

## Some syntactic properties of psychological adverbs in Japanese

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**Abstract.** This paper presents a comprehensive theory for the licensing of Japanese Psychological Adverbs (PAs, e.g. *oisiku* ‘deliciously’, *omosiroku* ‘interestingly’) being grounded on their syntactic, interpretational and lexical properties. PAs can appear at least three different types of constructions. One of the constructions where Agent of the main verb and Experiencer of a PA is identical, will be examined in particular. Investigating into their syntactic and semantic characteristics, the paper claims that PAs are structurally licensed when they are c-command by the local Agent, following the same structural condition that Ernst (2002) argues for subject-oriented (SO) adverbs. There is a set of data that seems to contradict this condition, but I argue that the data indeed exhibits PAs’ another property: they are polarity-sensitive. In order to comprise this lexical property into the aforementioned condition, I classify PAs into three types being based on Ernst’s (2009) PPI trichotomy for speaker-oriented adverbs (SpOAs).

**Keywords.** psychological adverbs; the scope theory of adverbs; polarity sensitivity; Japanese

**1. Introduction.** This paper aims to offer a comprehensive licensing theory of Japanese Psychological Adverbs (PAs, e.g. *oisiku* ‘deliciously’, *omosiroku* ‘interestingly’) with particular references to their syntactic, semantic and lexical properties.

1.1. JAPANESE PAS ARE BASED ON ADJECTIVES. It is widely assumed that Japanese adjectives ending with *-i* allow a pre-nominal modification as in (1a). Apart from adjectives, a category named *keiyoo-doosi* ‘adjectival predicates’ also permit the same kind of modification thereby ending with a morpheme *-na* as in (1b). *I*-adjectives cannot be followed by a copula *-da/-dearu* as in (1c), whereas adjectival predicates can as in (1d).

- |        |                            |    |                            |
|--------|----------------------------|----|----------------------------|
| (1) a. | utukusi-i hana             | b. | kirei-na hana              |
|        | beautiful flower           |    | beautiful flower           |
|        | ‘(a) beautiful flower’     |    | ‘(a) beautiful flower’     |
| c.     | * sono hana-wa utukusi-da. | d. | sono hana-wa kirei-da.     |
|        | the flower-TOP beautiful   |    | the flower-TOP beautiful   |
|        | ‘The flower is beautiful.’ |    | ‘The flower is beautiful.’ |

What are referred to as ‘PAs’ in this paper are based on either adjectives or adjectival predicates, and ends with a particular morphological form such as *-ku* and *-ni*, respectively in their adverbial modifications as given in (2).<sup>1</sup> For instance, a morpheme *-i* on an adjective such as *utukusi-i*

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<sup>1</sup> Although how PAs are derived from their adjective/adjectival stems is an important question to pursue, this paper confines itself to the discussions of PAs’ syntax and semantics. For more details of morphological relation of Japanese adjectives, see Nishiyama (1999) and the literature therein.

‘beautiful’ may alternate with *-k* as in *utukusi-k(u)* as exemplified in (2a). An equivalent alternation can be observed between adjectival predicates and PAs (e.g. *kirei-na - kirei-ni, kenkyo-na* ‘humble’ - *kenkyo-ni*) as illustrated in (2b). Both *ku-* and *ni-*attached PA phrases function as adverbials, semantically detailing an action or event described by the main verb.

- (2) a. *utukusi- {ku/\*ni}*      *kazaru*                      b. *kirei- {\*ku/ni}*      *kazaru*  
       beautiful-KU/-NI      decorate                      beautiful-KU/-NI      decorate  
       ‘beautifully decorated’                                      ‘beautifully decorated’

1.1. THREE TYPES OF PA CONSTRUCTIONS. PAs can be classified into at least three types, depending on what verbal context they appear and which thematic role they are “oriented” to. The type I PA, appearing with verbs of creation (e.g. *yaku* ‘bake’) is oriented to Theme of the event. The type II PA, being construed with verbs of transmission (e.g. *tutaeru* ‘tell’) is oriented to the intended Recipient (Kishimoto 2021). The type III PA, occurring with verbs of ‘in-take’ (Nagatani 2015) such as *taberu* ‘eat’, is oriented to Agent.

- (3) a. *Watasi-wa keeki-o oisiku yaita/tukutta.*  
       I-TOP              cake-ACC      deliciously      baked/cooked  
       ‘I baked a cake that is delicious.’  
       b. *Watasi-wa (gakusei-ni) hanasi-o omosiroku katatta.*  
       I-TOP              student-to      story-ACC      interestingly      told  
       ‘I told the story for students to be interested in it.’  
       c. *Watasi-wa sasimi-o oisiku tabeta.*  
       I-TOP              raw.fish-ACC      deliciously      ate  
       ‘I ate the raw fish and found it delicious.’

As demonstrated in (3a), this PA can be compatible with verbs of creation in which the subject *watasi* ‘I’ baked *keeki* ‘cake’ that is judged as tasty as a result of the event. The PA *oisiku* in this sentence is “object-oriented” since it describes a resulted objective state of Theme. We call this type of sentence the type I PA construction.

In (3b), a PA *omosiroku* ‘interestingly’ appears with verbs of transmission. We call it the type II PA construction. In this sentence, the PA represents an intention of the subject such that I tried to tell the story for the students to be interested in the story. The dative-marked element *gakusei-ni* ‘to students’ is an intended Recipient of the event and this argument can be null, as the parenthesis indicates. Agent of the event does not necessarily find the story is interesting. Nor the told story itself is not necessarily interesting.

