

**A VP-SHELL ANALYSIS  
FOR THE UNDERGENERATION AND THE OVERGENERATION IN THE  
ACQUISITION OF JAPANESE CAUSATIVES AND POTENTIALS \***

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**1. Introduction**

In this paper, we discuss the undergeneration and the overgeneration observed in the acquisition of Japanese complex predicates. In particular, we focus on the errors children make in causatives and potentials. It has been reported that Japanese-speaking children, at around two to four years of age, produce causatives without the causative morpheme *-(s)ase* as in (1) (Suzuki 1987, Ito 1990, Murasugi and Hashimoto 2004, Murasugi, Hashimoto and Fuji 2007, among others).<sup>1</sup>

- (1) Mama Akkun *non -de*. (Akkun, 2;8) (adult form: nom-(s)ase-te)  
mommy drink-Req

Literal meaning: ‘Mommy, (please) drink Akkun(/me).’

Intended meaning: ‘Mommy, (please) feed Akkun(/me) (with milk).’

(Murasugi and Hashimoto 2004)

In (1), the causative form *nom-(s)ase-te* should be used in this context, but the child does not phonetically realize *-(s)ase* and produces *non-de* instead.

Another type of error is also observed in the acquisition of causatives as in (2) (Ito 1990,

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<sup>1</sup> Abbreviations used in the glosses are as follows: Acc=accusative C=complementizer, Case, Cause=causative, Cop=copula, Dat=dative Case, I=inflection, Int=interjection, Intr=intransitive, N=noun, Neg=negation, Nom=nominative Case, Pres=present, Past=past, Pot=potential, Req=request, Top=topic, Trans=transitive

Arai 2003, Murasugi and Hashimoto 2004, among others).

- (2) a. *Nomi -tyatye* -te. (-tyatye = -sase) (Akkun, 3;7) (adult form: nom-(s)ase-te)  
 drink -Cause -Req

Intended meaning: ‘(Please) feed (me with miso soup.)’

(Murasugi and Hashimoto 2004)

- b. *Kuruma -o too -si -sase -ru.* (Taatyan, 3;10) (adult form: too-s-(r)u)  
 car -Acc pass -Cause -Cause -Pres

Intended meaning: ‘(I’ll) let the car pass through.’ (Arai 2003)

In (2a), the causative morpheme *-(s)ase* should be attached to the verb stem *nom* ‘to drink.’ However, the child “erroneously” attaches *-tyatye* (meaning *-sase*) to the preverbal form *nomi*, and produces *nomi-tyatye-te*. (2b) is an example of doubled causatives. Although the transitive verb *too-s-(r)u* ‘to let ... pass’ itself can be a causative verb, the child additionally attaches the unnecessary causative morpheme *-sase* to it, yielding the unacceptable form *too-si-sase-ru*. The Japanese-speaking children overgenerate the morpheme *-sase* in either case.

The similar errors have been reported in the acquisition of *-(rare)e* potential complex predicates (Okubo 1967, Noji 1974-1977, Ito 1990, Shibuya 1994, Arai 2006, among others). Arai (2006), for instance, gives a phonological explanation for the erroneous potential forms productively produced by a Japanese-speaking child. The data discussed in Arai (2006) and the data of Sumihare (Noji 1974-1977) are further reanalyzed by Yano (2007a) under Murasugi and Hashimoto’s (2004) VP-shell analysis. The relevant examples are shown in (3) and (4).

- (3) Mother: *Zenbu tabe -rare -ru kara ne.*  
 all eat -Pot -Pres as Int ‘(You) can eat all.’

Child: *Zenbu tabe  $\phi$  -ru ne.* (Sumihare, 2;1) (adult form: *tabe-rare-ru*)  
 all eat -Pres Int

Literal meaning: ‘(I) eat all.’

Intended meaning: ‘(I) can eat all.’ (Noji 1974-1977)

- (4) a. *Yar -(rare) -nai.* (Taatyan, 3;5) (adult form: *yar-e-nai*)  
 do -Pot -Neg

Intended meaning: ‘(I) cannot do.’

