b.s. contain three larger subgroups: *suffixes, inflections*, and *particles*. Suffixes contain *suffix-verbs, suffix-adjectives, suffix-nouns, nominal suffix-adjectives, suffix-adnominals*, and *suffix-adverbs*. Suffigation of any of these suffixes causes a respective change in the overall word-class of a word-constituent. Particles, too, contain more subgroups: *particle-verbs, particles-adjectives, particle-nouns, nominal particle-adjectives*, and *particles*.

There is also a specific serial hierarchy involved: particles mark the end of — what is called — a *word-constituent*. A particle may be preceded by suffixes or inflections, however inflections always occur after suffixes — if there are any.

With respect to the issue addressed in this paper, it must be kept in mind that no coordinative word-class exists in Japanese. If coordination manifests itself at all, it must do so in a way different from languages such as English or German.

2.2. Japanese syntax

Japanese is an agglutinating language which means that grammatical information is basically inherent in bound morphemes which are affixed to lexemes. Suffixes have derivational characteristics insofar as they can change the word-class. Case particles (=*ga* [nominative], =*o* [accusative], =*ni* [dative], =*e* [allative], =*kara* [ablative], =*yori* [comparative], =*to* [symmetry], and =*de* [essive]) and focus particles (=*wa* [exclusive focus] and =*mo* [inclusive focus]) can only occur when an inflectional word-class is present as the head. This has consequences for syntax.

(8) kare=wa hon=o yon∞da.
he =ex[clusive]f[ocus] , book=acc[usative] , read∞perf[ect tense]
"He read a book."

In (8), the exclusive focus particle =*wa* occurs because the perfect tense inflection is a finite inflection form. The accusative particle =*o* is marked by the verb stem *yoM*. In DG, both *kare=wa* and *hon=o* depend on the verb *yon∞da*. If (8) is put into causative mood, dependencies do not change:

(9) boku=wa kare=ni hon=o yom.ase.ta.
I =exf , he =dat[ive] , book =acc , read –caus[ative] +perf
"I let him read a book."

In (9), *boku=wa* must depend on the verb *yom.ase.ta* because the prefect tense inflection contracts the exclusive focus marker. *kare=ni* also depends on the verb, because the causative suffix verb *–Sase.ru* contracts dative case for the causee. *hon=o* also depends on the verb, because the verb stem *yoM* contracts an accusative complement. To give another example, negation of verbs takes places by the affigation of the negative suffix adjective *–Ana.i* to the stem of verbs.

(10) kare=wa hon=o yom.ana.i.
he =exf , book =acc , read –neg[ation] +pres[ent tense]
"He does not read a book."

In (10), the last word has changed its word-class from verb to adjective. If further words appear after the deverbal adjective, they must have a word-class that can contract adjectival features:

(11) kare=wa hon=o yom.ana.ku nat.ta.
he =exf , book =acc , read –neg +adv[erbial] , become +perf
"He does not read the book any longer."

In (11), the word *yom.ana.ku* behaves like a verb insofar as *hon=o* depends on it because accusative case is contracted by the verb stem. However, it behaves like an adjective with respect to *nat.ta.*

What I intend to emphasize using these examples is the notion that in Japanese the distinction between *lexical* word-class and *word-constituent* word-class is paramount. If the questions whether

there is coordination in Japanese, and how it works, are addressed, lexical word-classes are of import only if they happen to coincide with word-classes of word-constituents. This is important because there is no lexical word-class of coordinators in Japanese, so that any process that can or must be interpreted as coordination has to work with word-constituents. The word-class of word-constituents is not necessarily the same as those of the lexemes that happen to occur inside word-constituents because a variety of affixes (and even some prefixes) can cause derivations.

The issue of serialization must also be addressed here. In Japanese, there are no post-dependents, i.e. a dependent word-constituent is linearized to the left of its governor. Insofar as possible coordination mechanisms are concerned, this means that two word-constituents regarded as conjoined cannot be equi-level.