The example (3c) is the target of this paper. In this sentence, a PA *oisiku* occurs with the verbs of consumption. We call it the type III PA construction. This construction has been intensively discussed in the literature of Japanese linguistics (Doragana 2005; Nagatani 2015), being separated from other types mentioned above. Nagatani (2015) names the verbal context of this PA construction ‘verbs of in-take’, because the membership verb of this class is bearing on the consumption, perception or recognition. The PA in this type of construction is “oriented” neither to Theme nor (intended) Recipient. It neither describes the intention of the subject such that Recipient finds it tasty as the data (4) shows, nor Theme that resulted in a state of being delicious

after Taro ate it.<sup>3</sup> It simply describes an emotional state or a judgment of Agent. The chart (5) summarizes the discussions so far.

- (4) Taroo-wa (\*Hanako-ni) oisiku ringo-o tabeta.  
 Taro-TOP Hanako-to deliciously apple-ACC ate  
 ‘Taro ate the apple and found it delicious (\*for Hanako).’

(5)

Orientation	Subject	Object
<b>Type</b>		
<b>Type I</b> creation verbs ( <i>tukuru</i> )	N/A	Yes
<b>Type II</b> transmission verbs ( <i>tutaeru</i> )	N/A	N/A
<b>Type III</b> in-take verbs ( <i>taberu</i> )	Yes	N/A

In what follows, I argue that PAs are licensed when they are c-commanded by their local subjects, thus, they are categorized as a subject-oriented (SO) adverb (Ernst 2002). There is a set of data that seemingly contradicts this proposal on the first glance. Some PAs can be interpreted in a negative scope as in (6b), while other PAs cannot, as in (6a).

- (6) a. \* Taroo-wa oisiku ringo-o tabe-nakat-ta.  
 Taro-TOP deliciously apple-ACC ate-NEG-PST  
 ‘Taro ate an apple and didn’t find it delicious.’  
 b. Taroo-wa mazuku ringo-o tabe-nakat-ta.  
 Taro-TOP loathsome apple-ACC ate-NEG-PST  
 ‘Taro ate an apple and didn’t find it awful.’

However, I argue that this minimal pair exhibits a different aspect of PAs: its polarity-sensitivity. In section 4, I further demonstrate that PAs vary with respect to polarity. Some PAs may form Strong PPI, whereas others, Weak PPI. Some other PAs may form Non-PPIs. In principle, this lexical nature of PAs strongly affects their structural licensing, but when the contextual situation so-called *indirect licensing* (Giannakidou 1999) met, PAs that are ruled out by the c-command condition now becomes to fall within the scope of the original condition.

**2. On the type III PA constructions.** This section offers empirical observation of the type III PA construction, including the findings and problems of the previous literature in syntax of PAs.

2.1. PAs ARE ADJUNCTS. Matsuoka (2016) argues that PAs in the construction are secondary predicates with quirky nature; thus, they are oriented to both the subject and the object simultaneously. He claims that the PA and the main verb form a complex predicate and the newly created complex predicate takes the object as complement. This analysis is inspiring but what the analysis predicts contradicts the facts we can observe about this type of construction. For example, the main verb and the PA can be separated in various syntactic environments. A scrambling over the subject position is an example. In comparison with epistemic PA constructions such as (7a), the PA of type III construction can be separated freely from the main predicate as in (7b) (Kikuchi and Takahashi 1999, Koizumi 2002, Miura 2021).<sup>4</sup>

<sup>3</sup> See Matsuoka (2017) and Miura (2021) for the relevant discussions.

<sup>4</sup> See Miura (2021) for more details of this discussion.

- (7) a. \* Oisiku Taroo-wa ringo-o omotta.<sup>5</sup>  
 deliciously Taro-TOP apple-ACC thought  
 ‘Taro thought an apple was delicious.’  
 b. Oisiku Taroo-wa ringo-o tabeta.  
 deliciously Taro-TOP apple-ACC ate  
 ‘Taro ate an apple and find it delicious.’

Matsuoka (2017) is a continuum of his 2016 paper which offers a classification of PAs being based on the fact that some of them are controlled by the subject, whereas others are by the object. The object-oriented PA is base-generated within VP, whereas the subject-oriented PA is generated outside of VP. This dichotomy is attractive in that we can treat PAs on a par with depictive secondary predicates (Koizumi 1994). Yet, the thing is not so straightforward since object-oriented PAs are still oriented to the subject, as described in section 1.2. Miura (2020), following Matsuoka (2016), proposes that PAs are secondary predicates. Departing Matsuoka, she argues that PA cannot compose a complex predicate with the main verb, but an adjunct whose specifier is PRO. This phrase is controlled by the moved object from the complement position. This approach, however, faces the same problem: how can it explain the fact that PAs that are categorized as object-oriented shows orientation to the subject.