- b. *Zyoozuni mot -e -rare -ta.* (Taatyan, 4;2) (adult form: *mot-e-ta*)  
 well have -Pot -Pot -Past

Intended meaning: ‘(I) could bring (this) up very well.’ (Arai 2006)

(3) is an example of the undergeneration. According to the observer, the child repeats his

mother's utterance without using the *-rare* form (Noji 1974-1977). (4a) and (4b), on the other hand, are the examples of the overgeneration. In the case of (4a), the child intends to say that he cannot do something, and the potential morpheme *-e* should be attached to the verbal stem. However, *-rare* is attached, and the erroneous form *-yarare*, instead of *-yare*, is produced. In (4b), the child attaches the morpheme *-e* correctly to the verbal stem, but additionally attaches the unnecessary morpheme *-rare*, thereby producing an unacceptable doubled potential form. In either case, the morpheme *-rare* is overgenerated.

The purpose of this paper is to analyze the undergeneration and the overgeneration phenomena observed in the acquisition of Japanese causative and potential complex predicates. This paper is an extension of Murasugi and Hashimoto (2004), Murasugi, Hashimoto and Fuji (2007) and Yano (2007a). Yano's basic line of argument is that the intermediate acquisition stages for both types of the complex predicate can be uniformly explained by Murasugi and Hashimoto's (2004) *v*-VP frame analysis. We pursue this line of argument based on the analysis of longitudinal studies of Japanese-speaking children reported in the previous literatures, e.g., Akkun (Murasugi and Hashimoto 2004), Sumihare (Noji 1974-1977), Taatyan (Arai 2003, 2006), and the subjects observed by Okubo (1967), Ito (1990), Shibuya (1993, 1994), Suzuki (1987), among others. We argue that the parallel undergeneration and overgeneration phenomena are observed in the acquisition of *-(rar)e* potential complex predicates as well as *-(s)ase* causative complex predicates. We provide supporting evidence for Murasugi and Hashimoto's (2004) proposal that the undergeneration is due to the Japanese-speaking children's initial hypothesis that the *v* does exist but it is phonetically null (just as in adult English). We also support Murasugi's (2007a,b,c) proposal that the overgeneration takes place because of the erroneous realization of the *v* and the use of the undifferentiated verbal form.

This paper is organized as follows. In Section 2, we discuss Japanese adult grammar of causatives and potentials. We overview the proposals made by Murasugi and Hashimoto (2004) and Bobaljik and Wurmbrand (2005, 2007) that Japanese complex predicates have *v*-VP or VP-shell structures (Larson 1988, Hale and Keyser 1993, 2003, Chomsky 1995, Harley 1995, 2006, among others). Then, we discuss the undergeneration phenomenon in Section 3, and the overgeneration phenomenon in Section 4. Section 5 concludes this paper.

## 2. The Adult Grammar of Japanese Complex Predicates

### 2.1. *-(S)ase* Causatives

Japanese morphological *-(s)ase* causatives are formed by attaching the causative morpheme *-(s)ase* to the verb stems. It has been argued that *-(s)ase* is ambiguous in two ways (Miyagawa 1984, 1998, Harley 1995, 2006, Matsumoto 2000, Murasugi, Hashimoto and Kato 2003, Murasugi and Hashimoto 2004, among others). The sentence in (5), for instance, is ambiguous between (6a) and (6b).