3. Coordination mechanisms in Japanese

As emphasized above, any attempt to investigate coordinative processes in Japanese must be first concerned with the structure of respective word-constituents and their word-classes. I shall begin with an outline of the mechanisms how inflectional word-classes can be coordinated. Then I will show the workings of coordination mechanisms of non-inflectional word-classes. We also have to keep in mind that translations of Japanese sentences into English sentences which contain coordinated elements are interpretations that are not syntactically equivalent.

3.1. Coordination of inflectional word-classes

Inflectional word-classes in Japanese are verbs and adjectives.

3.1.1. Verbs

The most common way in Japanese to assign for instance two verbs to one subject, and which can be rendered as an English sentence containing coordination, is the usage of the participle.

(12) kare=wa hon=o kat.te uti=e kaet.ta.
he =exf , book =acc , buy +part[iciple] , home =all[ative] , return +pref
"He bought a book and went home."

The syntax in (12) is clear-cut: the participle verb *kat.te* depends on the finite verb *kaet.ta*, since a participle inflection must be governed by a word-constituent containing a verb or adjective lexeme with finite inflection. The problem, however, is that the participle *+Te* is semantically empty, and so its function has to be interpreted according to the context. In (12), the actions of buying and returning are ordered in time: the action of buying comes first, then the action of returning. However, the participle is part of many constructions where actions are not ordered according to time. While in (12), there are two different actions which are ordered in time, the next sentence contains two verbs but only one action:

(13) kare=wa uti=e kaet.te ki.ta.

he =exf , home =all, return +part , come +perf
"He came home."

The implicition in (13) is that the speaker is at the location to which the subject returns.
A further example is the resultative construction:

(14) kare=wa uti=e kaet.te i.ta.
he =exf , home =all, return +part , be +perf
"He has gone home."

In both (13) and (14), there is only one action, namely the action of returning home. Concludingly, there cannot be any coordination, either. It is true that in (13) and (14) specific participle syntagmata are present, namely *+Te k.uru* in (13) and *+Te i.ru* in (14), and the one aspect all participle syntagmata share is that no word-constituent may intervene between the participle and the function verb. This means that participle syntagmata are not coordinated verb structures, because they express one action with — at least — two verbs. This is sometimes compounded by discontinuities:

(15) tyawan=o daidokoro=e mot.te k.oi!
teacup =acc , kitchen =all , fetch +part , come +imp[erative]
"Bring the teacups into the kitchen!"

In (15), *tyawan=o* depends on *mot.te* which is a transitive verb capable of contracting accusative case. *daidokoro=e* must depend on *k.oi*, one of the imperatives of *k.uru* which means "come" and is a motion verb capable of contracting allative case. Thus, syntactically, *daidokoro=e* is discontinuous because it does not depend on one of the elements immediately adjacent to it. Other than (13), and (14) which are clear-cut participle syntagmata, (15) is not so easily placed. While (15) seems to obey the restriction that no word-constituent may occur between the participle verb and its governor, it can be rephrased:

(16) tyawan=o mot.te daidokoro=e k.oi!
teacup =acc , fetch +part , kitchen =all , come +imp

The meaning of (16) is equivalent to (15). Thus, other than in (13) and (14), the concept of coordination can at least apply in semantic terms.

Even if participle syntagmata are excluded, not every remaining participle construction equals a coordinated structure:

(17) kare=wa boorupen=o tukat.te namae= o kai.ta.
he =exf , ballpen =acc, use +part , name =acc , write +perf
"He used a ballpen and wrote his name."

The English translation of (17) is very literal, and is not understood thus in Japanese. Rather the phrase

boorupen=o tukat.te is understood as the means by which the name is written. Therefore a more natural translation would be:

(18) "He wrote his name using a ballpen."

