

Structure of Noun Coordination in Japanese

Naoki NAKAMATA

日本語名詞句並列表現の構造

中俣 尚己

Accepted June 19, 2019

Abstract: This paper examines Japanese noun coordination, in particular the difference between *to* and *ya*, both of which are translated into ‘and’ in English. *To* has a comprehensive interpretation, and *ya* has a non-comprehensive interpretation. This paper proposes that the difference is derived from the syntactic structure; *to* creates a united NP, while *ya* does not have such a function, nor a markerless coordination. A corpus survey shows that *ya* cannot be used in titles of books or sections because it does not create an NP; therefore, *to* is a syntactic operator, and *ya* is a semantic operator.

Key Words: syntactic structure, noun phrase, title, comprehensiveness, corpus

抄録: 本研究は日本語の名詞句並列表現のうち、特に「と」と「や」の違いについて論じる。「私は毎日ビールとワインを飲む」では毎日両方飲むという網羅的な解釈が得られ、「私は毎日ビールやワインを飲む」ではどちらか片方で良いという非網羅的な解釈が得られることが知られているが、これは「と」が1つの名詞句を形成するのに対して、「や」はマーカーを用いない並列と同様にそのような機能をもたないという統語的な違いに由来することを示した。その証拠として、名詞句を形成しない「や」はタイトルとして使えないという計量的な調査結果も提示する。「と」は統語的なオペレーターであり、「や」は意味的なオペレーターであると言える。

索引語: 統語構造, 名詞句, タイトル, 網羅性, コーパス

1. Introduction

This paper examines noun coordination in Japanese, particularly the difference between the coordinators *to* and *ya*¹⁾. Japanese has a complex system of coordination, or parallel expression. The most notable characteristic is that different markers are used at the noun level, clause level, and sentence level, whereas *and* is used for all levels in English. Additionally, at each level, there are various markers that have slightly different features of meaning.

Coordination of Japanese has attracted generative linguists' interests, though the target has been limited to narrow syntactic phenomena such as non-constituent coordination (Kubota, 2015) or doubling (Morita, 2018). The difference among various coordinators has traditionally not interested linguists. Ohori (2004) discussed various examples, but the discussion was mainly typological and did not involve deeper consideration.

Nakamata (2015) considered more than 30 markers of coordination in Japanese and described the system of coordinators among three levels of coordinators. This is the largest work on coordination in Japanese that currently exists. However, Nakamata (2015) mainly considered features and meanings of coordinators, leaving differences in syntactic structure open to debate. Additionally, Nakamata (2015) conducted a corpus survey only for clause level and sentence level, but not for noun level. This paper examines the difference between syntax structures of noun coordinators *to* and *ya* and claims that their contrastive features discussed in Nakamata (2015) can be explained by syntax structure. The results of a newly conducted corpus survey support this claim.

The outline of this paper is as follows. In section 2, the definition and general properties of coordination in Japanese are introduced. In section 3, three perspectives vital to the study are discussed. In section 4, a new proposal on syntactic structure of *to* and *ya* is introduced, with some evidence from a corpus. Section 5 concludes the paper.

2. General Properties of Coordination in Japanese

In this section, at first three levels of coordination are introduced, and their definitions are given. After that, the general properties of noun coordination in Japanese are presented.

(1) Definition

As mentioned in section 1, Japanese has three levels of coordination, as does English: noun phrase, clause, and sentence. The difference is that Japanese does not use a single marker as shown in (1a)-(1c), in contrast to English, which uses *and* for all levels.

- (1)a. Tsukue=no ue=ni ringo=to mikan=ga aru.
 Desk=GEN up=LOC apple=and orange=NOM be.PRES²⁾
 ‘There are an apple and an orange on the desk.’
- b. Tsukue=no ue=ni ringo=ga at-te, isu=no ue=ni
 Desk=GEN up=LOC apple=NOM be-and, chair=GEN up=LOC
 mikan=ga aru.
 orange=NOM be.PRES
 ‘There is an apple on the table and there is an orange on the chair.’
- c. Tsukue=no ue=ni ringo=ga aru.
 desk=GEN up=LOC apple=NOM be.PRES
Sosite, isu=no ue=ni mikan=ga aru.
 and chair=GEN up=LOC orange=NOM be.PRES
 ‘There is an apple on the desk. And there is an orange on the chair.’

