SYNTAX

Two Approaches to Adverbs: Cinque vs. Ernst*
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1. Introduction

There have been several proposals made for linear order restrictions on various types of adverbs. In (1), for instance, we see that the subject-oriented adverb *cleverly* can precede but not follow the manner adverb *loosely*.

(1) a. Sharon cleverly was (only) loosely holding onto the ropes.

b. *Sharon was (only) loosely cleverly holding onto the ropes. (Ernst (2002:325))

To deal with such restrictions, Cinque (1999) posits various functional categories, each hosting certain types of adverbs. The linear order of adverbs, then, reflects the composition of functional categories in syntax. In (1), for instance, the functional category hosting subject-oriented adverbs (=F1) is higher than the functional category hosting manner adverbs (=F2), as shown below:

(2) ...[$_{F1}$ cleverly [$_{F2}$ loosely [$_{VP}$ holding onto the ropes...

Ernst (2002), on the other hand, proposes a set of rules for the composition of what he calls Fact-Event Objects (FEO), which include an event, a proposition and a fact. According to this approach, a linear order restriction of adverbs follows from the type of FEO which an adverb selects and creates. In (1), for instance, the manner adverb *loosely* combines with the basic event of holding onto the ropes and yields a derived event. This derived event is next combined with the subject-oriented adverb *cleverly* to yield a proposition, as shown below:

(3) ... [$_{proposition}$ cleverly [$_{event}$ loosely [$_{event}$ holding onto...

(1b), according to this view, is ruled out because the manner adverb *loosely* cannot combine with a proposition created by a subject-oriented adverb *cleverly*.

In this paper, I will provide a new paradigm of adverbs from Japanese, which turns out to argue for Cinque's approach. The paper is organized as follows. In section 2, I will advance the new paradigm of Japanese adverbs, and discuss their properties. In section 3, I will examine how these properties are handled by Cinque's and Ernst's approach, showing that they both apparently face a problem in dealing with the properties discussed in section 2. In section 4, a parameter proposed by Fukui (1986, 1995) is introduced, and is demonstrated that Cinque's approach can deal with the properties in question in an illuminating way. Section 5 discusses other types of adverbs to see the consequence of our approach. Section 6 concludes the discussion.

2. New Facts

Japanese has an adjectival noun, whose categorical status has been hotly debated.

Miyagawa (1987), Kubo (1992), Ohkado (1991), and most recently Baker (2003), in particular, have argued for the adjectival nature of adjectival nouns.[1] What has been unnoticed, however, is the relation between adjectival nouns and adverbs, and the properties of which are enumerated below:

Property A: An adjectival noun in Japanese may have the dative Case marker *ni* attached to it to create a manner adverb.

Property B: A manner adverb formed by the rule above may further have the focus particle *mo* attached to it to create a subject-oriented adverb.

Property C: A subject-oriented adverb (created by Property B) must precede a manner adverb (created by Property A).

Property D: These adverbs may iterate without a coordinator.

Let me discuss these properties briefly in turn.

2.1. Property A

Although manner adverbs may be created in various ways, for instance, by attaching the morpheme *ku* to an adjective, such as *haya-ku* 'quickly', Property A expresses a rather productive rule for the formation of a manner adverb out of an adjectival noun in Japanese, as illustrated below:

(4) mazime-ni   kenage-ni
    serious-Dat   admirable-Dat
    'seriously'   'admirably'

One may wonder why a dative Case is manifested on an adjective in these manner adverbs. This is not as mysterious a situation as it might first look.   Case on adjectives is generally found in Slavic languages, as illustrated below:

(5) a. Ivan   byl   golodnyj.
        Ivan (Nom)   was   hungry (Nom)
        'Ivan was hungry.'

    b. Ivan   vernulsja   dosomoj   golodnyj.
        Ivan(Nom)   returned   home   hungry (Nom)
        'Ivan returned home hungry.'

    c. Ivan   el   rybu   syruju.
        Ivan   ate   fish (Acc) raw (Acc)
        'Ivan ate fish raw'

    d. Ivan   byl   golodnym.
        Ivan (Nom)   was   hungry (Inst)
        'Ivan was hungry.'

    e. Ivan   vernulsja   dosomoj   golodnym.
        Ivan(Nom)   returned   home   hungry (Inst)

'Ivan returned home hungry.'

f. Ivan el   rybu   syroj.