Sentence (18) is a fitting example to comprehend the notion of coordination in Japanese. In (18), there are certainly two different actions of which the subject is also the actor. However, no syntactic theory that I am aware of tries to explain a structure such as (18) as a coordination. It is safe to assume that the gerund in (18) depends on the finite verb, and that there are no equi-level structures in (18). Japanese, in fact, uses such non-equi-level structures as the basis for coordination. This means that in Japanese there is no syntactic coordination but only subordination which can be sometimes interpreted as coordination.

3.1.2. Adjectives

Like verbs, adjectives are almost always coordinated with a participle flexeme which is *+kute* for Japanese adjectives. Coordination using the adjectival participle incurs similar problems compared to Japanese verbs: sometimes the participle cannot be interpreted as coordination. In (19), we find that the interpretation (and translation) of the participle as coordination is useful:

(19) kono hako=wa aka.kute ooki.i.
this , box =exf , red +part , big +pres
"This box is red and big."

However, in the next sentence — much as in (17) — a translation using coordination is less fitting:

(20) kyoo=no tenki=wa musi-atu.kute hido.i.
today =gen[itive] , weather =exf , steam-hot(= humid) +part , terrible +pres

Sentence (20) could be translated as

(21) The weather today is humid and terrible.

However, (20) actually means that the speaker considers the weather today as terrible insofar as it is humid. Therefore, (20) expresses a causal relationship between the adjectives rather than a simple coordination.

(22) Because the weather is humid, I find it terrible.

Sentence (22) would therefore render into English much better what is actually meant in (20), and thus would have to be considered the better translation of sentence (20).

3.1.3. Summary of verbal and adjectival coordination mechanisms

Although the verbal participle +*Te* and the adjectival participle +*kute* can function as a mechanism that can be interpreted as — semantic — coordination, there are also many cases where a translation into English and not using English *and* is much better, and captures the meaning in a much more precise manner.

Furthermore, it has to be noted that even though participle constructions may — in general, but with exceptions — be considered as coordination, this notion of coordination is different form coordination mechanisms in European languages in one important aspect: while the actual structures of coordinated constructions in European languages are still discussed, the Japanese participle constructions are — at least syntactically — beyond any serious discussion. The element suffixed with the participle flexeme is always dependent on another element. Insofar, it is perhaps not fitting to regard the Japanese participle constructions as coordination.

3.2. Non-inflectional word-classes

I shall restrict the discussion below to two word-classes: nouns and nominal adjectives. The latter share a construction that can be interpreted as coordination with the former, but nouns can occur in a variety of constructions in which nominal adjectives cannot occur.

3.2.1. Nouns

Coordination of nouns — or what may be perceived as such — is expressed in Japanese by particles. The general coordination particle is =*to*. What has to kept in mind, though, is that the Japanese language distinguishes between *open* and *closed* listings. Closed listing means that only those elements named are subject to the statement being made, while open listings can also include unnamed but sufficiently similar elements. Thus, closed listings are exhaustive, while open listings give a more or less abridged list of examples. The particle =*to* expresses a closed listing.

(23) kare=wa zassi=to sinbun=o kat.ta.
he =exf , magazine =c[osed]l[isting] , newspaper =acc , buy +perf
"He bought magazines and newspapers."

The closed listing expressed by =*to* in (23) means that the person referred to by the pronoun bought magazines and newspapers but nothing more.

The particle =*to* also functions as a case particle assigning symmetric or reciprocal case.

(24) kare=wa watasi=to sitasi.i.
he =exf , I =sym[metry] , close +pres
"He is close to me."

Sentence (24) expresses that the person referred to by *kare* feels a psychological closeness to the person referred to by *watasi*. The adjective *sitasi.i* is understood as implying a symmetric or reciprocal reading, i.e. if he feels close to me, then I also feel close to him. Thus, (24) implies the next sentence:

(25) watasi=wa kare=to sitasi.i.