Although different coordinators are used, (1b) and (1c) are semantically equivalent. It is summarized that (1a) is coordination of THING, and (1b) and (1c) are coordination of EVENT. The definition of coordination should be given in each case. The definition of the coordination of THING is as follows.

(2) **Definition of Coordination of THING** (Nakamata, 2015, p.9)

If more than two different noun phrases are given the same semantic case by one predicate, those noun phrases are coordinated.

This definition includes all the sentences below.

- (3)a. Ringo=to mikan=ga aru. ‘There are an apple and an orange’
 (3)b. Ringo, mikan=ga aru. ‘There are an apple and an orange’
 (3)c. Ringo=ga, mikan=ga aru. ‘There are an apple and an orange’

(3a) is an ordinary sentence that has the coordinator *to*. However, a sentence without a coordinator can also imply that an apple and an orange are coordinated. Sentences like (3b) are widely used in the academic style. (3c), which has a double case marker (NOM), is also acceptable, though it sounds like a narrative or literary sentence. To treat coordination in Japanese completely, the definition needs to include all examples above. This requires that the definition not depend on a particular marker.

(2) **General Properties of Noun Coordination in Japanese**

In Japanese, noun coordination can be represented with coordinators such as *to* and *ya*. The coordinators are postpositive in Haspelmath’s term and cannot be used alone; they are always attached to a noun phrase. Phonologically, they make one accent phrase with the attached noun. The coordinators work as clitics as well as case particles. In school grammar, the coordinators are contained to case grammar.

When more than three noun phrases are coordinated, the most common method is to attach coordinators to every noun phrase except for the last one, illustrated as “A *to* B *to* C.” Though putting a coordinator only on the second noun phrase from the last is also possible, like “A, B *to* C,” this is a relatively new pattern affected by English word order. Since Japanese is a head-final language and English is a head-initial language, the resemblance is superficial. Only *to* can be used in this sentence pattern and other coordinators cannot. This may show that this pattern is special one affected by English.

It is occasionally pointed out that *to* can be attached to all noun phrases, whereas *ya* cannot³⁾. Sometimes this is considered the difference between the syntactic structure of *to* and *ya*.

(4)a. Ringo=*to* mikan=*to*=ga ar-u. ‘There are an apple and an orange.’

b. *Ringo=*ya* mikan=*ya*=ga ar-u.

However, the pattern “A *to* B *to* C *to*” shown in (4a) is not common among young people. Additionally, in Classical Japanese, sentences like (4b) are also possible. In Contemporary Japanese, there is a fixed expression *are ya kore ya*. ‘lit. that and this and’

(5) ashige=*naru* yu=ya nashi=ya=nado=*wo* natukasige=*ni* motarite kuhi=*nado* suru

(Kagerou Nikki C10)

‘with nostalgia, grabbing and eating oranges or pears or something that look bad’

Classical Japanese shows more variety in patterns, including “A, B, C *to*,” which is not allowed in Contemporary Japanese (Oda, 2015). Cross-linguistically, there are several ways to mark coordination (Haspelmath, 2004). Japanese has been adopted in multiple ways in historical flow. The contrast seen in (4) is just a synchronous difference between two markers’ diachronic change and is not derived from a crucial difference of properties between them.

To sum up, coordinators are dependent markers that form a set, and they are attached after NPs. What should be pointed out here is that Japanese can make a set without any markers, as “A, B, C” can also be considered coordinated noun phrases. Then, what is the function of coordinators? It is delimiting a way of making a set.

3. Three Perspectives

As discussed in the previous section, the number or place of coordinators is not crucial to describe their properties. It is necessary to adopt other perspectives. In terms of perspectives of analysis, Nakamata (2015) emphasized distinguishing three levels: syntax, semantics, and pragmatics.

(1) Three Perspectives: Syntax, Semantics, and Pragmatics

It is important to distinguish these three levels in linguistic discussion. In a discussion of coordination, the

perspective of syntax affects how strongly a coordinator combines coordinands; in other words, whether the coordinands are treated as united under any environment or not. Semantic perspectives affect the motivation of making a set by coordinands; in other words, how resembling the coordinands are. Pragmatic perspective commits an unmentioned element in sentences.

Taking “an apple and an orange” as an example, syntactic perspective affects how strong the coordinator *and* combines the two coordinands logically. At this level, the sentence “Every day I eat an apple and an orange” implies that the target of question is whether the speaker eats both of them. Semantic perspective considers the relation of *an apple* and *an orange*. Most coordinators have constraints as to how they create a set. Pragmatic perspectives discuss the existence of unmentioned elements such as a grape.