Kishimoto (2021) correctly discusses, PAs are adjuncts but not predicates. According to him, there are three ways to form a secondary predicate in Japanese. One type is derived from nouns, the other is from adjectival predicates, and the third class is based on adjectives. A depictive secondary predicate in Japanese typically ends with *-de* (see also section 1.1). As in (8b), the depictive secondary predicate forms a copula clause, whereas PAs cannot form the same kind of clause as in (9b). Hence, he claims that PAs are not secondary predicates but adjuncts.<sup>6</sup>

- (8) a. Eri-wa hahaoya-kara kimono-sugata-de zyogen-o morat-ta.  
 Eri-TOP mother-from kimono-figure-Cop advice-Acc get-Past  
 ‘Eri got advice from her mother in kimono.’ (Kishimoto 2021:37, (9))  
 b. Eri-wa sono toki kimono-sugata-dat-ta.  
 Eri-TOP the moment kimono-figure-COP-PST  
 ‘Eri was in kimono at the moment.’
- (9) a. Mari-wa kyoomibukaku sono hon-o yonda.  
 Mari-TOP interestingly that book-ACC read  
 ‘Eri read that book and found it interesting.’  
 b. \*Mari-wa sono toki kyoomibukaku sitei-ta.  
 Mari-TOP the moment interestingly doing-PST  
 ‘Eri got interested (in that book) at the moment.’

<sup>5</sup> This sentence may sound better when there is an intonation boundary between the scrambled PA and the sentential subject; otherwise, it is incomprehensible.

<sup>6</sup> Kishimoto argues that adjective-based secondary predicates do not project the subject in syntax and they are semantically associated with their subject. Hence there is no position internally for PRO to appear in a PA phrase. Ernst (2002) argues that English subject-oriented adverbs are predicational adverbs and they are controlled by the argument via PRO. If Kishimoto’s evidence for Japanese PAs is taken seriously, we need to examine the PRO-based adverb licensing more seriously.

Throughout this paper, I assume that PAs are adjuncts but not predicates, following Kishimoto (2021). If this is the right way to take, the next question is what kind of adjuncts they are, and how they are licensed in a clause.

2.2. TWO READINGS OF PAs. PAs can be associated with two readings (Nagatani 2015). One is an MA reading while other is a manner reading. The MA reading carries an emotional state of the subject referent; how s/he feels about a proposition that results from a process of an event. The manner reading is more objective, describing a manner how an event is carried out.

It is important to have a method to elucidate the subjective reading of PAs because emotional words are so subjective that they are not easily measured. Observe a set of data (10) for this purpose. (10a) is contradictory to my ears, while (10b) is just fine. When the PA precedes an adverb *iyaiya* ‘reluctantly’ and adverbial phrases *tumaranaitoomoi-nagara* ‘while feeling boring’ in (10a), the sentence sounds contradictory, while the reversed order in (10b) does not.

- (10) a. # Taroo-wa omosiroku {iyaiya, unzarisite, tsumaranakuomoi-nagara}  
 Taro-TOP interestingly reluctantly, while.feeling.reluctant  
 hon-o yonda.  
 book-ACC read  
 ‘(Lit.) Taro read a book while finding it interesting and feeling it boring.’
- b. Taroo-wa {iyaiya, unzarisite, tsumaranakuomoi-nagara} omosiroku  
 Taro-TOP reluctantly, while.feeling.reluctant interestingly  
 hon-o yonda.  
 book-ACC read

(10a) may be odd as the sentence’s proposition states that *Taroo* is having fun in reading a book while the semantics of the adverb contradict this proposition. Instead, it is interpreted perfectly under a situation where the subject reads the book in an interesting manner (e.g., reading it while standing on the head). Thus, in (10b) the PA clearly has lost its MA meaning.

The same relation can be found in the ordering between the PA and the pure manner adverb such as *yukkuri* ‘slowly’, *subayaku* ‘quickly’, *ikkini* ‘at once’ and so forth. When the PA precedes the manner adverb as in (11a), it can maintain an MA meaning such that Taro enjoyed having a dish by spending quite a lot of time and he found the meal tasty. However, when the word order is reversed as in (11b), the very MA meaning disappears or less obvious.<sup>7</sup> In (11b), PAs’ manner reading is still available. The adjective *oisii* may mean a more objective sense such as ‘catchy’ in this case.<sup>8</sup> The same holds true with *tanosii* ‘fun’ in (12).

- (11) a. Taroo-wa oisiku yukkuri sono ryoori-o tabeta.  
 Taro-TOP deliciously slowly that dish-ACC ate  
 ‘Taro ate that dish spending time while feeling it delicious.’
- b. # Taroo-wa yukkuri oisiku sono ryoori-o tabeta.  
 Taro-TOP slowly deliciously that dish-ACC ate

<sup>7</sup> This second judgement needs more careful treatments. When there is an intonation boundary between the two adverbs or an acute pitch change on a PA, the MA reading comes returns.

<sup>8</sup> The objective use of *oisii* goes as follows: *sore oisii!* ‘That’s catchy!’ This use is rather colloquial in Japanese to the best of my knowledge.

- (12) a. Taroo-wa tanosiku attoiumani sono hon-o yonda.  
 Taro-TOP being.fun in.no.time that book-ACC read  
 ‘Taro read that book in no time while finding it interesting.’  
 b. # Taroo-wa attoiumani tanosiku sono hon-o yonda.  
 Taro-TOP in.no.time being.fun that book-ACC read

What we have obtained so far can be summarized as in (13).

- (13) PAs’ MA reading disappears when they follow SO adverbs, manner adverbs and VP-adjuncts.

2.3. THE STRUCTURAL CONDITION OF PAS. The statement (13) characterizes a scope relation of PAs against other adverbials that adjoin *v*- or *V*-projection being on their surface order. In this subsection, I show two pieces of evidence that this precedence relation is governed by the *c*-*com*-*mand* relation.