    Ivan ate fish (Acc) raw (Inst)

'Ivan ate fish raw'

In (5a, b), the adjective *golodnyj* 'hungry' exhibits nominative Case agreement with the subject while, in (5c), the adjunct *syruju* 'raw' exhibits accusative Case agreement with the object. Based on such facts, it has been proposed that adjectives must bear Case; see Kester (1996), Larson (1987) and Yamakido (2000) for such a view. In Japanese, no Case agreement is seen between an adjective and the modified DP, a situation also attested in Russian, as in (5d-f), where the adjective bears an invariant instrumental Case.[2]

2.2. *Property B*

Property B is a rather productive rule for the formation of a subject-oriented adverb by attaching the focus marker *mo* to a manner adverb created by the rule in Property A. Some examples are found below:

(6) mazime-ni-mo   kenage-ni-mo

    serious-Dat-also   admirable-Dat-also

    'seriously'   'admirably'

The focus marker *mo* plays various roles in Japanese, forming, for instance, a universal quantifier by combining with an indefinite like *dare* 'who', meaning 'everyone'. Although I cannot go into a detailed discussion of various effects of this focus maker in Japanese here, we might note a close correlation between the fact that a universal quantifier undergoes QR, which targets vP and IP, the categories Chomsky (1995) characterizes as propositional, and the fact that subject-oriented adverbs create a proposition out of event according to Ersnt's theory.

2.3. *Property C*

Property C states that there is a strict linear order restriction of a subject-oriented adverb and a manner adverb. Just like English, the former must precede the latter, as exemplified below:

(7) a. Natuyasumi-ni   John-wa   *kenage-ni-mo*   *mazime-ni*

        summer-vacation-in John-Top   *admirable-Dat-also* *serious-Dat*

        benkyoosita.

        studied

        Lit. 'In summer vacation, John admirably studied seriously.'

    b. *Natuyasumi-ni   John-wa   *mazime-ni*   *kenage-ni-mo*

        summer-vacation-in John-Top   *serious-Dat* *admirable-Dat-also*

        benkyoosita.

        studied

Lit. 'In summer vacation, John admirably studied seriously.'

This strict linear order restriction reflects the syntactic structure, which can be detected by scope facts with negation. First, a subject-oriented adverb is always outside the scope of negation, as shown below.

(8) John-wa   *mazime-ni-mo*   asoba-*na*-katta.
    John-Top   serious-Dat-also   play-Neg-Past
    'John seriously didn't play.'

On the other hand, a manner adverb may be inside or outside the scope of negation, as shown below.

(9) John-wa   *mazime-ni*   benkyoosi-*na*-katta.   (Neg > Adv, Adv < Neg)
    John-Top   serious-Dat   study-Neg-Past
    'John didn't study seriously.'

Given the usual assumption that an element takes scope over another just in case the former c-commands the latter or its trace, we can conclude that a subject-oriented adverbs are located higher than NegP in the syntactic tree. Manner adverbs, on the other hand, starts out lower than NegP, but can undergo scrambling to a position higher than NegP creating a reverse scope relation. The relative syntactic height of a subject-oriented adverb and a manner adverb can be summarized as follows:

(10) subject-oriented adverb > NegP > manner adverb

Although such a strict linear order restriction is a little surprising in view of the fact that Japanese is a so-called free word order language, we will see that a rather severe linear order restriction is attested in Japanese below. See Hale (1973) on the discussion of free word order languages.