(2) Pragmatic Implicature

Traditional and common explanations for the differences between *to* and *ya* are the distinctions between all enumeration and partial-enumeration (Teramura, 1991).

(6)a. Tukue=no ue=ni ringo=to mikan=ga aru.

b. Tukue=no ue=ni ringo=ya mikan=ga aru.

‘There are an apple and an orange on the desk.’

(6b), using *ya*, implies that there are some other fruits on the desk. This function is called partly-enumeration. On the other hand, (6a), using *to*, implies that there are no other fruits on the desk, which is called all enumeration. This explanation is widely believed and adopted by textbooks for learners.

However, it is known that there are some counterexamples (Ando, 2001). Thus, Nakamata (2015) claimed that these implications are pragmatic implicature. The characteristic of pragmatic implicature is cancelability. Implicature contrasts with entailment, which is the uncancelable meaning of a sentence.

(7)a. Miti=wo wataru=toki migi=ya hidari=wo miru.

road=ACC cross.PRES=when right=and left=ACC look.PRES

‘When (I) cross the road, I look right and left.’

b. Akane=ya Rikka=ga tasuketekureta.

Akane=and Rikka=NOM help.BEN.PAST

‘Akane and Rikka helped (me)’

(7a) is a very natural sentence (perhaps more natural than using *to*), though no other direction is supposed to be looked at but right and left. (7b) can also be used even if only two persons helped me. These examples show that the meaning of unmentioned elements is cancelable and comes under the territory of pragmatics. These implicatures should not be considered essential meanings encoded by the coordinators *to* and *ya*.

4. Structure of Noun Coordination

In this section, the structure of the three types of noun coordination is examined. First, there is a phenomenon that shows different logical interpretations between *to* and *ya*. The previous explanation of the two coordinators and the problems with it follows. Then, a new proposal is introduced that this difference of interpretation is caused by the difference of the structure of coordinated phrases. A corpus survey provides evidence of this proposal.

(1) Phenomenon

The previous section claimed that the meaning of unmentioned elements, whether they exist or not, is pragmatic implicature and cancelable. In contrast, (8) shows the differences in uncancelable meaning between *to* and *ya*.

- | | | | |
|----------------------------------|------------------|----------|------------|
| (8)a. Watasi=wa mainiti | biiru= <u>to</u> | wain=wo | nomu. |
| b. Watasi=wa mainiti | biiru= <u>ya</u> | wain=wo | nomu. |
| 1SG=TOP everyday | beer=and | wine=ACC | drink.PRES |
| 'Everyday I drink beer and wine' | | | |

Though both sentences have the same translation in English, their interpretation of “and” is different. (8a) entails that every day I drink both beer and wine, which is called comprehensive interpretation. This interpretation cannot be canceled because I cannot say “I have only beer today” after this sentence. A noncomprehensive interpretation is, for example, one day I drink beer, and on one day wine is not allowed. (8b) allows this reading. Of course, it is acceptable if I drink both in one day.

(8) is a repeating event, though the contrast between comprehensive and noncomprehensive interpretation is apparent in a one-time event with multiple participants.

- | | | | |
|--|------------------|----------|------------|
| (9)a. Sankasya-tati=wa | biiru= <u>to</u> | wain=wo | nonda. |
| b. Sankasya-tati=wa | biiru= <u>ya</u> | wain=wo | nonda. |
| Participant-PL=TOP | beer=and | wine=ACC | drink.PAST |
| 'The participants drank beer and wine' | | | |

(9a) with *to* forces the comprehensive interpretation, which is that ALL participants drank BOTH beer and wine. (9b) with *ya* has a noncomprehensive interpretation, which is that one participant drank beer and another drank wine. Some may drink both. Thus, the difference between *to* and *ya* is a difference of comprehensiveness. When they are used in a one-time event with one participant, they show differences in exclusiveness.

- | | | | |
|-----------------------------------|------------------|----------|------------|
| (10)a. Watasi=wa kinou | biiru= <u>to</u> | wain=wo | nonda. |
| b. Watasi=wa kinou | biiru= <u>ya</u> | wain=wo | nonda. |
| 1SG=TOP yesterday | beer=and | wine=ACC | drink.PAST |
| 'Yesterday I drank beer and wine' | | | |

(10a) implies that I drank only beer and wine, whereas (10b) implies that I had some other drink. It should be noted that these interpretations are cancelable.

