This e-book collects a number of contributions written in honour of Adriana Belletti. The contributors are some of Adriana’s colleagues and former students representative of a wider community, who have been part of CISCL’s inspiring community, either as students or visiting scholars.

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Children at around the age of two produce the main declarative in a non-finite form or Root Infinitives (RI) and Root Infinitive Analogues (RIAs). They are elegantly explained by Truncation Hypothesis (Rizzi 1993/1994), but there is apparently counter-evidence to the hypothesis. That is, very young children learning Japanese produce the sentence-ending discourse particles at the stage of RIAs.

In this paper, we focus on Japanese and argue that (i) discourse particles are not T/C-elements in both child and adult Japanese, and (ii) the descriptive findings of Japanese acquisition rather supports the Truncation Hypothesis.

To a friend far apart but close in heart
since our families met each others in Cambridge

1. Introduction
The Truncation Hypothesis proposed by Rizzi (1993/1994) suggests that languages may vary in terms what is optionally allows the root projections, and child grammar allows the choice of optionally truncated structures. CP is the root of all clauses in the
adult grammar, but children lack the specific knowledge that every well-formed clause is CP in adult grammar. Adults build their phrase structure all the way to CP because CP is the root of all clauses, while child phrase structures can only go partway up to CP. This hypothesis naturally explains why the children at around the age of two go through the Root Infinitive (analogue) (=RI(A)) stage, producing the main declarative either in infinitive (e.g., Dutch, German), bare verb (e.g., English, Swahili, Chinese), or surrogate non-finite form (e.g., Turkish, Japanese, Kuwaiti-Arabic), and why RIAs are incompatible with C/T-related items such as wh-elements, subject clitics, and auxiliaries.

However, it seems that there is a descriptive question it might raise. Does the Truncation Hypothesis imply that all the elements above TP are incompatible with the RI(A)s? In fact, in child Japanese, sentence-ending markers, which should reside outside TP, are typically produced in the natural production at around the age of two.

The sentence-ending marker, ne, for example, indicates that the speaker considers that the addressee shares the information and thoughts, is used when the speaker is seeking the hearer’s agreement just like “right?” or such a tag question as “isn’t it?”. Japanese-speaking children, even at the two-word stage, produce discourse markers such as ne to consolidate the already established relation of the speaker with the “addressee”.

In this short paper, we will first show the evidence that the sentence-ending discourse markers are typically produced by very young Japanese-speaking children at the RIA stage, and argue that the fact does not constitute counter-evidence to the Truncation Hypothesis.

2. Speech Act Elements

2.1. The Adult Grammar of Discourse Markers

The languages typologically very far apart may share common properties. West Flemish, a dialect of Dutch, and Japanese, for example, share an intriguing property regarding the sentence-discourse interface. Both languages have sentence-initial and sentence-ending “particles” which are used to establish discourse relations between the speaker and the hearer. They encode the speaker’s attitude with respect to the (content of the) speech act and/or with respect to the addressee. The discourse markers are optional in that an utterance remains grammatical even if they are removed, but their deletion results in a change in interpretation, and they can never appear in the embedded clauses. Discourse markers can only be attached to the edge of the utterances.

There are some restrictions that sentence-final discourse markers obey. According to Haegeman and Hill (2011), sentence-final discourse markers in West Flemish co-occur only in a specified order. When sentence-final discourse marker né and we co-occur, né must be to the right of we shown in (1a) and (1b).

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1 A matron at Yamazato daycare told the present writer that a Japanese-speaking toddler, Sachiko, would touch the matron’s shoulder smiling, turned toward her, and said “ne (long [e])” whenever she came near the girl. The matron’s report that she could not scold the girl whenever the girl did so suggests that the discourse marker “ne” successfully bonded the speaker (a toddler) and the hearer (a matron) in the adult way.
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(1) a. Men artikelis gedoan wè né.
   b. *Men artikel is gedoan wè né.  # My paper is finished. (Haegeman 2010)

When sentence-final discourse markers zè co-occurs with né or wè, né follows zè as shown in (2a,b) but wè precedes zè as in (3a,b).

(2) a. Men artikel is gedoan zè né.
   b. *Men artikel is gedoan né zè.