2.4. Property D

Property D expresses the fact that multiple occurrences of the same type of adverbs are possible. Both a subject-oriented adverbs and manner adverbs can iterate, as illustrated below:

(11) Natuyasumi-ni   John-wa   *kenage-ni-mo*
    summer-vacation-in   John-Top   admirable-Dat-also
    mazime-ni-mo(=subject-oriented)   *hitasura-ni*   *mazime-ni*(=manner)
    serious-Dat-also   single-minded-Dat serious-Dat
    benkyoosita.
    studied
    Lit. 'In summer vacation, John admirably seriously studied single-mindedly seriously'

Although sentences containing a multiple adverbs with a similar meaning may sound a little awkward, most Japanese speakers find them basically fine. Such freedom of multiple

adverbs of the same kind is in sharp contrast with English adverbs. English, for instance, does not allow two subject-oriented adverbs to appear in the same clause, as illustrated below:

(12) *Max *cleverly* has *stealthily* been trying to decide whether to climb the wall.

(Jackendoff (1972))

Having presented some important new properties of adverbs in Japanese, I will next consider how these properties can be handled by Cinque's and Ernst's framework.

3. Problem

Both Cinque's and Ernst's theories can account for Property C, the linear order restriction between a subject-oriented and a manner adverb. Cinque can posit a functional category hosting a subject-oriented adverb in a higher syntactic position than a functional category hosting a manner adverb, just as he does for English adverbs. Thus, the functional category hosting for the subject-oriented adverb *mazime-ni-mo* 'seriously' is syntactically higher than the functional category hosting the manner adverb *mazime-ni* 'seriously'.

Ernst may also deal with Property C correctly by claiming that the composition of a FEO in English holds for Japanese adverbs as well. Thus, manner adverbs like *mazime-ni* 'seriously' may not precede subject-oriented adverbs like *mazime-ni-mo* 'seriously', since the latter creates a proposition which the former cannot select.

Both theories, however, run into trouble, at least apparently, in dealing with Property D, multiple adverbs of the same kind. Cinque's theory requires a one-to-one correspondence between a functional head and its specifier that hosts an adverb. This is because Spec-head agreement is a one-to-one relation. For this reason, only one adverb should be licensed for one functional head and iteration of adverbs of the same kind should be impossible for one functional category. Incidentally, this makes the correct prediction regarding the ban against two occurrences of subject-oriented adverbs in English we saw in (12).

Ernst's theory, as we saw above, requires a subject-oriented adverb to take an event to create a proposition but another instance of a subject-oriented adverb cannot occur above it. This is because the second instance of a subject-oriented adverb cannot select a proposition that the first instance of a subject-oriented adverb creates; a subject-oriented adverb, according to Ernst, must combine with an event, not with a proposition.

4. Solution

It turns out that the problem posed by Property D we have just seen can naturally be solved by Cinque's theory, given a parametric variation between Japanese and English.

Fukui (1995) claims that functional categories induce Spec-head agreement in English while they do not induce agreement in Japanese. (see also Kuroda (1988) for this parameter.) Given this parameter, projections of functional categories in Japanese are not closed in the sense of Fukui (1986), allowing an element to adjoin to its licensing functional category freely. This accounts, for instance, for the well-known multiple occurrence of nominative Case *ga*-marked DPs, which is illustrated below.

    (13) Bunmeikoku-*ga*   dansei-*ga*   heikin-zyumyoo-*ga*   mizikai.
          civilized-country-Nom   male-Nom   average-lifespan-Nom   is-short
          'It is civilized countries that men, the average life-span is short in'

                                                   (Kuno (1973))

Here, multiple nominative DPs are licensed not by a Spec-head agreement relation with T but instead by nominative DPs adjoining to its licenser T. See Fukui (1986, 1985) on this point. Thus, a different mode of licensing mechanism behind the parametric difference concerning multiple elements of the same kind between Japanese and English.

Given this parameter, multiple subject-oriented and manner adverbs seen in Property D naturally follows from Cinque's theory. This is because multiple adverbs of the same type can be licensed by one functional head in Japanese and may adjoin to some projection of the licensing head iteratively. For this reason, subject-oriented adverbs, for instance, may iterate freely by adjoining to a functional projection that licenses them.