(2) *The Previous Explanation and its Problem*

The difference between *to* and *ya* is a difference of comprehensiveness. Nakamata (2015) discussed *to* [+comprehensive] and *ya* [-comprehensive] features. In logical terms, *to* means logical conjunction and *ya* means logical disjunction. However, two questions arise about this explanation.

Logical disjunction refers to the terms of logic, and if it is defined with natural language, it should be as redundant because both are true or one of them is true. Moreover, Japanese *ya* never means “exclusive or” (XOR) like English *or*. *Ya* cannot be used when you force somebody to choose, as in “tea or coffee.” *Ya* always means logical disjunction. Therefore, the first question is this: is such a redundant meaning really coded by simple marker *ya*?

The next question is the existence of noun coordination without markers. Teramura (1991) called the unseen marker a “comma” and claimed that it has intermediate characteristics between *to* and *ya*. Haspelmath (2004) called it asyndetic in contrast to syndetic coordination with markers. This paper considers no marker to exist and calls this ϕ -coordination. The remarkable characteristic of ϕ -coordination is that it allows a noncomprehensive interpretation.

- (11)a. Watasi=wa mainiti biiru, ϕ wain=wo nomu.
 ‘Everyday I drink beer and wine.’
 b. Sankasya-tati=wa biiru, ϕ wain=wo nonda.
 ‘The participants drank beer and wine.’

The interpretation of (11a) is that one day, I drink beer and one day, I drink wine. In (11b), one participant drinks beer and one participant drinks wine. This noncomprehensive interpretation or disjunctive meaning is not considered to be coded by marker. Rather, this interpretation is the default one when noun phrases are coordinated. In other words, both or either is unspecific in default interpretation. ϕ -coordination is unmarked, so it allows various readings.

Nakamata (2015) introduced the feature [$\pm$ comprehensiveness], but he did not discuss the root of this difference. This paper proposes that it is a difference of syntactic structure.

(3) *Coordination in Titles*

Teramura (1991) pointed out an interesting fact. *To* is often used in the title of a book or movie, while *ya* is not. You can quickly recall famous titles that have *to* in them. The famous book on Japanese culture, *Kiku to Katana* (*The Chrysanthemum and the Sword*) has *to* in its title. All the titles of the world’s most famous fantasy novels series, *Harry Potter*, have *to* as well (e.g. Harri Pottaa to Kenzya no Isi ‘Harry Potter and Philosopher’s Stone’). On the contrary, you cannot find the title of book or movie with *ya*. You cannot find titles of papers or presentations that contain *ya*, either. Though I went to the university library and looked for such titles, I could not find any.

Teramura (1991) explained this phenomenon as follows. Because *ya* is partialy-enumeration, we cannot find the condition of the set (i.e., the connotation), so we cannot imagine something with coordinated elements. However, regarding imagination, it appears to be the same thing if *to* is used. Moreover, the issue of whether all enumeration or partialy-enumeration is an issue of pragmatics. Some authors might think they can achieve a special effect by violating the pragmatic rule. One example is the title of the 16th episode of a famous Japanese animated series *Neon Genesis Evangelion*, “Si ni Itaru Yamai, Sosite.” It can be translated into “The Sickness Unto Death, And” in English. the last part after *sosite* is omitted. If Teramura is right, the watcher cannot have an imagination, but in fact, the opposite is true. The watcher can freely imagine the things omitted from this half-lost title. Agatha Christy’s famous novel *And Then, There Were None* may have the same function. However, *ya* does not have such examples. The fact that *ya* cannot be used in titles for pragmatic reasons but because of syntactic constraint requires reconsideration.

Nakamata (2015) also examined the subject of email.

- | | |
|--|-------------------------------|
| (12)a. *Subject: camera <u>ya</u> PC | ‘camera and PC’ |
| b. Subject: camera <u>to</u> PC | ‘camera and PC’ |
| c. Subject: camera <u>ya</u> PC no kanri | ‘management of camera and PC’ |

(12a) is not suitable for the subject of email, while (12b) with *to* is an ordinary subject. However, (12c) is also grammatical and uses *ya*-coordination in an NP modifier. From these observations, Nakamata (2015, p.63) concluded that *ya* requires other sentence elements besides coordinated elements. The conclusion is the result of merely self-reflection, though it is likely that *ya* has some grammatical constraints that prohibit its use in titles. It is a clue to the syntactic difference between *to* and *ya*. In the next subsection, a corpus survey is conducted to clarify these constraints.