(3) a. Men artikel is gedoan wè zè.
   b. *Men artikel is gedoan zè wè. (Haegeman 2010)

West Flemish has just two positions for discourse markers. Though né can co-occur with zè as in (2a) and with wè as in (1a), and though wè can also co-occur with zè as in (3a), the three discourse markers cannot co-occur, regardless of the order, as we can see in (4).

(4) a. *Men artikel is gedoan wè zè né.
   b. Men artikel is gedoan wè zè né! (Haegeman 2010)

(4b) is acceptable because né is clearly set off from the preceding segment.

Sentence-final discourse markers in West Flemish are not clause typers, and they co-occur with clauses that are independently typed. Though some of them are insensitive to clause type, others are sensitive to the type of the sentence. For example, zè (and its variant ghè) co-occurs mainly with declaratives and with some imperatives. With regard to interrogatives, only rhetorical questions can co-occur with zhè/ghè.

The properties of Japanese discourse markers are very similar with those in West Flemish, although the sentence-ending particles in Japanese can be attached not only to the sentence, but also basically to any major syntactic categories. Japanese discourse markers encode the speaker’s attitude with respect to the (content of the) speech act and/or with respect to the addressee. It is optional in that an utterance remains grammatical even if it is removed although the deletion of the discourse markers results in a change in interpretation.

Murasugi and Kido (2011) argue that there are also restrictions that discourse markers in Japanese obey just as in West Flemish. The particles such as ne, na, and yo, among others, are pragmatic markers used to profile the speaker-hearer relationship in Japanese. The particles are involved in the licensing of vocatives. The initial vocative has an “appeal” or attention seeking function, aiming at establishing a discourse relation; the final vocative consolidates the already established relation of
the speaker with an “addressee”. Examples are shown below:

(5) a. Nee Nee Otoosan, torampu siyoo yo
    NE NE Daddy card do-Vocative Sentence-ending particle

    ‘Hey, Daddy, let’s play cards.’

    b. Kono kootya-wa oisii ne
    this tea -Top yummy-is NE

    ‘This tea is tasty, isn’t it?’

Just like West Flemish, the sentence-final particles display rigid ordering restrictions as shown in (6).

(6) a. Kobe-no pan-wa oisii yo ne/yo na.
    Kobe-Gen bread-Top tasty

    ‘Kobe’s bread is tasty.’

    b. *Kobe-no pan-wa oisii ne yo/na yo.

The sequences, yone and yona, are grammatical, but neyo or nayo are ungrammatical as shown in (6b). When sentence-final discourse markers yo and ne co-occur, ne must be to the right of yo.

Second, just like West Flemish, Japanese basically only has two positions for discourse markers. Though yo can co-occur with ne (7a) and with na (7b), the three discourse markers cannot co-occur, regardless of the order as we can see in (8):

(7) a. Taro-wa ringo-o taberu yo ne.
    Taro-Top apple-Acc eat

    b. Taro-wa ringo-o taberu yo na.
    Taro-Top apple-Acc eat

(8) *Taro-wa ringo-o taberu yo ne na.
    Taro-Top apple-Acc eat

    ‘Taro eats apples.’

(8) is only acceptable when na is clearly set off from the preceding segment.² Just

²Three sentence-final particles are allowed only when wa comes first.
like sentence-final discourse markers in West Flemish, Japanese sentence-final particles are basically not clause-typers either, and they co-occur with clauses that are independently typed. For example, yo co-occurs mainly with declaratives and imperatives.

These discourse markers do not seem to be part of the CP system. The property of the right periphery of Japanese parallels with that of left periphery in head-initial languages such as Italian (Rizzi 1997) in many respects (Saito 2009), and the discourse markers such as ne, na, and yo, all seem to reside outside the CP system. According to Saito (2009), to is the complementizer that heads a Report Phrase, which expresses paraphrases or reports of direct discourse in the sense of Plann (1982); ka is a head of Force Phrase (ForceP), for questions. And no is the complementizer that heads a Finite Phrase, for propositions. The structure is schematized below.

(9)  
\begin{enumerate}
\item [CP [CP... [CP... Finite (no)] Force (ka)] Report (to)]
\item [CP... [CP... [CP... [CP... Finite (no)] (Topic*)] Force (ka)] Report (to)]
\item [CP... [CP... [CP thematic topic [C'[CP [TP ...] Finite (no)] Topic]] Force (ka)] Report (to)]
\end{enumerate}

And the discourse markers ne, na, and yo follow ka, which is the sentence-typer.