Ernst's theory, on the other hand, cannot give a natural account for the multiple adverbs of the same type. To handle multiple subject-oriented adverbs, for instance, he would need to relax his combinatory requirement for a subject-oriented adverb to the effect that it may combine with an event to create a proposition or an *event*. This relaxation will allow a second occurrence of a subject-oriented adverb to take the derived *event* created by the first occurrence of a subject-oriented adverb. Such a relaxation, however, cannot explain the strict linear order restriction we saw in (4), where a manner adverb is shown not to precede a subject-oriented adverb. The explanation therein was that a subject-oriented adverb does *not create an event* but a proposition.

Although Ernst's theory can perhaps be saved by relaxing the combinatory requirement of the same type of adverbs in Japanese, it seems ad hoc, since such a relaxation is not linked with the general agreement properties of Japanese. Thus, Ernst's approach does not seem to have a natural way to capture the general pattern seen with Japanese and English adverbs, unlike Cinque's approach, which can provide a natural account by using an independently needed parameter allowing multiple licensing by *functional* categories in Japanese, but not in English.
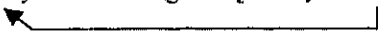
One may try to argue that the possibility of multiple adverbs of the same type results from the existence of a coordinator like *sosite* 'and', which is either null or gets deleted. If

this were the case, even Ernst's approach would not face any problem, since the combinatory requirement of multiple subject-oriented adverbs could be satisfied across-the-board. This possibility, however, does not seem tenable for empirical reasons. Note that one of the multiple subject-oriented adverbs may undergo scrambling across the subject, as shown below:

(14) *Kenage-ni-mo*   John-wa   *mazime-ni-mo*   benkyoosita

admirable-Dat-also   John-Top   seriously-Dat-also   studied

'Lit. Admirably John seriously studied.'

This discontinuous string of multiple subject-oriented adverbs can be derived by scrambling one of them to the sentence initial position, since scrambling is a device freely available in Japanese. But if the sentence above has a concealed coordinate structure, such a scrambling operation should wrongly violate the Coordinate Structure Constraint (CSC). Considering the fact that scrambling is sensitive to the CSC, as shown below, the discontinuous multiple subject-oriented adverbs indicate that multiple adverbs of the same kind are not made possible by a concealed coordinator:

(15) *Mary-o   Tom-ga   [Nancy-to   t]   aisiteiru.

Mary-Acc   Tom-Nom   [Nancy-and t]   love

'Tom loves John and Mary.'

Thus, Ernst's approach does not seem to have a natural way to deal with multiple subject-oriented adverbs by using a coordinator. [3]

Given that an adverb may undergo scrambling, one may naturally wonder why a manner adverb cannot undergo scrambling over a subject-oriented adverb as we saw above (Property C). Although a complete exploration of the nature of all adverbs is beyond the scope of this paper, I wish to suggest a possible solution. Miyagawa (2001) claims that scrambling is driven by an EPP feature, which is sensitive to the *Attract Closest* requirement of Chomsky (1995). Then, any occurrence of a multiple subject-oriented adverb appearing in its licensing functional projection may be attracted by the EPP feature, since such subject-oriented adverbs may appear in any word order in the licensing functional category and thus any occurrence of multiple subject-oriented adverbs may be the *closest* candidate for *Attract Closest*. On the other hand, a functional category licensing a manner adverb, as we saw above based on scope facts, is lower than a functional category licensing a subject-oriented adverb. Thus, scrambling of a manner adverb over a subject-oriented adverb always violates *Attract Closest*.

5. Other Adverbs

One may wonder whether all adverbs in Japanese are licensed by a functional head.

An exhaustive study of adverbial distributions is beyond the scope of this paper, but I will speculate that it is likely that some adverbs are not licensed by a functional category, such as temporal and locational adverbs. The reasons are that (i) they show no linear order restrictions, as witnessed in (17a, b); (ii) there are no blocking effects when a subject-oriented adverb or a manner adverb undergoes scrambling over them, as seen in (17c-f):

(17) a. John-wa   *kinoo*   *sokode*   benkyoosita.
        John-Top yesterday   there-at   studied
        'John studied there yesterday.'

     b. John-wa   *sokode*   *kinoo*   benkyoosita.
        John-Top   there   yesterday   studied

     c. John-wa   *mazime-ni*   *kinoo*   benkyoosita.
        John-Top   serious-Dat   yesterday   studied
        'John studied seriously yesterday.'