(4) Corpus Survey

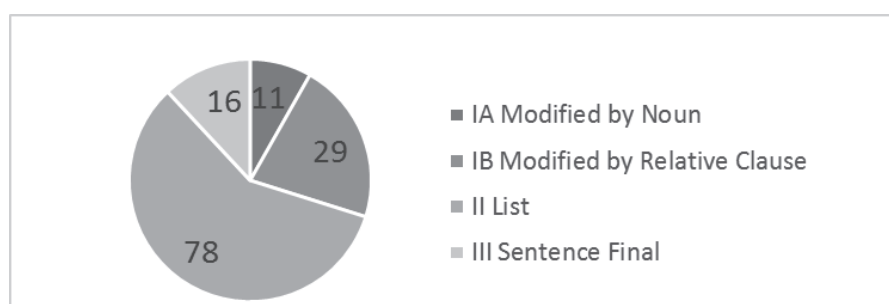
Can *ya* really not be used in titles? To answer this question, a corpus survey is conducted. The target corpus is Balanced Corpus of Contemporary Written Japanese (BCCWJ). This is the largest balanced corpus of written Japanese and contains 13 genres including novels, newspapers, magazines, and websites. It contains about 100 million words in total.

Using Chuunagon ver.2.4, which is a web application that can search corpora with rich conditions, the word connection “noun + coordinator+ noun” in sentence-final position is surveyed. The title of the book itself is not contained in the corpus, but many titles of sections or subsections are. In this corpus, these titles are also treated as a sentence, so that with the condition above, titles contained in parallel particle can be obtained. The result is as follows.

Table 1. Frequency of noun coordination

	N to N	N ya N
Total	265,423	177,152
At sentence-final	4,283	134
Ratio	1.61%	0.08%

In total, both *to* and *ya* are used frequently. However, at sentence-final position, *ya* is hardly observed. Furthermore, there is a lot of bare *to*-coordination such as *Ie to Nougyou* ‘Home and Agriculture’ or *Ritti to Kankyou* ‘Location and Environment.’ In contrast, no example of bare *ya*-coordination exists in this 100-million-word corpus. All examples of *ya*-coordination fall into the following four patterns; (IA) Modified by noun phrase, (IB) Modified by relative clause, (II) In list structure, and (III) Sentence-final without period. Among the four patterns, (III) Sentence-final without period is not the title but a sentence so that are excluded from analysis.

**Figure 1. Pattern of *ya*-coordination at sentence final**

(5) Proposal

The corpus survey results show that *ya* can be used in titles in a very limited environment. A presupposition and proposal can explain this phenomenon.

(13) Presupposition

A title must be a noun phrase or sentence as a whole.

(14) Proposal

To combines two NP to make one united NP, while *ya* does not make one united NP. *A ya B* is a constituent but not one NP, and *A, B* is not one NP.

First, most titles in Japanese are an NP as a whole. Some are CP or are sentences written to attract readers. Regarding the examples below, *Kenkyuu* is a verbal noun, and both (15a) and (15b) are acceptable as a title; (15a) is used as noun; and (15b) is a sentence that has tense. (15c) is also OK because NP with postposition *nituite* behaves as an NP (e.g., *~nituite no kenkyuu*.) However, (15d) is never accepted as a title because it is tenseless VP. Though it is the title of a famous Japanese animation movie, “*Kimi=no na=wa*” is apparently not a

sentence but a part of sentence because it is actually considered an interrogative sentence asking for a name. Because of this, it is an attractive and unforgettable title. This phenomenon can be observed in English, too.

- (15)a. Nihongo=no Kenkyu ‘Study of Japanese’
 b. Nihongo=wo Kenkyu-suru ‘Studying Japanese’
 c. Nihongo=nituite ‘On Japanese’
 d. #Nihongo=wo Kenkyu-si ‘Study Japanese and’

In conclusion, it is considered that *ya* does not create an NP as a whole while *to* does. Under a very limited situation, *ya* can be used as a title.

One situation is when *ya-coordination* is modified.