(10)  
\begin{enumerate}
\item [Force[Fin[TP Taroo-wa unagi-o taberu] no ] ka] ne eel-Acc eat Finite Force Sentence-final particle
\quad 'I wonder whether or not Taro eats eels.'
\item [Force[Fin[TP Taroo-wa unagi-o taberu] no] ka] na
\item [Force[Fin[TP Taroo-wa unagi-o taberu] no] ka] yo
\end{enumerate}

ForceP is a sentence typer, and if the sentence is interrogative, ka appears in the head of ForceP. As (10a-c) indicate, sentence-final particles follow ka, and this shows that the discourse markers are above ForceP at least.

Haegeman and Hill (2011) proposes the Speech Act Shell Hypothesis for the phenomena, and argues that sentence-ending particles in West Flemish constitute the heads of the Speech Act Phrases. The analysis may apply to Japanese adult grammar as well, although we do not discuss it in detail here. Rather, in what follows, we argue that early acquisition of the sentence-ending particles, which should reside in the very
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top-most edge of the utterance, make an impact upon the issues regarding how children acquire the syntactic structure.

2.2. Sentence-ending Particles and RIAs in Child Japanese

It has been widely observed by a lot of researchers that Japanese-speaking children produce discourse particles at a very early stage of language acquisition. Shirai, Shirai and Furuta (1999), for example, based on the corpus analysis of four Japanese monolingual children's longitudinal data (CHILDES), find that the children begin to use sentence-final particles when their MLU (Mean Length of Utterances) is below 1;02. Even in the 1960s, Okubo (1967), for instance, has already found that sentence-ending particles such as yo, ne, and na, are first produced at 1;6, 1;7, and 1;8, respectively, by a child Y, and they are produced earlier than the Case particles. According to Okubo (1967), the child Y's ga, the nominative Case marker, for example, first appeared in the natural production at 1;9.

Nanzan Acquisition Project (e.g., Murasugi, Fuji and Hashimoto 2006, Murasugi and Fuji 2008, 2009, Murasugi, Nakatani and Fuji 2009, Murasugi and Kido 2011, among others) has found that the discourse particles appear in the natural production of children learning Japanese during the stage of the RIA stage.

Before the full conjugation of the verbs appears in the production, at around the age of late one, the discourse markers are observed. The examples in (11) indicate that the discourse markers follow the mimetic expression (11a), RIAs (11b and 11c), and an shortened verbal stem (11d).

(11) a. Pan bread naa (1;05)

'I want a piece of bread.'

b. Atti ita na (1;07) (volition) (talking to his mother, the addressee)

'to go-TA Sentence-final particle

'I want to go over there'

c. Sii si-ta naa (1;07) (adult : volition si-tai)

pee do-TA Sentence-final particle

'I want to pee.'

e. Rii na na (1;07)

go down Sentence-final particle

'I want to go down.'

Context: Sumihare is on his father's shoulder. (Murasugi and Fuji 2008)

The children at around the age of one to two years produce the main declarative either in bare mimetics/onomatopeia (English-type) or surrogate non-finite form (Verb-ta form, Turkish-type) as the RIAs. (Murasugi, Nakatani and Fuji 2009) The
RIAs given in (11a) through (11e), which are eventive and receive a modal interpretation, are associated with the sentence-ending marker that link the speaker and the hearer. Volitional modality in the early stages of acquisition is expressed by the -ta form or mimetics/onomatopoeia, sometimes associated with the sentence-final particle -na.

It is worth mentioning here that the discourse markers are pragmatically used in the adult way, while the verb forms per se are not. The observer (Noji) notes that it is around then that the social and communicative skills of the child becomes noticeable, and Sumihare, the child, in fact, appropriately distinguishes ne from na just like adults do: He employs na when he talks to himself, while he employs ne when he talks to the addressee who holds him, as the contrast between (12a) and (12b) indicates:

(12) a. Tyun mien naa (talking to himself) (1;09)
    the plane is-not-visible sentence-final particle
    ‘(I) cannot see the plane.’

b. Tyun mien ne (talking to father, the addressee who holds him) (1;09)
    the plane is-not-visible sentence-final particle
    ‘(I) cannot see the plane.’

c. …ne (1;07)
    Sentence-final particle
    ‘isn’t it?’ (Sumihare pronounces ne clearly.)