The first evidence comes from VP-fronting. Japanese VP-fronting is formed when a VP is fronted with a scalar focus particle *-sae* ‘even’ and a successive *do*-support with *-s(u)* (Aoyagi 2006). On the surface, the focus particle is attached on the fronted verb root, but semantically it can scope over a whole VP that is fronted. In (14b), what is focused by *-sae* is not only the action *to drink* but a complex of verb and object *kookyuu wain-o nomi* ‘drink (a bottle of) high class wine’.

- (14) a. Taroo-wa kookyuu wain-o nomi-sae sita. (Focus clause by *-sae*)  
 Taro-TOP high.class wine-ACC drink-even did  
 ‘Even drink (a bottle of) high class wine, Taro did.’  
 b. Kookyuu wain-o nomi-sae Taroo-wa sita. (VP-fronting)  
 high.class wine-ACC drink-even Taro-TOP did

B-examples in (15) and (16) below are instances of VP-fronting from multiple adverb constructions. Notice that the MA reading of PAs is still available in both examples, even though the manner adverb precedes the PA in linear order. An MA reading of (16b), for instance, is retained even though *attoiumani* ‘in no time’ precedes *tanosiku* ‘being fun’.

- (15) a. Taroo-wa oisiku yukkuri sono ryoori-o tabe-sae sita.  
 Taro-TOP deliciously slowly that dish-ACC eat-even did  
 ‘Even eat that dish slowly and deliciously, Taro did.’  
 b. Yukkuri sono ryoori-o tabe-sae Taroo-wa oisiku sita.  
 slowly that dish-ACC eat-even Taro-TOP deliciously did
- (16) a. Taroo-wa tanosiku [attoiumani sono hon-o yomi-sae] sita.  
 Taro-TOP being.fun in.no.time that book-ACC read-even did  
 ‘Even read that book in no time, Taro did.’  
 b. [Attoiumani sono hon-o yomi-sae]<sub>i</sub> Taroo-wa tanosiku <sub>t<sub>i</sub></sub> sita.  
 in.no.time that book-ACC read-even Taro-TOP being.fun did

This fact follows if the fronted phrase is reconstructed in its original position at LF.<sup>9</sup> We see that the scope relation in (16a) holds in the example (16b), after reconstruction of the fronted phrase.

<sup>9</sup> See Miura and Fujii (2021) about the same analysis for subject-oriented adverbs in Japanese.

Another evidence of the statement (13) is found in association with focus.<sup>10</sup> (17) is a clause that is presupposed in focus fragments in (18). (18a) sounds odd while (18b) is just fine as a continued discourse of (17). This is presumably because (18a) has no new element for the particle *-sae* to emphasize, but (18b) has the manner adverb *yukkuri* that constitutes a target of the focus particle. The new focus reading is how slow Taro's eating was compared to the standard eating speed. (18c) where the PA *oisiku* appears in the focus of *-sae* is judged as infelicitous. Here, only the MA meaning of the PA is blocked, but its manner reading is still available. This indicates that the former reading cannot be obtained within the scope of *sae*-attached VPs. Pragmatically speaking, it is odd to measure one's subjective judgement on a certain scale. This in return suggests the other possibility that a more objectively measurable "tastiness" should be obtainable even in the focus fragment. Indeed, the manner reading *Taro even ate that dish in a catchy, fun manner* is available in (18c).

- (17) Taroo-wa tanni sono ryoori-o tabeta dake-de-naku  
 Taro-TOP simply that dish-ACC ate only-COP-NEG  
 'Taro did not just eat that dish.'
- (18) a. # sono ryoori-o tabe-sae sita.  
 that dish-ACC eat-even did  
 '...he even ate that dish.'
- b. yukkuri sono ryoori-o tabe-sae sita.  
 slowly that dish-ACC eat-even did  
 '...he even ate that dish slowly.'
- c. # oisiku sono ryoori-o tabe-sae sita. (under the MA reading)  
 deliciously that dish-ACC eat-even did  
 '...he even ate that dish while finding it delicious.'

The same holds true with a set of examples (19) and (20). As # mark indicates in (19c), the only comprehensible meaning of it is *Taro even read that book in a fun manner* that is an instance of manner reading, and the MA reading of the PA *tanosiku* is only weakly recognizable.

- (19) Taroo-wa tanni sono hon-o yonda dake-de-naku  
 Taro-TOP simply that book-ACC read only-COP-NEG  
 'Taro did not just read that book...'
- (20) a. # sono hon-o yomi-sae sita.  
 that book-ACC read-even did  
 '...he even read that book.'
- b. attoiumani sono hon-o yomi-sae sita.  
 in.no.time that book-ACC read-even did  
 '...he even read that book in no time.'
- c. # tanosiku sono hon-o yomi-sae sita. (under the MA reading)  
 being.fun that book-ACC read-even did  
 '...he even read that book while having fun.'

**3. Ernst's FEO calculus.** It is well known that English SO adverbs can be interpreted differently according to where they appear in a clause (Jackendoff 1972, Wyner 1994, McConnell-

<sup>10</sup> I owe Tomo Fujii for this data. The idea of 'association with focus' is originally his idea developed in our joint research project on Japanese adverbs.

Ginet 1982, Ernst 2002). In (21a), an adverb *rudely* appearing in a preverbal position represents that *she* is judged rude because she left the place; if she had not, she would not receive such a reputation. This is called a clausal meaning of SO adverbs. In contrast, in (21b), when *rudely* appears in a postverbal position, *she* is judged rude because of her manner of leaving. She may have left the place by slamming a door, or without greeting. This is called a manner reading of SO adverbs. When an SO adverb occurs between the auxiliary *have* and the verb, as in (21c), it may be interpreted ambiguously.