     d. John-wa   *kinoo*   *mazime-ni*   benkyoosita.
        John-Top   yesterday   serious-Dat   studied

     e. John-wa   *mazime-ni-mo*   *kinoo*   benkyoosita.
        John-Top   serious-Dat-also   yesterday   studied
        'John seriously studied yesterday.'

     f. John-wa   *kinoo*   *mazime-ni-mo*   benkyoosita.
        John-Top yesterday   serious-Dat-also   studied

As opposed to these, some other types of adverbs are probably licensed by a functional head, for example, evaluative adverbs. To see the nature of this type of adverbs recall from section 2 that we analyzed the *ni*-form following an adjectival noun as a Dative Case marker (Property A). In traditional grammar of Japanese, this *ni* form has sometimes been thought of as an inflection for verbal modification, which is called *renyookei*. According to our Case-theoretic view, *ni* is a Case marker that is realized in the projection of an adjectival noun. There is another form *na*, which is sometimes analyzed as an inflection of an adjectival noun that is used to modify a noun and is called *rentaikei*. Following Yamakido (2000), I will use the term invariant Case for a Case which does not agree with its modifier. Then, *ni* can be called an invariant Case in Nominal Projection (ICN) and *na* as an invariant Case in Verbal Projection (ICV). Now, when an adjectival noun is followed by this ICV *na* form to modify the noun *koto*, meaning 'fact', an evaluative adverb can be created by attaching ICN *ni*, as shown below:

(18) *Fusigi-na-koto-ni* .   yoogisha-wa   sugu .   hakujoo-sita
     strange-ICN-fact-ICV   suspect-Nom   soon   confession-did
     Lit. 'Strangely the suspect confessed soon.'

Evaluative adverbs may iterate freely, as illustrated in (19a), and give rise to intervention

effects if a subject-oriented adverb or a manner adverb moves over them, as shown in (19c, e):

(19) a. *Fusigina-koto-ni*   *hen-na-koto-ni*   yoogisha-wa   sugu
strange-ICN-fact-ICV   odd-ICN-fact-IC   suspect-TOP   soon
hakujoo-sita
confession-did
Lit. 'Strangely and oddly the suspect confessed soon'

    b. *Fusigi-na-koto-ni*   John-wa   *mazime-ni-mo*   benkyoosita.
strange-Infl-fact-Dat   John-Top   serious-Dat-also studied
Lit. 'Strangely, John studied seriously.'

    c. **Mazime-ni-mo*   *fusigi-na-koto-ni*   John-wa   benkyoosita.
serious-Dat-also strange-Infl-fact-Dat   John-Top   studied

    d. *Fusigi-na-koto-ni*   John-wa   *mazime-ni*   benkyoosita.
Strange-Infl-fact-Dat   John-Top   serious-Dat   studied
'Wonderfully, John studied seriously.'

    e. **Mazime-ni*   *fusigi-na-koto-ni*   John-wa   benkyoosita.
serious-Dat   strange-iInfl-fact-Dat   John-Top   studied

Another possible candidate to be licensed by a functional head includes speech-act adverbs. We can create a speech act adverb by adding *itte* 'speaking' to manner adverb like *mazime-ni*, as in *mazime-ni-itte*.

(20) Mazime-ni-itte   John-wa   sinken-ni   benkyoosita.
serious-Dat-speaking   John-Top   serious-Dat   studied
Lit. 'Seriously speaking, John studied seriously.'

Speech-act adverbs can iterate and induce intervention effects, as seen below:

(21) a. Mazime-ni-itte   shoojiki-ni itte   John-wa
serious-Dat-speaking honest-Dat-speaking   John-Top
mazime-ni   benkyoosita.
serious-Dat   studied
Lit.'Seriously and honestly speaking, John studied seriously.'

    b. Shoojiki-ni-itte   John-wa   mazime-ni-mo   benkyoosita.
honest-Dat-speaking   John-Top   serious-Dat   studied

    c. *Mazime-ni-mo   shoojiki-ni-itte   John-wa   benkyoosita.
serious-Dat-also   honest-Dat-speaking John-Top   studied

    d. *Mazime-ni   shoojiki-ni-itte   John-wa   benkyoosita.
serious-Dat   honest-Dat-speaking John-Top   studied

