Deriving the Cartography of the Japanese Right Periphery: The Case of Sentence-Final Discourse Particles[1]

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Abstract: The cartographic structure of the Japanese right periphery has been investigated extensively over recent years. (See, for example, Inoue 2007, Ueda 2007, Saito 2009, Endo 2010, and the references cited there.) This paper examines the distributions of the sentence-final discourse particles and presents an account in terms of their lexical properties. We argue, following Endo (2010), that the particles, *wa*, *yo*, *ne* and *na*, indeed instantiate a cartographic structure in the right periphery. Then, we examine the lexical properties of each of those particles, and show that they explain the observed hierarchy. More specifically, we argue that the selectional requirement of *wa* and the specific speech acts the four particles are associated with yield the hierarchy *wa* < *yo* < *ne*/*na*. This conclusion implies that the cartographic structure of the Japanese sentence-final discourse particles can be considered a consequence of the Merge operation that reflects the lexical properties of those particles.

Keywords*: cartography, sentence-final particles, selectional requirement, speech act, Merge.*

Resumen: La estructura cartográfica de la periferia oracional derecha del japonés ha sido objeto de amplias investigaciones a lo largo de los últimos años (ver, por ejemplo, Inoue 2007, Ueda 2007, Saito 2009, Endo 2010, y las

referencias allí citadas). Este artículo examina la distribución de las partículas discursivas en posición final de la oración y presenta una explicación que atiende a sus propiedades léxicas. Argüimos, en la línea de Endo (2010), que las partículas *wa*, *yo*, *ne* y *na* generan en sí una estructura cartográfica en la periferia oracional derecha. Procedemos seguidamente a examinar las propiedades léxicas de cada una de estas partículas, y demostramos que ilustran la jerarquía mencionada. En particular, argüimos que el requisito de selección para *wa* y para los actos de habla específicos con los que se vincula a las cuatro partículas producen la jerarquía *wa < yo < ne/na*. Esta conclusión implica que la estructura cartográfica de las partículas discursivas en posición final en la oración en japonés puede considerarse una consecuencia de la operación de Ensamble (Merge) que refleja las propiedades léxicas de dichas partículas.

Palabras clave: *cartografía, partículas en posición final de oración, requisito de selección, acto de habla, Ensamble.*

*Resumo***:** Nos últimos anos, a estrutura cartográfica da periferia direita em japonês tem sido amplamente investigada. (Veja-se, por exemplo, Inoue 2007, Ueda 2007, Saito 2009, Endo 2010, e as referências aí citadas). Este artigo analisa a distribuição das partículas discursivas em final frase e apresenta uma proposta considerando as suas propriedades lexicais. Argumentamos, seguindo Endo (2010), que as partículas *wa*, *yo*, *ne* e *na* instanciam uma estrutura cartográfica na periferia direita. Neste sentido, observamos as propriedades lexicais de cada uma destas partículas e mostramos que eles explicam a hierarquia observada. Mais especificamente, argumentamos que a necessidade de seleção de *wa* e os atos de fala específicos associados a estas quatro partículas geram a hierarquia *wa < yo < ne/na*. Esta conclusão implica que a estrutura cartográfica das partículas discursivas em final de frase do japonês pode ser considerada como uma consequência da operação Compor (Merge), que reflete as propriedades lexicais destas partículas.

Palavras-chave: *cartografia, partículas em final de frase, necessidade de seleção, ato de fala, Compor.*

1. Introduction

The cartographic structure of the Japanese right periphery has been investigated extensively over the recent years. (See, for example, Inoue 2007, Ueda 2007, Saito 2009, Endo 2010, and the references cited there.) The purpose of this paper is to examine the distributions of the sentence-final discourse particles and to present an account in terms of their lexical properties. This is part of our larger project to derive the cartographic structures in the Japanese right periphery from interpretive compatibility as well as semantic and morphological selection.

Typical examples of the sentence-final discourse particles are shown in (1):

(1)   a.   Hanako-wa   soko-ni   i-ru   wa
            Hanako-TOP   there-at   be-PRES   *wa*
            'Hanako is there.'

       b.   Hanako-wa   soko-ni   i-ru   yo
            Hanako-TOP   there-at   be-PRES   *yo*
            'Hanako is there.'

       c.   Hanako-ga   soko-ni   i-ru   ne
            Hanako-NOM   there-at   be-PRES   *ne*
            'Hanako is there, isn't she?'

The discourse roles of these particles are discussed in some detail in Endo (2010). *Wa* typically appears in women's speech, and expresses a 'mild assertion'. *Yo* is also employed for assertion, and as noted in Tenny (2006), can be best translated as 'I am telling you that …'. *Ne*, on the other hand, indicates a request for response from the hearer. We will deal with these and *na*, as Endo (2010) presents an analysis for those four particles and we believe that it suffices to establish our conclusion.

The particles in (1) can co-occur as (2) shows.

(2)   Hanako-wa   soko-ni   i-ru   (wa) (yo) (ne)
       Hanako-TOP   there-at   be-PRES   *wa*   *yo*   *ne*
       'Hanako is there, isn't she?'