Since the particle =*to* expresses closed listings as well as symmetric case, the two nouns in (24) and (25) can be listed:

(26) kare=to watasi=wa sitasi.i.
he =cl , I =exf , close +pres
"He and I are close."

The most commonly used particle expressing open listings is =*ya*. Usually the last element of the listing receives the particle =*nado* meaning *et cetera*:

(27) kare=wa biiru=ya wain=nado=o nom.u.
he =exf , beer =o[pen]l[isting] , wine =etc. =acc , drink +pres
"He drinks beer, wine (and other alcoholic beverages)."

Another often used particle is =*ni* which assigns dative case. Similar to =*ya*, =*ni* expresses a cumulative list which is open:

(28) konya=no ban-gohan=wa gohan=ni miso-siru=da.
tonight =gen , evening – rice =exf , rice =ol , miso-soup =es[sive]v[erb]
"Diner tonight will be rice and miso-soup."

The translation of (28) implies straightforward coordination which is, however, debatable. (28) rather means that miso-soup is served *together with* rice. This reading makes the usage of dative case which also expresses allative and locative functions, much more understandable.

In rather formal written language, the particle =*to* expressing closed listings can occur also with the last element, however, this occurrence is not obligatory:

(29) [...] heiwa=to tituzyo=to anzen=to=o tatemae=to si.te i.ru. (JM: 324)
peace =cl , order =cl , safety =cl=acc , principle =qual , do +part , be +pres
"[...] holds peace, order, and safety as its principles."

The closed listing particle tends to be iterated with the last element of a listing if the last element is dependent on another noun or nominal expression:

(30) kare=to boku=to=no sekinin (JM: 328)
he =cl , I =cl =gen , responsibility
"his as well as my responsibility"

(31) tenmon-gaku=ya tisitu=nado=no zassi (JM: 328)

astro-science =ol , geology =etc =gen magazine
"astronomy, geology and other magazines"

There are two particles that occur iterated even in spoken Japanese. These particles are *=ka* and *=mo*. The construction *N=ka N=ka* expresses a closed but mutually exclusive listing which is equivalent to logical "xor" (either…or).

(32) kimi=ka boku=ka=ga ik.an.eba nar.ana.i. (JM: 306)
you =e[xclusive]cl , I =ecl =nom , go –neg –cond[itional] , become –neg +pres
"Either you or I have to go."

The construction *N=mo N=mo* also expresses a closed but mutually inclusive listing which is translated as *both*. The particle *=mo* expresses inclusive focus, and if two or more elements are marked, the statement pertains to all elements so marked. However, the actual reading depends on whether the expression governing the construction is negated or not. In case of negation, the reading is *neither...nor*; if the governor is not negated, the reading is *both*:

(33) kare=wa eigo=mo nihon.go=mo wakar.u.
he =exf , English =in[clusive]f , Japan –language =inf , understand +pres
"He understands both English and Japanese."

In (33) the governor *wakar.u* is not negated. Therefore, the reading of the construction is *both*.

(34) kare=wa biiru=mo wain=mo nom.ana.i.
he =exf , beer =inf , wine =inf , drink –neg +pres
"He drinks neither beer nor wine."

The first particle, *=to*, introduced in this section that is used to express closed listings of nouns has a further feature that requires some explanation. Coordination with *=to* always constitutes a *segregatory* reading when the coordinated elements are in essive case. Segregatory readings have to be distinguished from so-called *combinatory* readings of coordination. This terminology orginated with Quirk et.al. (1985), but different terms have been proposed by other researchers (cf. Osborne 2003b). The notion of segregatory reading implies that a group reading of the coordinated elements is not possible. The notion of combinatory reading implies the opposite. Things become clearer when using examples:

(35) kore=wa zassi=to sinbun=da.
this =exf , magazine =cl , newspaper =esv
"These are magazines and newspapers."