- (21) a. Rudely, she left. [a clausal only]  
 b. She left rudely. [a manner only] (Ernst 2002: 57, (2.44))  
 c. She has rudely left. [ambiguous]

Due to this form-meaning relation, Ernst (2002, 2007) argues that adverbs' positions are semantically restricted by *Fact-Event Objects* (FEOs) hierarchy such as (22), albeit, in principle, they may position themselves anywhere in a clausal spine.

(22) *Fact-Event Object (FEO) hierarchy*

Speech-Act > Fact > Proposition > External Event (=Event) > Internal Event (=Specified Event) (where > is "higher than".)

According to Ernst, syntactic constituents are interpreted as FEOs such as *Speech-Act*, *Fact*, *Proposition*, and so forth, and FEOs are ordered hierarchically as in (23). For instance, a *Speech-Act* FEO is higher than a *Fact* FEO. An FEO can freely undergo type-raising to the next higher one but the lowering is not allowed. An *Internal/Specified Event* FEO may be converted to an *External/Event* FEO, while an *External Event* FEO cannot be converted to an *Internal Event* FEO. VP and V' are interpreted respectively as an *Internal Event* and they cannot be further type-raised. Unlike them, vP and v' can undergo type-raising and are interpreted either as an *Internal Event* or an *External Event*.

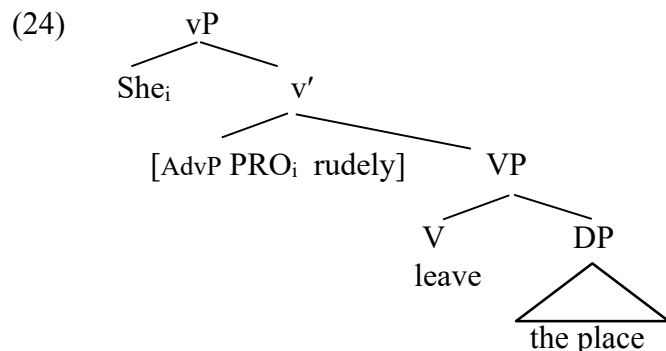
An adverb receives a particular interpretation depending on which FEO it is combined with in a clause. A manner adverb, for instance, takes as its argument *Internal Event* FEO and be combined with *Internal Event* FEO. A clausal adverb *rudely* in (21a) is construed with *External Event* FEO, taking v' [*(she) left*] as its argument, while a manner adverb *rudely* in (21b) is combined with *Internal Event* FEO, taking VP [*left*] as its argument. The one in (21c) can be combined with either *Internal Event* FEO or *External Event* FEO. As for the structural licensing of adverbs, Ernst (2002) assumes a control theory that an adverb composes a phrase (AdvP) whose subject is PRO, and it is controlled by the local specifier as stated in (23).

(23) *C-command licensing condition for SO adverbs*

The DP (in an A-position) denoting subject-oriented adverb's subject argument must c-command the adverb. (Ernst 2002: 107, ex.(3.54))

The 'subject' in (23) refers to Agent or Experiencer argument. The subject *she* in (21a) is defined as the subject of *rudely* according to (23). The adverb is c-commanded by the DP *she* as illustrated in (24). A DP *John* in an example *John calmly laid on the sofa* is Experiencer, and the adverb *calmly* can be also c-commanded by this Experiencer subject.





3.1. MA READINGS AND FEO HIERARCHY. In 2.2, we observed PA’s MA reading (subjective) disappears when V-projection adverbs c-command PAs as stated in (13). How can this generalization be accounted for under Ernst’s theory?

Miura and Fujii (2021) utilizes a scope generalization such as (25) from Ernst’s FEO theory of adverb licensing in order to account of the contrast about SO adverbs in Japanese in (25).

(25) *Ernst’s (2002, 2007, 2015) generalization*

Subject-oriented adverbs lose their otherwise available clausal readings when manner adverbs c-command them in the same clause. (Miura and Fujii 2021, 256, (7))

- (26) a. Taroo-wa orokanimo riroseizen-to situmon-ni kotaeta.  
 Taro-TOP stupidly articulately answers-to answered  
 ‘Taro stupidly answered the questions articulately.’
- b. \* Taroo-wa riroseizen-to orokanimo situmon-ni kotaeta.  
 Taro-TOP articulately stupidly answers-to answered  
 ‘Taro stupidly answered the questions articulately.’ (Ernst 2015: 1050, (3))

(26a) means that Taro answered questions articulately without any hesitation, which is judged stupid. In (26b) the same reading cannot be obtained in the manner-SO adverb order, as the asterisk indicates.<sup>11</sup> This contrast is explained by (25) on the basis of FEO hierarchy. When an SO adverb *orokanimo* ‘stupidly’ c-commands a manner adverb *riroseizen-to* ‘articulately’ the SO adverb itself is combined with *External Event* FEO, and c-commands VP that returns *Internal Event* FEO [*riroseizen-to situmon-ni kotaeta*]. In this relation, *External Event* FEOs are higher than *Internal Event* FEOs, which respects the hierarchy. When the manner adverb c-commands the SO adverb, which creates a relation that does not follow the hierarchy. Therefore, the SO adverb has no chance to be combined with *External Event* FEOs and cannot be interpreted as a clausal adverb.