Further, as Endo (2010) notes, when any two appear, they must be in the order indicated in (2). This suggests that the particles are in a hierarchical relation. We follow him and assume that (2) instantiates a cartographic structure of sentence-final particles in the right periphery. We argue, in addition, that the structure can be derived from the lexical properties of those particles.

In the following section, we briefly go over the analysis of Japanese complementizers in Saito (2009). This is to illustrate our general approach and to introduce some assumptions that are used in later sections. In Section 3, we discuss Endo's (2010) analysis of the sentence-final particles. We argue for some of his proposals but also point out that some adjustments are required in the analysis. Finally, in Section 4, we discuss the lexical properties of the sentence-final particles and show that their cartographic structure follows, at least to a large extent, from those properties.

2. The Distributions and the Interpretations of Complementizers

There are three complementizers, *to*, *ka* and *no*, in Japanese, as shown in (3).

(3) a. Taroo-wa   [CP Hanako-ga   Ziroo-ni   atta to] omottei-ru
Taroo-TOP   Hanako-NOM Ziroo-DAT met *to*   think-PRES
'Taroo thinks that Hanako met Ziroo.'

b. Taroo-wa   [CP Hanako-ga   dare-ni   atta ka] tazune-ta
Taroo-TOP   Hanako-NOM   who-DAT met *ka* inquire-PAST
'Taroo asked who Hanako met.'

c. Taroo-wa   [CP Ziroo-ni   atta no]-o   kookaisitei-ru
Taroo-TOP   Ziroo-DAT   met *no*-ACC   regret-PRES
'Taroo regrets that he met Ziroo.'

Further, they can co-occur in a single embedded clause as in (4).

(4)   Taroo-wa [CP kare-no   imooto-ga   soko-ni   i-ta   (no) ka (to)] minna-ni
Taroo-TOP   he-GEN   sister-NOM   there-at   be-PAST   *no   ka   to* all-DAT

tazune-ta
inquire-PAST
'Taroo asked everyone *if* his sister was there.'

It is argued in Saito (2009) that (4) instantiates the cartographic structure in (5).

(5)   [CP … [CP … [CP … Finite (*no*)] Force (*ka*)] Report (*to*)]

In this section, we discuss how this structure is derived from the lexical properties of the complementizers.

It is necessary for this purpose to discuss the semantic role of each complementizer. *To* is widely assumed to be a complementizer for propositional complements as it heads the CP complements of typical bridge verbs such as *omow* 'think' and *iw* 'say'. However, Saito (2009) argues that it is instead a complementizer for paraphrases or reports of direct discourse, in the sense of Plann (1982) and Lahiri (1991).[2] The main evidence for this is that *to* takes various types of sentences as a complement. *To* embeds a question in (6a) and an expression of request in (6b).

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[2] *To* is ambiguous between a marker of direct quotation and a complementizer. It follows a direct quotation in (ia).

(i) a.   Hanako-ga,   "Watasi-wa tensai da,"   to it-ta   /omot-ta   (koto)
Hanako-NOM   I-TOP   genius is   *to* say-PAST /think-PAST   fact
'(the fact that) Hanako said/thought, "I'm a genius." '

b.   Hanako-ga   [CP zibun-ga   tensai   da to] it-ta   /omot-ta   (koto)
Hanako-NOM   self-NOM   genius is   *to* say-PAST /think-PAST   fact
'(the fact that) Hanako said/thought that she is a genius'

The embedded clause in (ib), on the other hand, must be indirect discourse, as the matrix subject *Hanako* binds the reflexive *zibun*. Here, we are concerned with the *to* that appears with indirect discourse.

(6)   a.   Taroo-wa   Ziroo-ni   [CP Hanako-ga   kare-no   ie-ni   ku-ru   <u>ka</u> <u>to</u>]
             Taroo-TOP   Ziroo-DAT   Hanako-NOM   he-GEN   house-to   come-PRES *ka*   *to*

             tazune-ta
             inquire-PAST
             '*Lit.* Taroo asked Ziroo *that if* Hanako is coming to his house.'

       b.   Taroo-wa   [CP zibun-no   uti-ni   kite   kure   <u>to</u>] Ziroo-ni   it-ta
             Taroo-TOP   self-GEN   home-to   come   for.me   *to*   Ziroo-DAT   say-PAST
             '*Lit.* Taroo said to Ziroo *that* please come to self's house.'

(7a-b), adapted from Matsumoto (2010), show that imperatives and expressions of invitation can be embedded under *to* as well.

(7)   a.   Hanako-wa   Taroo-ni   [kanozyo-no   ie-ni   i-ro   <u>to</u>]   meizi-ta
             Hanako-TOP   Taroo-DAT   she-GEN   house-at   be-IMP   *to*   order-PAST
             '*Lit.* Hanako ordered Taroo that be at her house.'

       b.   Hanako-wa   Taroo-o   [kanozyo-no   ie-ni   ik-oo   <u>to</u>]   sasot-ta
             Hanako-TOP   Taroo-ACC   she-GEN   house-to   go-let's   *to*   invite-PAST
             '*Lit.* Hanako invited Taroo that let's go to her house.'