- (16) Dokutoku=no Seikatu=ya Bunka (BCCWJ: LBr3_00183)
 unique=GEN lifestyle=and culture
 ‘Unique Lifestyle and Culture’
 (17) Syokuryou=ga Husokushiteiru Kuni=ya Tiiki (BCCWJ: OT31_00007)
 food=NOM shortage.PROG country=and region
 ‘countries and regions in which food is shortage’

In (16), the constituent ‘seikatu ya bunka’ does not have a license as an NP, so it cannot be used as a title by itself. However, by being modified by a noun with genitive case, it has a license as an NP because what the genitive case modifies must be an NP. (17) modified by a relative clause can be explained in the same way.

Another situation where *ya-coordination* can be used is in list structure. An example is provided below.

- (18) 1 Ohanasi-kai
 ➤ Toki 2-gatu 2-niti (do) gogo 1-ji 30-pun ~ 2-ji
 ➤ Tokoro Shuukai-situ 1
 ➤ Naiyou Kami-sibai ya Te-asobi
 ‘1 talking party
 ➤ Time Feb 2 (SAT) PM1:30 ~2:00
 ➤ Place Meeting room 1
 ➤ Content Picture-story show and Playing with hand’

In this example bare *ya-coordination* *kami-sibai ya te-asobi* occurs. However, this part is considered a predicate whose topic is *naiyou* ‘content’. You can easily form a sentence such as ‘The content is picture-story show and playing with hand.’ Thus, each line in a list can be considered a sentence that has a theme-rheme structure. This characteristic enables *ya-coordination*.

(6) Discussion

The proposal that *to* makes one NP but *ya* does not can explain the difference between comprehensive versus noncomprehensive interpretation of these markers.

- (19)a. Watasi wa mainiti [_{VP}[_{NP} biiru to wain] o nomu.]
 b. Watasi wa mainiti [_{VP}[_{NP} biiru] ya [_{NP} wain] o nomu.]
 c. Watasi wa mainiti [_{VP}[_{NP} biiru]₂ [_{NP} wain] o nomu.]

(19) roughly depicts the structure of sentences with adverbial phrase *mainiti* ‘everyday’. In (19a), *to* creates the NP [*biiru to wain*]. *Mainiti* modifies this NP. Thus, the interpretation is fixed to a comprehensive one such as “Everyday, I drink both ones.” On the contrary, in (19b), *ya* does not create the NP [*biiru ya wain*]. In terms of structure, (20b) is the same with (19c), which does not contain a coordinator. This leads to the fact that the interpretation of (19b) and (19c) is same. *Mainiti* modifies two NPs, and it is unspecified which NP it modifies or whether it is both. Thus, the interpretation is a noncomprehensive one such as “One day, I drink beer and one day wine. (and maybe both).” In other words, *ya*-coordination makes ambiguation because there exist two candidate NPs that can be modified. *To*-coordination does not create ambiguity because it makes one NP that should be modified.

There is another phenomenon that can be explained by the proposal. As described above, *ya* has noncomprehensive interpretation. However, when *ya*-coordination is topicalized by topic marker *wa*, it has comprehensive interpretation. Nakamata (2015, p.53) called this **Topic Phrase Comprehensiveness Constraint**.

- | | | | | |
|--|------------------|----------|------|----------|
| (20)a. Akane= <u>ya</u> | Rikka= <u>ga</u> | mainiti | kono | heya=o |
| Akane=and | Rikka=NOM | everyday | this | room=ACC |
| soozi siteiru. | | | | |
| clean do.PROG | | | | |
| b. Akane= <u>ya</u> | Rikka= <u>wa</u> | mainiti | kono | heya=o |
| Akane=and | Rikka=TOP | everyday | this | room=ACC |
| soozi siteiru. | | | | |
| clean do.PROG | | | | |
| ‘Everyday, Akane and Rikka clean this room.’ | | | | |

(20a) has an interpretation that “One day, Akane cleans this room and one day Rikka.” (20b) is a similar sentence to (20a); the only difference is that the agents Akane and Rikka are topicalized by *wa*. However, the interpretation of (20b) is that “Everyday, both of Akane and Rikka clean this room.” What causes this? In (20a), adverbial phrase *mainiti* is in this position because of scrambling; the original position is considered higher than the subject (*mainiti* > *Akane ya Rikka*). Then, as (20b), *mainiti* modifies the subject, but it is unspecified what it modifies, resulting in noncomprehensive interpretation. In contrast, the subject is topicalized and moved to higher position than *mainiti* (*Akane ya Rikka* > *mainiti*). In this case, though there is not one NP [*Akane ya*

Rikka], *Akane* modifies *mainiti* and *Rikka* also modifies *mainiti*, creating the interpretation “Everyday Akane cleans this room and Rikka does, too.”