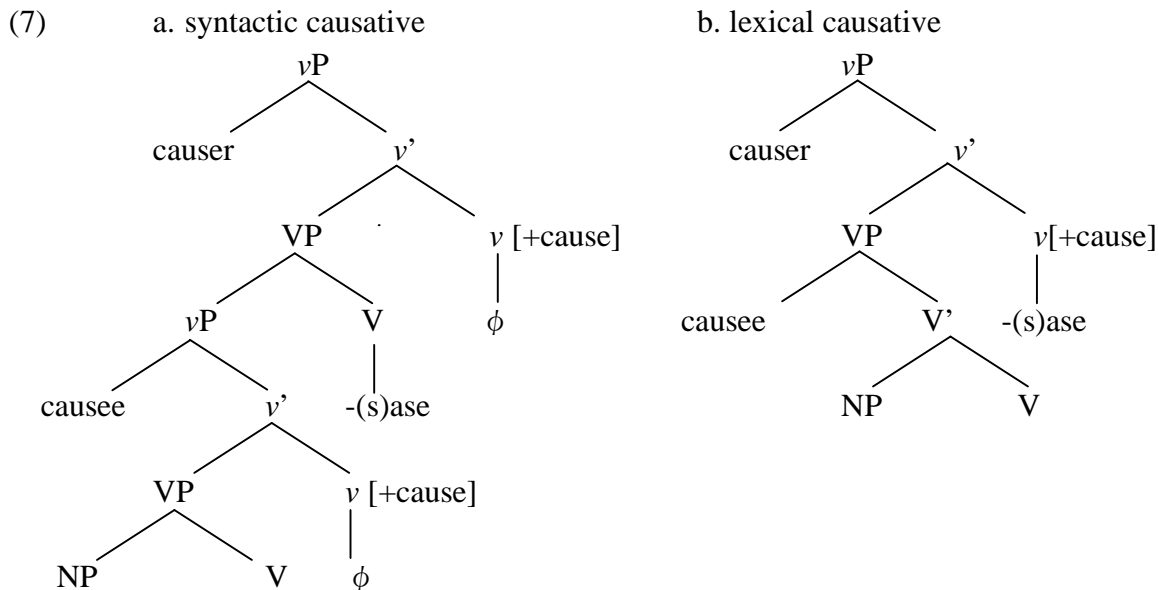
- (5) Taroo -ga Hanako -ni pan -o tabe -sase -ta.  
 -Nom -Dat bread-Acc eat -Cause -Past

‘Taroo made Hanako eat some bread.’

- (6) a. Taroo gave an order to Hanako and Hanako ate some bread.  
 b. Taroo fed Hanako with some bread.

In one reading, as shown in (6a), *Hanako* is an agent, whereas it is a goal in another reading as shown in (6b). The sentence with the former reading is called ‘the syntactic causative,’ while that with the latter reading is called ‘the lexical causative.’

Based on the VP-shell hypothesis (Larson 1988, Hale and Keyser 1993, 2002, Chomsky 1995, among others), Murasugi and Hashimoto (2004) propose the structures for these two types of *-(s)ase* causative, as shown in (7a) and (7b), respectively.



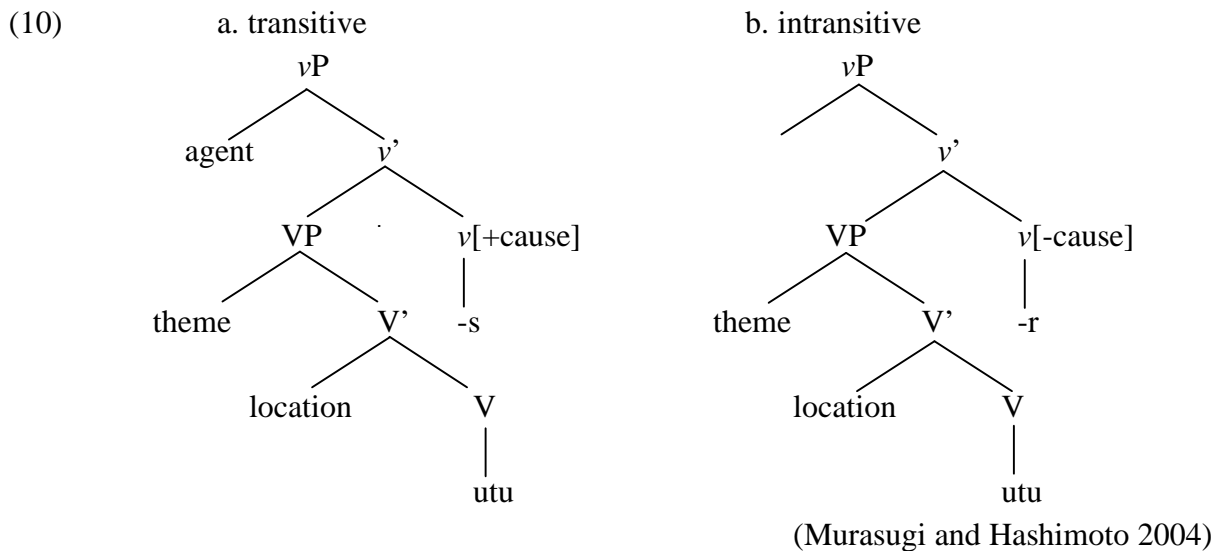
(Murasugi and Hashimoto 2004)