Plann (1982) points out that the Spanish complementizer *que* can take interrogative clauses as complements and argues that it embeds paraphrases of direct discourse in this case.[3] This is confirmed by the fact that *que* can embed questions only when the matrix verb is a verb of saying or thinking, that is, a verb that is compatible with direct quotation. What Saito (2009) argues is that the Japanese *to* is specialized for this function. (8) shows a list of verbs that take *to*-headed CP complements.

(8)   *omo-u* 'think', *kangae-ru* 'consider', *sinzi-ru* 'believe', *i-u* 'say', *sakeb-u* 'scream', *syutyoosu-ru* 'claim, insist', *tazune-ru* 'inquire', *kik-u* 'ask', *kitaisu-ru* 'expect, hope', *kanzi-ru* 'feel', *kakuninsu-ru* 'confirm'

These are in fact all verbs of saying and thinking. Then, what would be the complementizer for propositional complements? Saito (2009) argues that *no* is employed for this purpose. (9) is a list of matrix verbs that embed *no*-headed CPs.

(9)   *wasure-ru* 'forget', *kookaisu-ru* 'regret', *mi-ru* 'see', *mat-u* 'wait', *tamera-u* 'hesitate', *kyohisu-ru* 'refuse', *ukeire-ru* 'accept', *kitaisu-ru* 'expect, hope', *kanzi-ru* 'feel', *kakuninsu-ru* 'confirm'

These verbs take complements that represent events, states or actions. For example, what one regrets is a past event or a past/present state. What one

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[3] Thus, *que* shares the distribution of *to* in (6a). Rivero (1994) presents examples where *que* takes imperative complements in support of Plann's analysis. (7a) shows that *to* is similar to *que* in this respect as well.

waits for is a future event or state. And what one hesitates to do is to perform an action. Thus, *no* seems to be the complementizer for propositions.

We have seen that *to* is specialized for paraphrases of direct discourse. We follow Lahiri (1991) and call it 'Report'. *Ka* is the complementizer for questions, and hence, is plausibly a Force head. Then, what is *no*? Hiraiwa and Ishihara (2002) argue that it is a Finite head. Here, we present Matsumoto's (2010) observation on the distribution of *no* as supporting evidence for this analysis.

Matsumoto notes first that a sentence can be headed by a T or by a modal that does not inflect for tense. The modal *daroo* 'will, I guess' in (10), for example, does not carry tense itself and takes a TP complement.

(10) a. Taroo-wa soko-ni i-ru   daroo
          Taroo-TOP there-at be-PRES will
          'I guess Taroo is there.'

      b. Taroo-wa soko-ni i-ta   daroo
          Taroo-TOP there-at be-PAST will
          'I guess Taroo was there.'

Then, she observes that the complementizers *ka* and *to*, but not *no*, can take a ModalP as a complement. ModalPs are embedded under *ka* and *to* in (11a) and (11b) respectively.

(11) a. Ame-ga   hur-u   daroo <u>ka</u>
          rain-NOM fall-PRES will   *ka*
          'Will it rain?'

      b. Taroo-wa [ame-ga   hur-u   daroo <u>to</u>] omot-ta
          Taroo-TOP rain-NOM fall-PRES will   *to* think-PAST
          'Taroo thought that it would rain.'

(12), on the other hand, shows that *no* does not embed a ModalP but selects specifically for a TP.

(12) Taroo-wa [ame-ga   hur-u   (*daroo) <u>no</u>]-o kitaisi-ta
      Taroo-TOP rain-NOM fall-PRES   will   *no*-ACC expect-PAST
      'Taroo hoped that it would be raining.'

Matsumoto points out that this is expected if *no* is Finite, because Finite by definition is closely related to T.[4]

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    [4] As Richard Kayne points out, the precise nature of this selectional relation requires further investigation. We tentatively assume that it is morphological as *no* is suffixed to a tensed predicate.

The discussion so far suggests that (4), repeated in (13), instantiates the cartographic structure in (14).

(13)   Taroo-wa [CP kare-no   imooto-ga   soko-ni   i-ta   (no) ka (to)] minna-ni
        Taroo-TOP   he-GEN   sister-NOM   there-at   be-PAST   *no ka to*   all-DAT

        tazune-ta
        inquire-PAST
        'Taroo asked everyone *if* his sister was there.'

(14)   [CP … [CP … [CP … Finite (*no*)] Force (*ka*)] Report (*to*)]

The example in (13) shows that the complementizer sequences in (15a) are possible.

(15)   a. *no-ka, ka-to, no-ka-to*
        b. **to-no, *ka-no, *to-ka, *to-ka-no, *to-no-ka, *ka-to-no, *ka-no-to, *no-to-ka*
        c. **no-to*

This follows from the hierarchical structure in (14). Further, (14) predicts that *no* is never preceded and *to* is never followed by another complementizer. The prediction is borne out as the sequences in (15b) are not attested. At the same time, however, there is one sequence, namely *no-to*, that is allowed by the hierarchy in (14) but is illicit. Thus, (16) is totally out.