To sum up, the linear order of various types of adverbs in Japanese shows that there are several functional categories in Japanese that are hierarchically ordered as in the

following:

(23) Speech act > evaluative > subject-oriented > manner

This hierarchy can be confirmed by the fact that the modal auxiliary *dekiru* 'can' take scope over an evaluative adverb, a subject-oriented adverb and a manner adverb, but not over a speech act adverb, as shown below:

(24) Mazime-ni-itte   John-wa   hu-mazime-ni-mo   mazime-ni
    serious-Dat-speaking   John-Top   dishonest-Dat-also   serious-Dat
    (speech act)   (subject-oriented)   (manner)
    kaisha-no   kane-o   nusum-eru.
    company-Gen   money-Acc   steal-can
    Lit. 'Honestly speaking, John can dishonestly stole the company's
       money seriously.'

In light of the generality of multiple adverbs of the same kind, it seems natural and desirable to link them to independently needed properties of *functional* heads and agreement in Japanese, which is not possible with Ernst's combinatory approach but possible with Cinque's *functional* head approach to adverbs.

6. Conclusion

To conclude, both Cinque's and Ernst's analyses of the distribution of various types of adverbs apparently run into trouble in face of the properties of Japanese adverbs newly discussed here, especially the possibility of iteration of subject-oriented and manner adverbs. This is because Cinque claims that a functional head licenses a single adverb and thus cannot host multiple subject-oriented adverbs while Ernst claims that a subject-oriented adverb take an event to create a proposition, which another occurrence of subject-oriented adverb cannot take. This property of multiple adverbs has been shown to follow under only Cinque's theory, given a parameter about whether a language has functional categories that induce agreement (English) or not (Japanese). Given this parameter, Cinque's theory can correctly predict that subject-oriented adverb may iterate freely in Japanese since no one-to-one correspondence is required for a functional head and subject-oriented adverbs in Japanese, and multiple adverbs of the same type are allowed to iterate by adjoining to the projection of the licensing functional head.

NOTES

[1] Adjectival nouns in Japanese usually mean inherent or permanent property or state of a person or an entity, which may be characterized as individual-level predicates. Adjectival nouns in

Japanese have several properties. The subject, for instance, is marked with the topic marker *wa* in the matrix sentence, which is contrasted with stage-level predicates. The subject of stage-level predicates may be marked by the Nominative Case *ga* in the matrix clause, as illustrated below:

(i) John-*wa* shoojiki-da.   (ii) Party-de John-*ga*   yotte-ita.

    John-Top honest-Cop   party-at John–Nom drunk-was

    'John is honest.'   'At the party, John was drunk.'

It is not the case that every manner adverbs and subject-oriented adverbs are created by the rules in Properties A-B. See Nishiyama (1999) for the discussion of this point.

[2] In Japanese traditional grammar, it is sometimes claimed that the *ni* form on an adjective is analyzed as an inflection form for verbal modification. See Yamakido (2000) for defense and motivations of our Case-theoretic view.

[3] The distribution of multiple adverbs, on the one hand, and coordinated adverbs, on the other, differs in at least one syntactic environment. In the presence of the coordinator *sosite* 'and', the single focus marker *mo* may occur with multiple adjectival nouns plus the Dative Case marker *ni* to create subject oriented adverbs, which is impossible without a coordinator, as illustrated below.

(i)   John-wa   mazime-ni-*(sosite) shoojiki-ni-mo   benkyoosita.

     John-Top   serious-Dat-*(and)   honest-Dat-mo   benkyoosita.

     Lit. 'John diligently(=subject oriented) honestly(=subject-oriented) studied'

[4] We might think of an inflection of tense like *i* for adjectives as a Case for adjectives within a nominal projection, as seen in *utukusi-i hito* 'beautiful girl' and of an inflection used to modify a predicate like *ku* as a Case for adjectives within a verbal inflection, as in *utukusi-ku odoru* 'dance beautifully'.

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