(35) has to be understood in a manner that there are at least two different objects: one object is a magazine, and the other object is a newspaper. Sentence (35) can never be understood in the way that

there is only one object which is a magazine and a newspaper at the same time. Thus, =*to* implies that there are at least two different — i.e. segregate — objects of reference. This is the gist of the notion of segregatory reading insofar as it applies to Japanese.

If there is only one object which, however, shares two qualities at the same time, the particle =*to* cannot be used, but an essive construction must be employed.

(36) kare=wa doitu.zin=de gakusei=da.
he =exf , German –person =ess[ive] , student=esv
"He is German and a student."

Sentence (36) has to be understood in the way that there is one object — referred to by *kare* — which has two qualities: being a German and being a student. Since being German and being a student is not mutually exclusive, a combinatory reading is possible for one object.

It must be noted that =*to* forces a segregatory reading in particular if the whole construction receives essive case. Essive case constructions require some explanation: the essive case particle is =*de* which is used in (36). It expresses explicit essive case. Since nouns belong to the non-inflectional word-classes they cannot constitute the final word-constituent in a sentence without further and rather specific suffixes. These suffixes are the particle-verbs =*da* and =*des.u* which express implicit essive case. The former has been used in (35) and (36). =*des.u* is functionally equivalent to =*da*, but marks politeness. Both particle verbs originate from expressions in which the essive case particle is fused with a lexeme verb; the whole construction has grammaticalized.

Concludingly, we find two elements marked with essive case in (35) and (36) respectively: in (35) *zassi* and *sinbun* are marked with implicit essive case by =*da*. Since *zassi* is a dependent of *sinbun* it is also case-marked, albeit covertly. In (36), *doitu.zin* is marked with explicit essive case, and *gakusei* is marked with implicit essive case by =*da*.

From the viewpoint of a coordination theory such as Osborne (2003b) proposes, (35) and (36) are insofar structurally equivalent as both are forward-string coordination. In (35), *kore* is shared, in (36) *kare*. What the particle =*to* does when coordinating essive case-marked elements, is to force a reading of the shared material that implies segregation insofar as there must be two different objects to which the expression interpreted as the shared material refers. The usage of the particle =*de*, however, forces a combinatory reading of the shared material.

The structure implying a combinatory reading such as the one in (36), however, poses some problems for its interpretation as coordination. Most researchers believe that there is a verbal ellipsis in (36) after the explicitly essive case-marked element. This would also imply the ellipsis of the subject of the implicitly essive case-marked element. Thus, (36) should be something like (37) where the ellipsis is marked by strike-through letters:

(37) kare=wa doitu.zin=de ~~at.te kare=wa~~ gakusei=da.
he =exf , German –person =ess , ~~be~~ +~~part~~ , ~~he~~ =~~exf~~ , student =esv
"He is German and ~~he is~~ a student"

Sentence (36) would therefore make a promising candidate for a theory of coordination which poses the reduction of sentential conjuncts to non-sentential conjuncts. Without going into this discussion, it must however be noted that if the assumption of a verbal ellipsis holds, (36) is not an instance of nominal coordination but of verbal coordination.

3.2.2. Nominal adjectives

Nominal adjectives are morphologically sufficiently similar to nouns, and there are many nominal adjectives which also occur as nouns. These are more specifically referred to as *nominal adjectival nouns*. Since nominal adjectives are semantically similar to pure adjectives insofar as they express qualities or properties, coordination of nominal adjectives for all practical purposes always require a combinatory reading. Thus, the particle *=to* is never used to coordinate nominal adjectives. Only essive *=de* can be used for that purpose:

(38) Nihon=no dai-tokai=wa kirei=de kyodai=da.
Japan =gen , big-city =exf , beautiful =ess , gigantic =esv
"Japan's cities are beautiful and gigantic."

Although the subject is plural, no segregatory reading is forced: i.e. (38) does not mean that there are some cities in Japan which are beautiful but not gigantic, and others which are gigantic but not beautiful, but it means that every one of them is beautiful as well as gigantic. It thus, forces a combinatory reading.