(16)   *Taroo-wa [CP kare-no   imooto-ga   soko-ni   i-ru   no to] kitaisi-ta
         Taroo-TOP   he-GEN   sister-NOM   there-at   be-PRES   *no to*   expect-PAST
         'Taroo expected his sister to be there.'

Given this state of affairs, it is desirable to provide an account for the hierarchy in (14) that explains the illicitness of the *no-to* sequence at the same time. Saito (2009) suggests that this is indeed possible when the semantic roles of the complementizers are considered. Note first that a TP (or a ModalP) can stand for a number of things, including a proposition and a paraphrase of direct discourse. The discussion above has shown that *no*, being a complementizer for propositions, merges with a TP and creates a CP that expresses a proposition. The question complementizer *ka*, on the other hand, merges with a syntactic object that stands for a proposition and forms a CP that expresses a question. This must be so since a question is formed out of a proposition. Finally, *to* indicates that its complement is to be construed as a paraphrase of direct discourse. Then, the lexical properties of the three complementizers can be summarized as in (17).

(17)   a. *No* merges with a TP and forms a CP that expresses the proposition the TP stands for.

        b. *Ka* merges with an XP that stands for a proposition and forms a CP that expresses a question.

c. *To* merges with an XP and forms a CP that indicates that the XP is to be construed as a paraphrase of direct discourse.

These lexical properties of the complementizers predict that the sequences in (15a) are possible. As *no* creates a CP that expresses a proposition, *ka* should be able to take a *no*-headed CP as a complement, in addition to a TP and a ModalP. *To* merges with an XP that stands for a paraphrase of direct discourse. As direct discourse can be a question, *to* should be able to merge with a *ka*-headed CP that paraphrases the question. Similarly, the sequences in (15b) are predicted to be illicit. *No* merges with a TP that stands for a proposition, and neither a *ka*-headed CP nor a *to*-headed CP satisfies this condition. *Ka* merges with a syntactic object that stands for a proposition, and a *to*-headed CP does not meet this qualification. Hence, the sequences in (15b) are all ruled out. Finally, the *no-to* sequence in (15c) is also predicted to be illicit. *To* merges with an XP that stands for a paraphrase of direct discourse but a *no*-headed CP expresses a proposition.[5]

Thus, (17) not only derives the hierarchy in (14) but also accounts for the exception, the illicitness of *no-to*. In the subsequent sections, we suggest that a similar account can be given for the distributions of sentence-final particles.

3. On the Nature of Sentence-Final Particles

As noted at the outset of this paper, Endo (2010) provides a detailed description of sentence-final particles in Japanese and shows that their distributions are hierarchically organized. He goes on to present an analysis based on Cinque's (1999) hierarchy of adverbs shown in (18).

(18) [frankly [Mod$_{speechact}$ [fortunately [Mod$_{evaluative}$ [allegedly [Mod$_{evidential}$ [probably [Mod$_{epistemic}$ [Once [T …]]]]]]]]]]

More specifically, he proposes that the particles *wa, na, yo* and *ne* are epistemic, evidential, evaluative and speech-act heads respectively, and are hierarchically distributed according to Cinque's hierarchy as in (19).[6]

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[5] It is to be seen whether and how this rather intuitive account can be made more formal and explicit. A specific task to be undertaken is to examine whether the formal analysis of 'paraphrases of direct discourse' in Lahiri (1991) can be applied here. We thank Gennaro Chierchia for helpful discussion on this point.

[6] He further proposes that some particles, including *yo* and *ne*, move to Force.

(19)   Epistemic (*wa*) < Evidential (*na*) < Evaluative (*yo*) < Speech-Act (*ne*)

In this section, we briefly discuss Endo's analysis and argue that these sentence-final particles are discourse particles whose distributions are confined to matrix clauses.

Endo discusses the particles one by one and presents evidence for his analysis. The meaning of *wa* is characterized as 'I mildly insist that …'. He notes that it is incompatible with epistemic modals such as *daroo* 'will, I guess', as shown in (20).[7]

(20)   Hanako-wa   ku-ru   daroo (*wa)
        Hanako-TOP   come-PRES will   *wa*
        'Hanako will come.'

This, Endo argues, is explained if *wa* and epistemic modals compete for the same position, namely the epistemic head position. *Yo* is employed for assertion, and as Tenny (2006) notes, is best translated as 'I am telling you that …'. Endo classifies it as an evaluative head.

Na and *ne* are similar in function, but Endo makes an important observation that only the former is appropriate when talking to oneself. The contrast can be seen in the following pair:

(21)   a. Dekake-ta   na
            go.out-PAST   *na*
            'It looks like he/she/they went out.'

        b. Dekake-ta   ne
            go.out-PAST   *ne*
            'You/he/she/they went out, didn't you/he/she/they?'