I propose that the same account holds true with PAs’ statement (13), recited in (27).

- (27) PAs’ MA reading disappears when they follow SO adverbs, manner adverbs and VP-adjuncts. (=13)

When a PA c-commands a manner adverb, an MA reading of the PA is clearly available. When this interpretation is available, we see that the PA is combined with *External Event* FEO [<sub>VP</sub> *yukuri hon-o yomu*], and the manner adverb is with *Internal Event* FEO [<sub>VP</sub> *hon-o yomu*]. This configuration respects the scope hierarchy. However, when the c-command relation is reversed, the PA must be combined with *Internal Event* thereby returning a reversed scope relation [<sub>VP</sub>

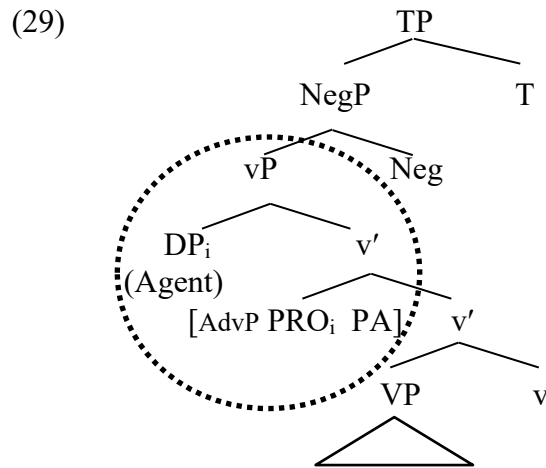
<sup>11</sup> Although Ernst’s (2015) judgement of (26b) is true, Miura and Fujii (2021) admit that the clausal reading becomes observable in the following two circumstances: when there is an acute falling pitch on the adverb *orokanimo* ‘stupidly’ or an intonational boundary between two adverbs.

*yukkuri omosiroku hon-o yomu*]. The PA cannot return *External Event* FEO, and this is why the clause in question sounds contradictory.

3.2. WHEN NEGATION COMES IN. We have observed so far that Japanese PAs follow a general pattern of the scope hierarchy. However, there is a caveat here. As in (28a), PAs' MA reading is lost in the clause-mate negation but as in (28b), it is obtainable under the non-local negation.

- (28) a. \* Taroo-wa sono ronbun-o omosiroku yoma-nakat-ta.  
 Taro-TOP that paper-ACC interestingly read-NEG-PST  
 'Taro did not read that paper and found it interesting.'
- b. Taroo-wa [watasi-ga sono ryoori-o oisiku tabeta] to iwa-nakat-ta.  
 Taro-TOP I-NOM that dish-ACC deliciously ate C say-NEG-PST  
 'Taro didn't say that I ate that dish and found it delicious.'

The contrast in (28) seems to turn over the c-command based scope theory as in (23). In Japanese phrase structure, Neg c-commands *v* and *V* as in (28). If the PA is attaching to *v*', it must be under the scope of negation and should be interpreted within the very scope.



Why are PAs blocked in the negative scope? To what extent this assumption is true? As three reviewers comment, this is indeed a not stable assumption. Observe the data in (30)<sup>12</sup>.

- (30) a. Watasi-wa sono hanasi-o omosiroku kik-e-nakat-ta.  
 I-TOP that story-ACC interestingly hear-ability-NEG-PST  
 'I didn't manage to hear that story and find it interesting.'
- b. Dare-mo sono hanasi-o omosiroku kik-e-nakat-ta.  
 who-*mo* that story-ACC interestingly hear-ability-NEG-PST  
 'No one can eat the fish dish and found it tasty.'

In both examples of (30), the ability verb *-e* comes in the lexical verb *kik-* 'hear' and negation *-nai*. As in (29), the ability verb is c-commanded by Neg. We expect the PA not to be licensed, since it falls in the scope of negation, but the MA reading of *omosiroku* is still available in the sentence. This means that PAs still follow the c-command condition. Furthermore, the following data require the c-command condition for the PA to be licensed. A PA *mazuku* 'loathsome' whose meaning negative in (31) can be understood in the negative scope of *tabe-nai*.

<sup>12</sup> These data are provided by anonymous reviewers. I also appreciate their comments.

- (31) Watasi-wa sono ryoori-o mazuku tabe-nakat-ta.  
 I-TOP that dish-ACC loathsome eat-NEG-PST  
 ‘I didn’t eat that dish and found it loathsome.’

In the next section, I will put forward an idea to make account for the data (28) to (31) with the aid of polarity-sensitivity of adverbs (Ernst 2009).

**4. Polarity sensitivity of PAs.** We saw that the MA reading of PAs is not licensed in the local negative scope in (31). Why should it be so? Are these PAs Positive Polarity Items (PPIs)? Yet, this conclusion is hasty, because they can be questioned as in (32a) or appear in a conditional clause as in (32b). PPIs are usually not licensed in these contexts.<sup>13</sup>

- (32) a. Taroo-wa sono hanasi-o omosiroku kii-ta no.  
 Taro-TOP that story-ACC interestingly hear-PST Q  
 ‘Has Taro heard that story and found it interesting?’  
 b. ? Mosi watasi-ga sono hanasi-o omosiroku kii-tara, mina odorokudaroo.  
 if I-NOM that story-ACC interestingly hear-COND everyone will.be.surprised  
 ‘If I hear that story and find it interesting, everyone will be surprised.’