3.2.3. Summary of nominal and nominal adjectival coordination mechanisms

Both nouns and nominal adjectives are coordinated by using specific particles. For nouns, two different particles could be used: *=to* specified a closed listing, i.e. an exhaustive list, while *=ya* specified an open listing. This is a distinction that languages such as English or German have to capture by different means since it is not inherent in coordination mechanisms used in these languages.

If two nouns marked with essive case are coordinated, it depends on whether a segregatory or combinatory reading is possible, for *=to* to be used. If a combinatory reading is not possible, *=to* must be used; if a combinatory reading is possible, however, the essive case particle *=de* must be used.

Since nominal adjectives semantically function as inflecting adjectives do, they always force a combinatory reading. Thus, although nominal adjectives are morphologically close to nouns, *=to* cannot be used, but instead the essive case particle *=de* must be used as a coordinator.

The same problem that occurs with coordination mechanisms of inflectional word-classes, also occurs with coordination of nouns and nominal adjectives: unlike the structures of coordination in English or German, the syntactic structure of nominal and nominal adjectival coordination mechanisms is beyond serious doubt. The first conjunct always depends on the next one.

4. Discontinuous coordination

In some instances, coordination in Japanese forces the syntactic structure to become discontinuous. A discontinuity is a disruption of the linearization of a structure insofar as an element A occurs between

a dependent element X and its governor Y without A being dependent of either X or Y, nor X or Y being a dependent of A. In dependency stemmata, discontinuities are expressed by crossed branches which often involves projection branches. Bernard Bloch (1946: 230) gave the perhaps most famous Japanese example of a discontinuity involving coordination:

(39) watasi=wa ani=ga hitori=to otooto=ga hutari ar.u.
I =exf , [older] brother =nom[inative] , one[person] =cl , [younger] brother =nom , two[person] , be +pres
"I have one elder and two younger brothers."

The initial assumption for structuring the conjuncts in (39) could very well be:

(40) watasi=wa [ani=ga hitori]=to [otooto=ga hutari] ar.u.

However, this approach must show that *ani=ga hitori* and *otooto=ga hutari* are constituents. The compounding problem with the coordinated structure in (39) is that both conjuncts display a phenomenon known as *quantifier floating*. Quantifier floating in Japanese assumes that a quantifier positioned to the right of its reference noun — i.e. the noun that is counted by the quantifier — has floated up from a position left of the reference noun. This noun is also called *host noun*. Thus, the first part of (39) is believed to have derived from:

(41) watasi=wa hitori=no ani=ga ar.u.
I =exf , one[person] =gen , [older] brother =nom , be +pres
"I have one elder brother."

While (41) may well be the case, the mechanisms required to render the first part of (39) also involve change of word order. First, in (41) the quantifier *hitori* is a dependent of the host noun *ani* since it is marked with genitive case *=no*. Thus, *hitori=no ani=ga* certainly forms a phrase. Quantifier floating happens when the host noun — for whatever reasons — is moved out of its phrase. Since in standard constituency grammars, movement is always forward — and more specifically upward — movement, the host noun moves over and beyond the quantifier to the left. The quantifier is now left in a position after its host noun and in front of the verb. Since the host noun is now in front of the quantifier, it cannot govern the quantifier anymore. Thus, the quantifier is ungoverned. Because that may not be, and because Japanese dependents look to the right for governors, the quantifier must become a dependent of the verb. However, since the verb cannot govern genitive marked elements, the quantifier must loose its case marker. It does so by floating upwards into the immediate government domain of the verb. Since, in order for the verb to govern a quantifying expression, this expression may not be marked by any case particle, it is safe to assume, that verbal government of quantifiers requires the suppression of case markers. That means that the quantifier must float fairly high in order to become an immediate dependent of the verb. If after this operation, the host noun and its quantifier should still form one constituent, it is then quite unclear how this constituent should be structured.