As shown in (7), a syntactic causative has the bi-clausal structure, whereas a lexical causative has the mono-clausal structure. According to their analysis, *-(s)ase* is ambiguous in the adult grammar of Japanese. In one case where it is an independent V, it takes a *v*-projection as its complement, yielding a complex structure as in (7a). In this case, the dative argument, or the causee, is interpreted as an agent. In the other case, it combines with the V and forms a complex verb, yielding a simple sentence with no embedding as in (7b). The dative argument is then interpreted as a goal. In Murasugi and Hashimoto’s (2004) terms, Japanese causative morpheme *-(s)ase* is a realization of the [+cause] *v*.<sup>2</sup>

<sup>2</sup> Following Miyagawa (1980, 1984, 1998), Zenno (1985), Harley (1995), Matsumoto (2000), among others, Harley (2006) also argues that *-sase* is ambiguous between syntactic and lexical causatives, and that syntactic causatives are bi-clausal while lexical causatives are mono-clausal. She

Following Hale and Keyser (1993, 2003), Murasugi and Hashimoto (2004) give the *v*-VP frame structure to Japanese transitive and intransitive sentences as well. Japanese transitive and intransitive verbal forms are distinguished with their morphemes as in (9), and these morphemes are in the *v* as shown in (10).<sup>3</sup>

- (9) a. utu-**s**-(r)u (photograph-Pres) / utu-**r**-(r)u (be photographed-Pres)  
 b. todok-**e**-ru (deliver-Pres) / todok-(r)u (be delivered-Pres)  
 c. os-**ie**-ru (teach-Pres) / os-**owar**-(r)u (be taught-Pres)  
 d. too-**s**-(r)u (let ... pass-Pres) / too-**r**-(r)u (pass-Pres)



Unlike Japanese, the [ $\pm$ cause] *v* is not phonetically realized in English transitive and intransitive sentences, as in (11).

- (11) a. Mary sank the boat. (transitive)  
 b. The boat sank. (intransitive)

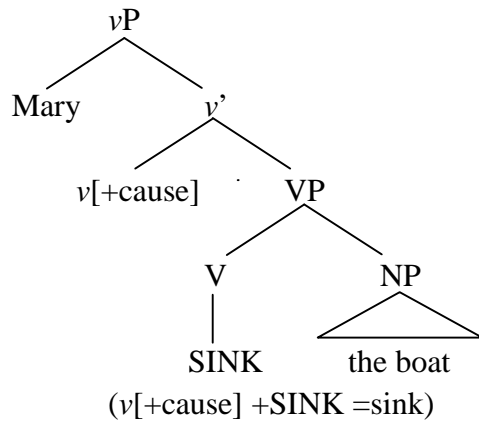
The structures of (11a) and (11b) are represented in (12a) and (12b) respectively.

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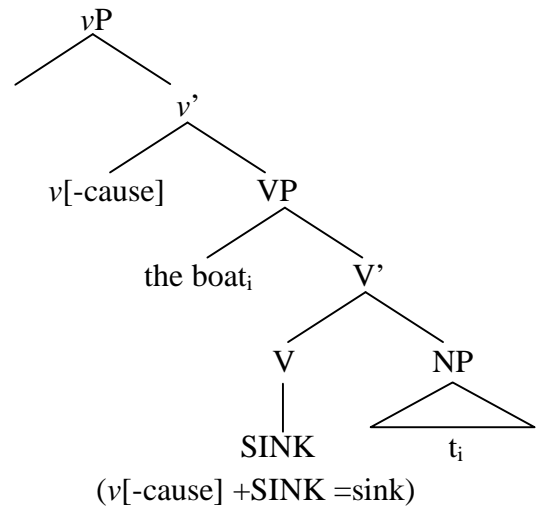
further assumes the *v*-VP structure for Japanese causatives based on Hale and Keyser (1993, 2002). Harley (2006), however, considers *-sase* to be the head of the *v*P in both syntactic and lexical causatives. According to her analysis, in lexical causatives, a CAUS *v*<sup>o</sup> is adjacent to a root. On the other hand, in syntactic causatives, a CAUS *v*<sup>o</sup> is not adjacent to a root and takes another *v*P complement.