Moreover, there is another noticeable aspects of PAs, which is a long-standing issue of the type III PA construction (Doragana 2005). PAs whose lexical sense are negative or adversative cannot be licensed in this construction.

- (33) a. \* Mina-wa ohiru-o mazuku tabeta.  
 we-TOP lunch-ACC loathsome ate  
 ‘We all had awful lunch.’  
 b. \* Watasi-wa kyuuka-o tsumaranaku sugosita.<sup>14</sup>  
 I-TOP holiday-ACC boring spent  
 ‘I spent a holiday and found it boring.’

Considering (31) and (33), I argue that PAs in (33) constitute Negative Polarity Items (NPIs). The data (34) further supports this argument, since such a PA requires *-nai* in its local clause.

- (34) \* Taroo-wa [watasi-ga sono ryoori-o mazuku tabeta to] iwa-nakat-ta.  
 Taro-TOP I-NOM that dish-ACC loathsome ate C say-NEG-PST  
 ‘Taro didn’t say that I ate that dish and found it loathsome.’

4.1. POLARITY-SENSITIVITY OF ENGLISH SPEAKER-ORIENTED ADVERBS. Now, we observe what Ernst (2009) proposes for English SpOAs (Ernst 2009: 506, (27),(29),(32)). As in a pair of (35a-b), the adverb *luckily* cannot be interpreted under negation, whereas in the pair of (35c-d), the adverb *yet* must be interpreted under negation.

- (35) a. Karen luckily has not left.  
 b. \* Karen has not luckily left. (Ernst 2009: 506, (27))  
 c. \* Karen has left yet.  
 d. Karen has not left yet. (Ernst 2009: 506, (28))

<sup>13</sup> See Watanabe (2013) and the literature therein on variation of Polarity Items.

<sup>14</sup> The data is provided from one of the reviewers.

The fact that any adverbs that cannot be interpreted under negation indicates that they exhibit a strong PPI nature. PPIs cannot be questioned as in (36b), nor be antecedents of conditional sentences as in (36c).<sup>15</sup>

- (36) a. They unfortunately withdrew their funds.  
 b. \* Did they unfortunately withdraw their funds? (Ernst 2009: 511, (49))  
 c. \* If they have possibly decided to buy a Ferrari, I'm going to stay off the road.  
 (Ernst 2009: 511, (50))

Ernst (2009), however, points out there is variation among SpOAs in terms of the degree of polarity-sensitivity. Not every SpOA in English patterns on a par with (36). (37) verifies that adverbs such as *unfortunately* are blocked in all non-veridical contexts such as question and conditional sentences, while others such as *obviously* can appear in some of these contexts.<sup>16</sup>

- (37) a. Well, the board has not {obviously/clearly} committed itself to any one candidate.  
 b. Are they {obviously/clearly} going to be eligible for the competition?  
 c. If Allison has {obviously/clearly} completed her analysis, there's no need for you to wait around. (Ernst 2009: 512, (52))

Against a backdrop of variation among SpOAs, Ernst introduces licensing conditions for PPIs such as (38).

- (38) Licensing conditions for PPIs (Ernst 2009, (47))<sup>17</sup>  
 a. A positive polarity item A is blocked in the local scope of a nonveridical operator.  
 b. In certain cases, A may be licensed indirectly despite being in the local scope of a nonveridical operator in a sentence S, iff S gives rise to a positive implicature  $\emptyset$ .

A nonveridical operator includes *not*, words such as *nobody*, downward entailment words such as *rarely*, and Non Veridical (NV) contexts such as questions and conditionals. The condition (38a) states that PPIs must be blocked in these nonveridical contexts. The condition (38b) saves a case where a PPI is indeed licensed even if the very PPI is in a scope of nonveridical operators, iff the sentence has a positive implicature.

Nonveridical operators, namely Polarity Item (PI) licensers are graded on a scale of polarity (39) with Antiveridical and Strictly Nonveridical as its poles as in (39a). Toward Antiveridical pole, PI licensers create more negatively restricted contexts, while toward Strictly Nonveridical pole, they create less negatively restricted contexts.

- (39) A hierarchy of PI licensers (Ernst 2009: (48))  
 a. Antiveridical < Strictly Nonveridical  
 b. Antimorphic  $\subseteq$  Anti-Additive  $\subseteq$  Downward Entailing  $\subseteq$  NV  
*not* *nobody, never* *rarely, no longer, few* Q, Cond

An SpOA that is blocked under all PIs in (39) is a Strong PPI. In contrast, an SpOA that is interpreted in the scope of these PIs is a Non-PPI. An SpOA that is banned in the scope of

<sup>15</sup> Ernst (2009) also reports that this property is widely observed cross-linguistically, including Italian, French, Dutch and Mandarin Chinese.

<sup>16</sup> Although these sentences are marked as acceptable, Ernst (2009) reports about evidential adverbs as follows: 'For some speakers evidentials are not always perfectly acceptable in these contexts, but there is still a contrast (p512).'

<sup>17</sup> This licensing condition is based on Giannakidou's (1999) condition of NPI licensing, according to Ernst (2009).

Antiveridical PIs but occasionally licensed in Strictly Nonveridical contexts, is a Weak PPI. The chart (40) is the trichotomy of SpOAs based on (39).