The perhaps strongest and most indicative counter-argument against the assumption of host noun and floated quantifier constituting a phrase, is that elements may occur between host noun and quantifier that cannot be governed by or dependent on either:

(42) watasi=wa ani=ga ima=made hitori i.masi.ta=ga, ima=wa i.mas.en.
I =exf , [older] brother =nom , now =lim[itation] , one[person] , be –pol[ite] +perf
=ad[ver]s[ative] , now =exf , be –pol –neg
"Until now I had one elder brother, but now I haven't."

The word constituent *ima=made* occurs between the host noun *ani=ga* and its quantifier *hitori* indicating that the assumption that host noun and floated quantifier are one constituent is not correct. In fact there are many more problems with Japanese quantifiers that have to be considered (cf. Gross 1994a, 1994b, 1999).

After having refuted assumption (40), the question remains how the conjuncts in (39) are structured. The first constituent must dependent on the finite verb, because only finite inflectional word-constituents can provoke the exclusive focus marker. The two nouns *ani=ga* and *otooto=ga* must also dependent on the verb, here in particular the verb stem *aR* because they are part of a valency relation. Although this relation is not a *lexical* valency relation, it is a *structural* valency relation (cf. Gross 1996, 1997).

Of the two quantifiers *hitori=to* and *hutari*, the latter must depend on the verb for the reasons outlined above: it occurs without any case marker, and case marker suppression is a phenomenon that takes place when quantifiers are in the verbal government domain. The former quantifier, namely *hitori=to*, however, must depend on *hutari*. A dependency stemma based on the dependency relations stated above must then look like:

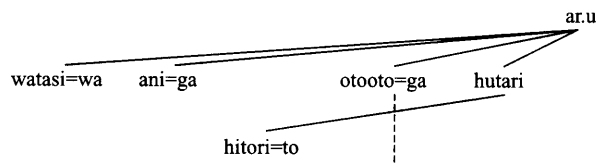

Fig. 4: Structure of (39)

Figure 4 shows that the dependency branch running from *hitori=to* to *hutari* crosses over the projection branch — the vertical dotted line — of *otooto=ga*. In dependency stemmatology this is a visual indicator of a discontinuity.

The gist of the above-said is that the intuitive assumption that *one elder brother* and *two younger brothers* are conjuncts is not correct, but that only the quantifiers are coordinated. Due to morpho-syntactic reasons this coordination turns out to incur a discontinuity.

5. Summary

In part 3 common coordination mechanisms in Japanese were outlined for verbs, adjectives, nouns, and nominal adjectives. Depending on the word-class, mechanisms differed. Inflectional word-classes such as verb and adjectives are commonly coordinated using the participle flexeme and attaching it to any non-final conjunct. However, one drawback was that the structures rendered so could not always be interpreted as pure coordination but also as instrumental or causal elements. Nouns displayed a marked difference insofar as exhaustive and non-exhaustive coordination mechanisms had to be distinguished. Furthermore, essive case marked nouns distinguish a segregatory from a combinatory reading. The segregatory reading was expressed by the exhaustive coordination particle =*to*. Combinatory readings must be expressed by explicit essive case markings. Since nominal adjectives always force a combinatory reading, they too, had to be marked with explicit essive case. However, it was also noted that in these cases the assumption that this was nominal or nominal adjectival coordination could not be upheld anymore without severe doubts.

Viewed from the background of European languages such as English and German, Japanese coordination mechanisms differ in one important aspect: Japanese coordination is not conjunction, but subjunction. Non-final conjuncts are subordinated to later conjuncts since they are morpho-syntactically dependent on later conjuncts. Due to this property, Japanese does not display many difficulties that plague coordination theories on languages such as Englisch or German.

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Some example sentences are marked with *JM*. They refer to Rickmeyer (1995).