(7) On ϕ -Coordination

As described in the previous subsection, *ya*-coordination has the same properties as ϕ -coordination. ϕ -coordination does not create one NP. Then, is ϕ -coordination never used in titles, too? This subsection answers that question.

First, let me consider the titles of books. Jared Diamond’s famous book *Guns, Germs, and Steel* is translated to *Juu, Byoogenkin, tetu* in Japanese, indicating that titles that consist of three NPs juxtaposed are affected by English translation, which is why they are excluded from the analysis. The target titles are bare ϕ -coordination of two NPs. As a result of observation in the library, some book titles with that condition exist, though they are not very common.

They fall into two groups. The first group contains pairs of nouns that are commonly used together, for example, *Bibun Sekibun* ‘Differential and Integral’ or *Gizyutu Katee* ‘Technology and Home Economics’ (these are names of school subjects). They are a kind of complex noun. As the evidence shows, in most cases, there exist abbreviated forms such as *Biseki* or *Gika*. This indicates that these pairs of nouns can be treated as one NP so that they do not violate the presupposition that the title must be an NP or a sentence.

The examples of the second group are *Bakumatu Isin* or *Makuranosoosi Murasakisikibunikki*. The former refers to two juxtaposed terms from the field of history, and the latter refers to two famous juxtaposed literary works. However, this group has some significant characteristics. They are volumes in a series. *Bakumatu Isin* is the first volume in the series *Modern History of Japan*, and *Makuranosoosi Murasakisikibunikki* is a volume of the *Shintyou Classical Works Album*. These can be considered a kind of list structure. It is in such a structure that bare ϕ -coordination can be used in titles.

Next, additional corpus survey is conducted to clarify whether ϕ -coordination can be used as a section title. The search condition is the same as *ya*-coordination. In BCCWJ, there are 852 examples of “NP, NP,” which number much more than *ya*-coordination examples. As illustrated in Fig.2, most examples are in list structure format. However, what must be noted is the 5th category, “others,” which does not exist for *ya*-coordination.

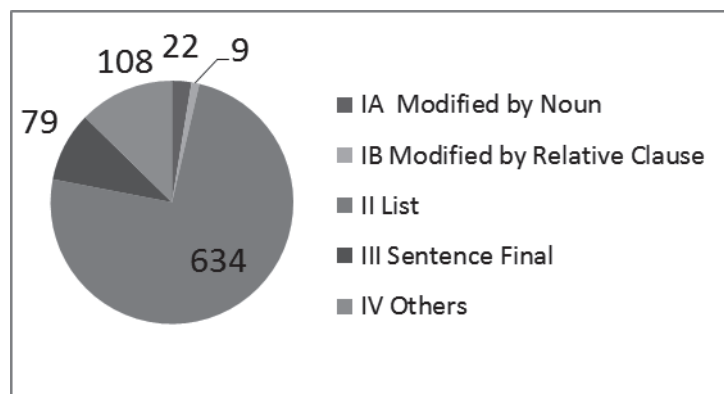


Figure 2. Pattern of ϕ -coordination at sentence final

Though “Others” consists of extremely compressed descriptions in a dictionary, there exist examples of subsection titles such as (7) *Gaikin, Gaityuu*, ‘(7) Harmful Germs and Insects’. As the head number shows, the subsection is also a kind of list structure. There are always multiple sections or subsections in an article, and a subsection under a section makes a series. Regarding the example above, it is the 7th subsection, and the 6th one is (6) *Kinoko no Henkei*, ‘(6) Transformation of Mushroom’. In the list structure, an item has basically one content, but authors occasionally want to describe two contents in one item or subsection. Under this special situation, bare ϕ -coordination can be used in titles. This is the same as a volume in a series that has two contents. Only in this case is ϕ -coordination allowed. However, *ya*-coordination is never permitted in such cases. This is because *ya*-coordination is a constituent that does not have an NP license, which should be a part of a sentence, while ϕ -coordination has room for consideration that it is not a constituent but two NPs that are juxtaposed. Moreover, in this situation, *ya*-coordination offers the pragmatic implicature that other elements exist, which is inconvenient for authors who want to treat just two contents. ϕ -coordination, in contrast, does not make such an implicature, as Nakamta (2015) has described.