Suppose that Taroo enters his apartment and finds that his roommates are gone. Then, he can appropriately utter (21a) even when he is alone. On the other hand, (21b) would be employed as an utterance addressed to a third party or to his roommates when they come back. As (21b) requests a response from the addressee, Endo considers *ne* a speech-act head. On the other hand, *na* is

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[7] Here, modals are assumed to be those predicates that express modal meanings and do not inflect for tense. Adjectives, for example, are compatible with *wa* even when they express modal meanings. In (i), the adjective *kamosirena-i* 'may' contains the adjectival present tense suffix *-i*.

(i)   Hanako-wa   ku-ru   kamosirena-i (wa)
        Hanako-TOP   come-PRES may-PRES   *wa*
        'Hanako may come.'

typically used when circumstantial evidence is provided. For example, one would utter (22) with the sound of a fire engine.

(22)   Kazi   da na
     fire   is *na*
     'It looks like there is a fire.'

Based on this, Endo classifies *na* as an evidential head.

Endo's description seems more or less accurate. A sentence with *wa* is construed as a (mild) assertion, and *yo* is best translated as 'I'm telling you that …'. *Ne* has the function of soliciting a response from the addressee and is inappropriate when talking to oneself. The response can be a confirmation or simply an answer when the particle is attached to a question as in (23a).

(23)   a.   Hanako-wa ku-ru   ka ne
        Hanako-TOP come-PRES *ka ne*
        'Is Hanako coming? What do you think?'

     b.   Hanako-wa ku-ru   ka na
        Hanako-TOP come-PRES *ka na*
        'Is Hanako coming? What do we/I think?'

The difference between *na* and *ne* is subtle. As Endo observed, *na*, unlike *ne*, can be employed when talking to oneself. Thus, (23b) is appropriate in this context. On the other hand, it is not clear that *na* and *ne* are distinguished with respect to the presence/absence of evidence. It is true that the speaker, say John, is likely to seek evidence either way when he addresses the question in (23b) to himself. But this is probably only because he tries to answer the question himself. In fact, (22) is appropriate with *ne* instead of *na* in the same context as long as the utterance is addressed to someone other than the speaker. We hence assume that *na* solicits a response just like *ne*, but with this particle, the speech act is addressed to both the speaker and the hearer. In the context of talking to oneself, the speaker and the hearer are the same person. Then, *ne* can be paraphrased as 'what do you think?' and *na* as 'what do we think?'

Endo's claim that the sentence-final particles are in a hierarchical relation is also well taken. Thus, (24a) is perfect while (24b) is totally out.

(24)   a.   Hanako-ga   ki-ta   wa yo
        Hanako-NOM come-PAST   *wa yo*
        'I am telling you that Hanako came.'

     b.   *Hanako-ga ki-ta   yo   wa
        Hanako-NOM come-PAST   *yo   wa*

At the same time, it is dubious that those particles are heads in Cinque's hierarchy. In the remainder of this section, we argue that they are genuine discourse particles and that their distributions are confined to matrix contexts.

First, as noted in Haraguchi (2012), they are not allowed in *to*-headed CPs, the largest embedded CPs according to the analysis in the preceding section. This is shown in (25).

(25) a. Hanako-wa [Taroo-wa kanozyo-no ie-ni   i-ru   (*wa) to] omot-ta
        Hanako-TOP Taroo-TOP she-GEN   house-at be-PRES   *wa *to* think-PAST
        'Hanako thought that Taroo is at her house.'

      b. Hanako-wa [Taroo-wa kanozyo-o   tasukete kure-ru   (*yo) to] kitaisi-ta
        Hanako-TOP Taroo-TOP she-ACC   help   (for her)-PRES *yo *to* expect-PAST
        'Hanako expected Taroo to help her.'

This is unexpected under Endo's analysis. As was shown in the preceding section, imperatives and questions, which are arguably ForcePs, can be embedded under *to*. A couple of relevant examples are repeated in (26).

(26) a. Hanako-wa   Taroo-ni [kanozyo-no ie-ni   i-ro   to] meizi-ta
        Hanako-TOP Taroo-DAT she-GEN   house-at be-IMP *to* order-PAST
        '*Lit.* Hanako ordered Taroo that be at her house.'

      b. Hanako-wa   Taroo-ni [kanozyo-no ie-ni   ku-ru   ka to] tazune-ta
        Hanako-TOP Taroo-DAT she-GEN   house-at come-PRES *ka to* ask-PAST
        '*Lit.* Hanako asked Taroo that whether he is coming to her house.'

Further, the adverbs in Cinque's hierarchy can freely appear in *to*-headed CPs. Examples with epistemic and evaluative adverbs are shown in (27).

(27) a. Hanako-wa   [tabun   Taroo-ga   kanozyo-no ie-ni   ko-na-i   to]
        Hanako-TOP   probably Taroo-NOM she-GEN   house-to come-not-PRES *to*
        omottei-ru
        think-PRES
        'Hanako thinks that Taroo will probably not come to her house.'

      b. Hanako-wa [zannen-na koto-ni Taroo-ga   kanozyo-no ie-ni
        Hanako-TOP unfortunately   Taroo-NOM she-GEN   house-to
        ko-na-i   to] omottei-ru
        come-not-PRES *to* think-PRES
        'Hanako thinks that unfortunately Taroo will not come to her house.'