A sentence-final particle without the phonetically realized phrase is also often produced, as shown in (12c) and the footnote 1 in child Japanese. This is also possible in the adult Japanese in fact; it is used when the speaker wants to confirm the statement of his/hers to the addressee in the context where the addresser and the addressee both share the information expressed phonetically null.

Although discourse markers are productively used at the stage of RIAs. RIAs are incompatible with C/T-related items such as wh-element and Case markers. Children produce such sentence-ending discourse markers as ne and na earlier than CP elements. Okada and Grinstead (2003), for example, report that ne appears at 1;11, while C-related element such as no and te appear later in 2;02, and ka appears even later at 2;04, based on the corpus analysis of Aki (CHILDES).

As for Sumihare, the Japanese-speaking child we examined, the head of FiniteP first appear at around the time when nominative Case marker and some conjugation of the verbs come to be produced, much later than such discourse markers as na and ne.
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(13) a. Nenne ta noo (Sumihare, 1;10)
sleep Past NO

'(I) am sleeping with my daddy.'

b. Katai no (Sumihare, 1;10)
is-hard NO

'(This candy) is (very) hard.'

c. Katai yo zya no (talking to his mother, the addressee) (1;10)
hard is NO

'(It) is very hard and difficult to take.'

The data given above indicates that the end point of the sentence is marked by no. They appear only after 1;10, later than the stage where the discourse markers are produced. Furthermore, Sumihare produces such discourse markers as ne and na earlier than the head of ForceP ka, too. Sumihare starts producing ka at 2;03, much later than ne and na, and even after no. Interestingly enough, sequences of two discourse markers (or sentence-final particles) such as yo ne start to appear a bit before no does in the production. Observe examples in (14).

(14) a. Atui yo ne (Sumihare, 1:09)
hot YO NE

'It is hot, isn't it?'

b. Hairan yo ne (Sumiare, l;09)
doesn't fit YO NE

'(The feet) do not fit (in the socks).'

c. Oimo oiti yo ne (Sunmiare, 1;10)
potato delicious YO NE

'The potatoes (are) delicious, aren't they?'

d. Toofu kita yo ne (Sumihare, 1;11)
Tofu came YO NE

'A man selling Tofu came over, didn't he?'

At around the time children discover that more than one sentence-final particle can be attached to a phrase, the head of FinP and the verbal conjugations come to appear.

To sum up, Nanzan Acquisition Project’s 8-year research on RIAs indicates that sentence-ending discourse markers are produced at the RIA stage. Japanese RIAs are
incompatible with such C/T-related items as wh-element and Case markers just like other languages, but they are compatible with sentence-final discourse markers.

2.3. Where the Truncation Hypothesis and Japanese Discourse Particles Meet

The very early emergence of the Japanese sentence-ending discourse particles suggest that the syntactic structure is not only constructed in the bottom-up fashion but also in the top-down fashion. The co-occurrence of RIAs with a sentence-final particle in child grammar would indicate that a discourse marker or a Speech Act element can be preceded by the truncated structure, even when there is no T/C heads. Then it might apparently seem to cast doubt on the Truncation Hypothesis. How is it possible that children have elements of Speech Act Phrase up above CP when there is no TP in the structure hypothesized then? Does the early appearance of sentence-final particles constitute a counter-example to the Truncation Hypothesis?

A detailed analysis of child Japanese indicates that it is, probably, not the case. As we noted above, Japanese-speaking children produce sentence-final particles at the RIA stage. The sentence-final particles look as if they are added on the “truncated” structures as shown in (15).

(15) Buuwa tui-ta ne ne (Sumihare, 1;09)
candle light-ta Sentence-final particle Sentence-final particle

Intended meaning: Please light the candle.
Literal meaning: The candle lit, didn’t it?