6. Conclusion

This paper examined Japanese noun coordination, especially the difference between *to*-coordination, *ya*-coordination, and ϕ -coordination. Table 2 is the summary.

Table 2. Differences between *to*, *ya*, and ϕ -coordination.

	Comprehensiveness	Logical Relation	Modifying Target	Number of NP
<i>A to B</i>	[+Comprehensive]	Conjunction	Both	1
<i>A ya B</i>	[-Comprehensive]	Disjunction	Unspecified	2
<i>A, B</i>	[-Comprehensive]	Disjunction	Unspecified	2

The descriptions in the four columns are equivalent. Previous studies have not revealed what causes these differences. In the case of coordination of noun phrases, the right column is crucial. The difference depends on whether each marker creates one NP or not. However, the Comprehensiveness feature still remain effective when considering coordination of EVENT; for example, *te* is [+Comprehensive] and *tari* is [-Comprehensive]. The feature should not be abandoned.

In conclusion, *to* is a syntactic operator that combines two NPs into one NP. By this operation, the interpretation is fixed as a comprehensive interpretation. It does not operate meaning. By contrast, as Nakamata(2015) showed, *ya* is a semantic operator that creates a set from two NPs by resemblance. It does not operate syntactic structure. Thus, the interpretation remains ambiguous (logical disjunction or [-comprehensive]), which is the default interpretation of NP-coordination.

This study sheds light on the difference of interpretation between *to* and *ya* from a syntactic perspective. Various coordination markers in Japanese should be considered in future studies.

Notes

- 1) Henceforth, this paper calls coordinating markers such as *to* and *ya* **coordinators**, and coordinated phrases **coordinands** according to Haspelmath's (2004) overview of descriptions of coordinating constructions.
- 2) The following are the abbreviations used in this paper: NOM (Nominative), ACC (Accusative), GEN (Genitive), LOC (Locative), TOP (Topic), COP (Copula), PRES (Present), PAST (Past), PROG (Progressive), BEN (Benefactive), SG (Singular), PL (Plural), 1 (First Person).
- 3) Attaching a marker to all coordinants is called "doubling" by theoretical linguists. Haspelmath (2004) distinguished between monosyndetic and bisyndetic coordination.

References

- Ando, T. (2001) Chukyu-reberu no sakubun ni mirareru heiritsu-joshi 'ya' no mondaiten [Problems on *ya* that appears in compositions of intermediate-level] *Nihongokyouiku*, 108, 42-50.
- Haspelmath, M. (2004) Coordinating constructions: An overview, In M. Haspelmath (Ed.) *Coordinating constructions*. Amsterdam / Philadelphia: John Benjamins.
- Kubota, Y. (2015) Nonconstituent coordination in Japanese as constituent coordination: An analysis in hybrid type-logical categorial grammar. *Linguistic Inquiry*, 46(1), 1-42.
- Morita, H. (2018) Comparison of Japanese and Korean nominal coordination structures. *Aichi kenritsu digaku daigakuin kokusai-bunka-kenkyuka ronshu*, 19, 21-55.
- Nakamata, N. (2015) *Nihongo-heiretsu-hyougen no Taikei* [System of parallel coordination in Japanese language]. Tokyo: Hitsuji Syobou.
- Oda, M. (2015) *Jitsurei-shoukai Koten-bumpou-souran* [Overview of classical grammar: detailed examples]. Osaka: Izumi Shoin.
- Otori, T. (2004) Coordination in Mentalese, In M. Haspelmath (Ed.) *Coordinating constructions*. Amsterdam / Philadelphia: John Benjamins.
- Teramura, H. (1991) *Nihongo no Shintakusu to Imi* [Syntax and meaning of Japanese]. Tokyo: Kuroshio Shuppan.

Database

Kokuritsu Kokugo Kenkyuujo. (2011). Corpus Kensaku Application Chuunagon. <https://chunagon.ninjal.ac.jp>

Acknowledgements

This paper is based on presentations made at the Universal Dependencies Meeting on June 16, 2019 at Kyoto

Tersa and made at Kanto Nihongo Danwakai on July 14, 2019 at Gakushuin Women's University. I want to thank Dr. Asahara Masayuki (NINJAL) for his suggestion about making a presentation. This suggestion rebooted my study on coordination after a ten-year break. I also want to thank Dr. Kanayama Hiroshi (IBM) for encouraging me to compose an English paper. I am also grateful to those who gave me insightful comments at each meeting.