(40) The trichotomy of SpOAs (from Ernst 2009: 512, (53))

Type	Property	SpOAs
Strong PPIs	Blocked in all NV contexts	<i>unfortunately, luckily, oddly, sadly...</i>
Weak PPIs	Blocked in antiveridical contexts, sometimes OK in strictly nonveridical contexts	<i>mysteriously, appropriately, famously, ...</i>
Non-PPI	Allowed in all NV contexts	<i>obviously, clearly, transparently, seemingly,...</i>

Adopting this proposal, I argue that Japanese PAs show variation with respect to the polarity sensitivity. As in (28a), *oisiku* and *omosiroku* cannot be licensed under a clause-mate negation. But they may be allowed in questions and conditionals as in (32). They are blocked in Antiveridical contexts but may be licensed in Strictly Nonveridical contexts. We may say that they show the Weak PPI nature. PAs such as *mazku* and *tumaranaku* must be in a clause-mate negation as in (31), rendering these adverbs being interpreted as NPIs. The validity of this line of argument is proved by (41-42). They are licensed in questions or in conditional sentences.

(41) a. Mina-wa ohiru-o mazuku tabeta no.  
all-TOP lunch-ACC loathsome ate Q  
'Did you all have awful lunch?'

b. Kyuuka-o tumaranaku sugosita no.  
holiday-ACC boring spent Q  
'Did you spoil your holiday?'

(42) a. Mosi mina-ga ohiru-o mazuku tabe-tara, watasi-wa kanasii daroo.  
If all-NOM lunch-ACC loathsome ate-COND I-TOP sad will  
'If you all have awful lunch, I will feel sad.'

b. Mosi Taroo-ga kyuuka-o tumaranaku sugosi-tara, watasi-wa kanasii daroo.  
If Taro-NOM holiday-ACC boring spent-COND I-TOP sad will  
'If Taro spoils his holiday, I will feel sad.'

Are there any PAs that fall in the Strong-PPI category? I suppose the adjective *urayamasii* 'jealous' may be a candidate. As in (43), it can be interpreted neither in clause-mate negation, nor in a question or a conditional sentence.

(43) a. Hanako-wa Noriko-no hanasi-o urayamasiku kii-ta.  
Hanako-TOP Noriko-GEN story-ACC envious hear-PST  
'Hanako heard Noriko's story and found it envious.'

b. \* Hanako-wa Noriko-no hanasi-o urayamasiku kika-naka-ta.  
Hanako-TOP Noriko-GEN story-ACC envious hear-NEG-PST  
'Hanako did not hear the story and find it envious.'

c. \* Hanako-wa Noriko-no hanasi-o urayamasiku kiita no.  
Hanako-TOP Noriko-GEN story-ACC envious hear-PST Q  
'Did Hanako hear Noriko's story and find it envious?'

- d. \* Mosi Hanako-ga Noriko-no hanasi-o urayamasiku kii-tara  
 if Hanako-NOM Noriko-GEN story-ACC envious hear-COND  
 mina-wa odoroku daroo.  
 all-TOP be.surprised will  
 ‘If Hanako hears Noriko’s story and find it envious, everyone will be surprised.’

(44) The trichotomy of polarity sensitivity of PAs (based on Ernst 2009: 512, (53))

Type	Property	Example (J-PAs)
Strong PPIs	Blocked in all NV contexts	<i>urayamasiku,...</i>
Weak PPIs	Blocked in antiveridical contexts, sometimes OK in strictly nonveridical contexts	<i>oisiku, tanosiku, omosi-roku, kyoombukaku,...</i>
Non-PPIs	Allowed in all NV contexts	<i>mazuku, tumaranaku,...</i>

In (30), we observed that Weak-PPI PAs are licensed even under the scope of negation when they appear with the ability verb. I argue that this case follows *indirect licensing* in (38b). This is due to the lexical nature of the ability verb to produce a positive context. The opposite effect must be found with NPIs. Thus, when a sentence has a negative implicature, non-PPIs should be licensed even without an overt negation in a local clause. And this expectation is indeed borne out as (45) below shows.

- (45) Oizumi-san-wa itumo mesi-o mazuku tukuru.<sup>18</sup>  
 Mr.Oizumi- TOP always dish-ACC loathsome make  
 ‘Mr. Oizumi always cooks loathsome dishes.’

The adverb *itumo* ‘always’ usually means a simple repetition, but it can be interpreted as a negative custom when such a repetition is iterated so many times that people are now sick of Oizumi’s awful dishes. In this case, the adverb may behave as a negative downward entailment item such as *rarely* or *seldom* in English.

**5. Conclusion.** This paper proposes a licensing theory for a type of Japanese PA constructions (i.e. the type III construction) considering its syntactic, semantics and lexical properties. (46) is the findings of the paper.

- (46) a. PAs are structurally licensed when they are c-commanded by its local specifier.  
 b. PAs can be associated with an MA reading and a manner reading. The former reading is created when they are combined with *External Event* FEO, while the latter reading is created when they are combined with *Internal Event* FEO. They lose the MA reading when an adverb adjoining to a V-projection c-commands it in the local clause.  
 c. PAs are polarity-sensitive. They function as Strong PPIs, Weak PPIs, and Non-PPIs.

A multiple adverb construction that has been discussed in this paper, for instance, cannot be easily found in adults’ speech, to the best of my knowledge. This leads us to a question: how do children learn the two readings of the PA construction and its form-meaning relation? This paper has no space to discuss the learnability problems of the adverbs but this will be left for the future research.

<sup>18</sup> This data is provided by a reviewer.

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