It seems clear then that the sentence-final particles are discourse particles that are confined to matrix contexts. If we do not appeal to Cinque's hierarchy to account for their hierarchical relation, it remains to be seen why those particles appear in a certain order as exemplified by (2), repeated below as (28).

(28) Hanako-wa   soko-ni i-ru   (wa) (yo) (ne)
      Hanako-TOP   there-at be-PRES *wa*   *yo*   *ne*
      'Hanako is there, isn't she?'

In the following section, we refine Endo's description of the particles and examine the sources of this hierarchy.

4. On the Sources of Endo's (2010) Hierarchy

First, *wa* never follows another sentence-final particle and is distinguished from the other particles in this respect. It thus occupies the lowest position in Endo's hierarchy. Further, as he observes, it does not follow epistemic modals. In fact, its distribution seems to be quite restricted. It appears in a position immediately following a tensed predicate whether the predicate is a verb or an adjective. This is illustrated in (29).

(29) a. Watasi-wa   soko-ni ik-u   wa / it-ta   wa
          I-TOP   there-to go-PRES *wa*   go-PAST   *wa*
          'I will go there. / I went there.'

      b. Taroo-wa yasasi-i   wa / yasasi-katta wa
          Taroo-TOP kind-PRES *wa*   kind-PAST   *wa*
          'Taroo is kind. / Taroo was kind.'

But it does not appear in any other context. It does not follow imperatives or expressions of invitation, for example, as shown in (30).

(30) a. Taroo-wa soko-ni ik-e   (*wa)
          Taroo-TOP there-to go-IMP   *wa*
          'Taroo, go there.'

      b. Taroo-wa soko-ni ik-oo   (*wa)
          Taroo-TOP there-to go-let's *wa*
          'Taroo, let's go there.'

Thus, *wa*, like the complementizer *no*, selects for a TP.[8]

The fact that *wa* cannot be preceded by another sentence-final particle, then, follows from its selectional property. A bare TP can be employed for various speech acts, including assertion. The role of *wa* is to restrict the speech act to assertion. We assume that it takes a TP complement and heads a speech-act phrase, following Tenny (2006).

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[8] The modal *daroo* 'will, I guess' shares this selectional property as well. We assume that *wa*, *no* and *daroo* are all suffixes and they attach to tense. See Fn. 4 for a related discussion.

The other sentence-final particles, *yo*, *ne* and *na*, in contrast, do not exhibit a selectional property of this kind. They can follow clauses of any type. Examples with *yo* are shown in (31)-(33).

(31) a. Taroo-wa soko-ni i-ta   yo
          Taroo-TOP there-at be-PAST *yo*
          'Taroo was there.'

     b. Taroo-wa   yasasi-katta yo
          Taroo-TOP kind-PAST   *yo*
          'Taroo was kind.'

     c. Taroo-wa soko-ni i-ta   daroo yo
          Taroo-TOP there-at be-PAST will   *yo*
          'I guess Taroo was there.'

(32) a. Taroo-wa soko-ni ik-e   yo
          Taroo-TOP there-to go-IMP *yo*
          'Taroo, go there.'

     b. Soko-ni ik-oo   yo
          there-to go-INV *yo*
          'Let's go there.'

(33) a. Hanako-wa   soko-ni i-ru   no yo
          Hanako-TOP   there-at be-PRES *no yo*
          'Hanako is there.'

     b. Hanako-wa   soko-ni i-ru   wa yo
          Hanako-TOP   there-at be-PRES *wa   yo*
          'Hanako is there.'

Yo follows a tensed verb, a tensed adjective and a modal in (31), an imperative and an expression of invitation in (32), and the complementizer *no* and the particle *wa* in (33). As it can follow *wa*, it can merge with a speech-act phrase. It conveys strong assertion and as noted above, can be paraphrased as 'I am telling you'.

The examples in (34) confirm that *yo* does not enter into a selectional relation with its complement.

(34) a. [CP Dare-ga   soko-ni ik-u   ka] yo
              who-NOM   there-to go-PRES *ka   yo*
          'Who will go there = No one will go there.'

     b. [CP Taroo-ni   nani-ga   deki-ru   ka] yo
              Taroo-DAT what-NOM   can do-PRES *ka   yo*
          'What can Taroo do = Taroo can't do anything.'

In these examples, *yo* follows question CPs. A question can be employed for the speech act of assertion when it is interpreted as a rhetorical question. The questions in (34) not only can be but must be interpreted as rhetorical questions.

The reason that they cannot be interpreted as regular questions seems straightforward. It simply does not make sense to assert a question. There is no way to interpret the following properly if the second sentence is construed as a real question:

(35)   I'm telling you! Who will go there?

What is interesting is the fact that the CPs in (34) can be interpreted as rhetorical questions. Note first that speech act has no role in typical cases of selectional relations. As shown in (36), *kitais* 'expect' selects for a proposition while *tazune* 'inquire' selects for a question.