In (15), the child verb, tui-ta (intransitive verb stem with -ta) in the declarative should be, in the adult grammar, the transitive verb (imperative), tuke-te. It is the example indicating that the child still has difficulties in choosing the adult lexical realization of v, thereby producing the transitive and intransitive verbs in the same form, and the surrogate non-finite form (RIA), which are eventive and receive a modal interpretation, co-occurs with a sentence-ending particle ne.

Recall here that it is only at a later stage that two sentence ending particles appear as the examples in (14) show. The fact that only one discourse marker is compatible with RIAs indicates that it is doubtful to hypothesize that there is an adult-like phrase of Speech Act then. In other words, just a discourse marker such as ne is attached (“ne-tsuke”) to the edge of the utterance produced at the RIA stage.

Then, the next question is regarding why it is the case that children attach a discourse marker to the truncated phrases. Recall here that adult Japanese is different from West Flemish in that the former allows the discourse markers to be attached basically on any major syntactic unit as shown in (16).

(16) kawaii neko(-ga) ne, yane-kara ne, otita ne
Cute cat (-Nom) roof-from fell

‘A cut cat fell from the roof.’

3The parallel observation and analysis of Chinese is discussed in Murasugi (2013).
Japanese discourse markers can follow NPs (with a Case marker), PPs, and TPs, and so on, as far as the structure constitutes a well-formed major syntactic constituent, while they cannot be inserted between NP and a Case marker, nor NP and P in PP.

(17) a. *Neko ne-ga
    Cat NE-Nom 'The cat (nominative).'

b. *yane ne kara,
    roof NE from 'from the roof'

Given that sentence-final particles follow basically any proposition in adult Japanese, and given also the fact that the child discourse marker are not only associated with various types of syntactic constituent but also appears as a separate item, the child structure of the sentence-final particles following such a truncated phrase as an RIA would be something like (18).

(18) \[ \begin{array}{c} \text{XP} \\ \text{X=Proposition} \end{array} \ ] \text{ne/na} \\

XP is a proposition, and can be phonetically realized as zero in Japanese, the argument-drop language. Children produce truncated sentence or even a phonetically null form, followed by a discourse marker that links the speaker and the addressee. Tense Phrase can be projected only at around the stage where nominative Case marker and several conjugation forms of verbs come to be used.

In fact, children after two even tend to put ne on the every propositional unit. (19) is an example of an utterance of a child at the age of four.

(19) (Answering to the question, “What do you want to be in the future?”)
    Kasutera ya san tte ne, wakaranakatta kara ne, ii ni itte ne,
    Cake-baker C did not recall because tell to so
    ganbareta ne tte ne, homete kureta
    did great C admire got

'I did not say that I would like to be a baker (when I was asked), so
I went to tell so to the person (later) and the person admired me saying
that I did a good job.'

In (19), ne is attached to the underlined proposition given above, which “sounds very childish” to the adult Japanese-speakers although the position ne is inserted is grammatically adult-like.

The fact that the RIAs and the sentence-final particle may co-occur in Japanese acquisition would be explained naturally by assuming that children do not fully know the (adult) syntactic properties of sentence-final particles at the RIA stage, although they know the pragmatic properties associated with them.
The finding that T- and C-related items are not compatible with RIAs also suggests that discourse markers do not constitute a natural class with the T- and C-related elements. From the view point of Japanese acquisition, it is more natural to hypothesize that the sentence-ending discourse markers such as ne, na and yo are located above the CP layer, as Haegeman and Hill (2011) and Saito (2009) suggest.

3. Conclusion
In this paper, focussing on Japanese, we argued that the fact that Japanese RIAs are compatible with sentence-ending discourse particle at around the age of two does not constitute a counter-example to the Truncation Hypothesis proposed by Rizzi (1993/1994).

The phonetic realization of proposition-discourse interface would be the onset of the phrase structure. Japanese-learning children at the babbling stage and one-word stage raise the intonation at the edge of utterances when they ask/command something (Murasugi and Nakatani 2007), and such discourse marker as ne is lexically realized at around one/two-word stage. The RIA observed at the age of one and two is naturally compatible with a lexically realized discourse marker, and children put one on the truncated structure as well.

There are always two processes, bottom-up and top-down, involved in human processing. The Truncation Hypothesis naturally explains the bottom-up process in the acquisition of syntactic structure, while the argument presented in this short paper may suggest a possible top-down process found in the acquisition of phrase structure.

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