(36)   a. Taroo-wa [CP Hanako-ga   soko-ni ik-u   no]-o   kitaisi-ta
            Taroo-TOP   Hanako-NOM there-to go-PRES *no*-ACC expect-PAST
            'Taroo expected that Hanako would go there.'

        b. Taroo-wa [CP dare-ga   soko-ni ik-u   ka] tazune-ta
            Taroo-TOP   who-NOM there-to go-PRES *ka* inquire-PAST
            'Taroo asked who would go there.'

The embedded CP in (36b) can be interpreted as a rhetorical question when it occurs in isolation. Yet, it cannot receive this interpretation in (36b) as the matrix verb selects for a question. Further, this CP cannot be embedded under *kitais* although the sentence 'Taroo expected that no one would go there' makes perfect sense.

(37)   *Taroo-wa   [CP dare-ga   soko-ni ik-u   ka] kitaisi-ta
             Taroo-TOP   who-NOM there-to go-PRES *ka* expect-PAST
            'Taroo expected that no one would go there.' (intended interpretation)

This shows that the compositional semantics of (36) is based on the literal meanings of the embedded CPs. *Kitais* selects for a proposition and hence, selects for a CP headed by *no*. It does not matter what speech act the embedded CP can be employed for in isolation.

In contrast, (34) indicates that the speech act of the CP enters into the compositional calculation of the interpretation when the CP is followed by *yo*. This implies that *yo* is indeed a speech act particle that receives interpretation at the discourse level, and that it does not select its complement. We present additional evidence for this, but let us turn first to the particles *ne* and *na*.

These particles are similar to *yo* in distribution. Let us take *ne* for illustration. It can follow a modal and the complementizer *no*, as shown in (38).

(38) a. Hanako-wa   soko-ni i-ru   (daroo) ne
          Hanako-TOP   there-at be-PRES   will   *ne*
          'I guess Hanako is there. Don't you agree?'

      b. Hanako-wa   soko-ni i-ta   (no) ne
          Hanako-TOP   there-at be-PAST   *no   ne*
          'Hanako was there, wasn't she?'

It can also follow questions and expressions of invitation as in (39).

(39) a. Taroo-wa yasasi-i   ka ne
          Taroo-TOP kind-PRES *ka ne*
          'Is Taroo kind? What do you think?'

      b. Soko-ni ik-oo   ne
          there-to go-let's   *ne*
          'Let's go there. Shall we?'

And finally, (40) shows that it can follow other sentence-final particles.

(40) a. Hanako-wa   soko-ni i-ru   (no) (yo) ne
          Hanako-TOP   there-at be-PRES   *no   yo   ne*
          'Hanako is there, isn't she?'

      b. Hanako-wa   soko-ni i-ta   (wa)(yo) ne
          Hanako-TOP   there-at be-PAST   *wa   yo   ne*
          'Hanako was there, wasn't she?'

As discussed above, *wa* and *yo* create expressions with the speech act of assertion. Since *ne* can embed them, it seems to be a genuine discourse particle, like *yo*, that yields compositional interpretation with the speech act of the complement clause. *Na* exhibits basically the same distribution as *ne*, and hence, should be analyzed in the same way.[9] We thus arrive at the following conclusions:

(41) a. *Wa, yo, ne* and *na* are all discourse particles.
      b. *Wa* selects for a TP complement and forms a speech-act phrase.
      c. *Yo, ne* and *na* merge with speech-act phrases and have no selectional relations with their complements.

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[9] The particles and sequences of particles are often associated with specific registers. As mentioned above, *wa* is typically used in women's speech. *Na*, on the other hand, appears typically in men's speech although it loses this characteristic when it follows a question. Thus, the *wa-na* sequence sounds standard only in contexts where men could use *wa* naturally. Some sequences of particles are also idiosyncratically associated with certain registers. For example, *no-yo* is considered natural only in women's speech.

As Keiko Murasugi points out, there is an additional piece of evidence that *yo*, *ne* and *na* do not select their complements. That is, they can appear sentence-internally after any major constituent as shown in (42).[10]

(42) Hanako-ga   (ne/na/yo) soko-ni   (ne/na/yo) it-te   (ne/na/yo), ….
      Hanako-NOM *ne/na/yo* there-to *ne/na/yo* go-and *ne/na/yo*
      'Hanako went there, and …'

The interpretations of the particles are, roughly speaking, unchanged in this case. (42) can be translated as in (43) with a bit of exaggeration.

(43) It's Hanako, all right? And it's there, all right? She went there, all right? Then, …

This is not surprising if these particles do not select specific complements. On the other hand, *wa* is never used in this way. This is also expected since it selects for a TP.

With this background, we are now ready to reconsider the hierarchical relation of the particles. The sequences *wa-yo-ne* and *yo-na* are widely attested.[11]

(44) a. Hanako-wa   soko-ni i-ta   (wa)(yo) (ne)
          Hanako-TOP there-at be-PAST *wa yo   ne*
          'Hanako was there, wasn't she?'

      b. Hanako-wa   soko-ni   i-ta   (yo) (na)
          Hanako-TOP there-at be-PAST *yo   na*
          'Hanako was there, wasn't she?'

On the other hand, *wa* never follows another sentence-final particle, and *ne/na* cannot be followed by *yo*, as shown in (45).

(45) a. Hanako-wa   soko-ni i-ta   (*yo/ne/na) wa
          Hanako-TOP there-at be- PAST   *yo/ne/na wa*
          'Hanako was there, (wasn't she?)'

      b. Hanako-wa   soko-ni i-ta   (*ne/na) yo
          Hanako-TOP there-at be-PAST   *ne/na   yo*
          'Hanako was there, wasn't she?'

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[10] The use of each particle as in (42) is possible in specific registers. The most marked is *yo*. The register ranges from 'gangster talk' to men's talk in a certain casual style, depending on how *yo* is pronounced. In the former case, *yo* is pronounced with vowel lengthening and in the latter, it is pronounced with high pitch on the vowel.

[11] It seems that the sequence *wa-yo-na* never occurs. As mentioned, *wa* is typical of women's speech. *Wa-yo*, for some reason, is more extreme and is used exclusively in women's speech, as far as we know. Then, there is a conflict in register in *wa-yo-na* as *na* is employed in men's speech in this context. See Fn. 9 for relevant discussion.

Finally, *ne* and *na* cannot co-occur. Examples like (46) are ungrammatical regardless of the order between *ne* and *na*.

(46)   *Hanako-wa   soko-ni i-ta   ne na
         Hanako-TOP   there-at be-PAST *ne na*
        'Hanako was there, wasn't she?'

This shows that the particles are in the following hierarchical relation:

(47)   [[[[…] *wa*] *yo*] *ne/na*]

Since all of these particles head speech-act phrases, and *yo*, *ne* and *na* can merge with speech-act phrases, this hierarchy is expected to be possible. Further, as argued above, *wa* is lowest in the hierarchy because it selects for a TP and hence cannot be merged with a speech-act phrase. Then, there are two remaining questions. The first is why the order between *yo* and *ne/na* is fixed, and the second is why *ne* and *na* cannot co-occur. Let us consider them in turn.

Although it is difficult to present a precise account, it is intuitively clear why *yo* cannot follow *ne/na*. Recall that *yo* is a particle for assertion and is best paraphrased as 'I'm telling you that …'. *Ne/na*, on the other hand, has the function of soliciting a response. It makes perfect sense to make an assertion and then ask for a response, as in (48a).

(48)   a. I am telling you, "Hanako was there." What do you think?
        b. I am telling you, "Hanako was there. What do you think?"

On the other hand, it is to say the least strange to assert a solicitation for a response as in (48b). *Ne/na* roughly corresponds to a tag question in (45b), for example, and it is hard to imagine what it would mean to assert a tag question. Then, the fixed order between *yo* and *ne/na* seems to follow from the speech acts these particles yield. A similar informal explanation is possible for the incompatibility of *ne* and *na*. It was suggested above that they both have the function of soliciting a response. The solicitation is addressed to a person or a group that excludes the speaker in the case of *ne*, as this particle cannot be employed when talking to oneself. In contrast, it is addressed to the speaker or a group including the speaker in the case of *na*. Then, these particles must be mutually exclusive because the use of both results in a contradiction. The incompatibility of *ne* and *na* is thus also expected based on the speech acts they yield.

The hierarchy in (47) is quite rigid and hence, it shows that there is a cartographic structure of sentence-final particles in the Japanese right periphery. In this section, we examined the lexical properties of those particles and argued that the hierarchy reflects those properties. *Wa* selects for a TP, *yo* creates an assertion, and *ne/na* solicits a response.

5. Conclusion

In this paper, we examined the cartographic structure of the Japanese right periphery, and explored its sources. In Section 2, we discussed the complementizer system of the language and introduced the following structure proposed in Saito (2009):

(49)   [_CP_ … [_CP_ … [_CP_ … Finite (*no*)] Force (*ka*)] Report (*to*)]

Then, we showed that this hierarchy is expected given the lexical properties of the complementizers. In Sections 3 and 4, we considered sentence-final particles. In Section 3, we reviewed Endo's (2010) analysis and argued that they are genuine discourse particles that are confined to matrix contexts. Then, we arrived at the following cartographic structure in Section 4:

(50)   [[[[…] Assertion (*wa*)] Assertion (*yo*)] Soliciting Response (*ne/na*)]

We argued that the hierarchy is based on the lexical properties in this case as well.

Rich cartographic structures are observed in various languages. When the relevant heads host operators in their Spec positions, the scope relations among those operators may play a role in determining the hierarchical structure. On the other hand, when the heads stand alone, we expect them to merge into the structure in a certain order because of their lexical properties. This is the case with the phenomena in Japanese considered in this paper. The relevant lexical properties may be selectional requirements or simply the interpretations the heads yield. We explored these possibilities in the analysis of the Japanese right periphery. To the extent that it was successful, it showed that the cartographic structure of the Japanese right periphery can be derived in a way that is consistent with the theory of structure building, for example, Chomsky's (1994) bare phrase structure theory.

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