<sup>3</sup> Japanese transitive and intransitive morphemes are not always overt. For instance, in the case of *todok-(r)u* in (9b), the [-cause] *v* is realized phonetically null like English verbs.

(12) a. transitive



b. intransitive



(Larson 1988, Hale and Keyser 1993, 2002, Chomsky 1995)

In (12a) and (12b), the verb 'sink' consists of two abstract verbs: the  $[\pm cause]$   $v$  and  $V$ . The  $[\pm cause]$   $v$  is realized phonetically null, and the transitive and the intransitive verbs have the same verbal form.

## 2.2. *-(Rare) Potentials*<sup>4</sup>

Japanese *-(rare)e* potential complex predicates are constructed by adding the morpheme *-(rare)e* 'able' to the verb stems. The vocalic verb stems, whose final elements are vowels, take the morpheme *-rare*, and the consonantal verb stems, whose final elements are consonants, take the morpheme *-e*, as shown in (13) (Shibuya 1993, Kinsui 2003, Arai 2006, among others).

- (13) a. Vocalic verbs: stem + *-rare*
- |          |                       |                     |
|----------|-----------------------|---------------------|
|          | ‘eat-Pot-tense’       | ‘see-Pot-tense’     |
| present: | tabe- <b>rare</b> -ru | mi- <b>rare</b> -ru |
| past:    | tabe- <b>rare</b> -ta | mi- <b>rare</b> -ta |
- b. Consonantal verbs: stem + *-e*
- |          |                  |                     |
|----------|------------------|---------------------|
|          | ‘go-Pot-tense’   | ‘make-Pot-tense’    |
| present: | ik- <b>e</b> -ru | tukur- <b>e</b> -ru |
| past:    | ik- <b>e</b> -ta | tukur- <b>e</b> -ta |

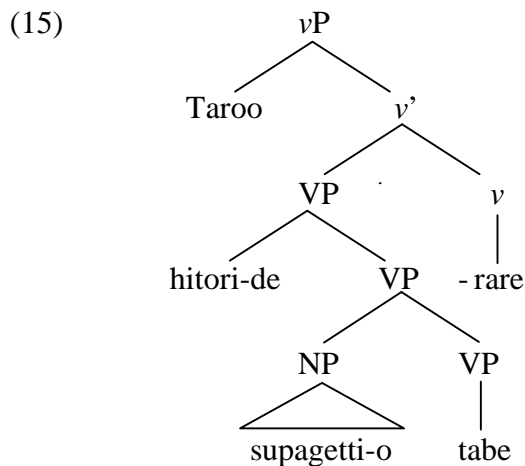
The verbs *tabe-ru* ‘to eat’ and *mi-ru* ‘to see’ shown in (13a) are vocalic, and the morpheme

<sup>4</sup> The analysis of child potentials presented here is an extension of Yano’s MA thesis (2007a) submitted to Nanzan University, which was also presented at Connecticut-Nanzan-Siena Joint Workshop on Linguistic Theory and Language Acquisition at Nanzan University, February 21st in 2007, and in Nanzan Linguistics Special Issue 3.1.

*-rare* is attached to the verb stems to derive the potential forms, *tabe-rare-ru* ‘can eat’ and *mi-rare-ru* ‘can see.’ In contrast, *ik-u* ‘to go’ and *tukur-(r)u* ‘to make’ shown in (13b) are consonantal verbs, and the morpheme *-e* is attached to the verb stems to derive the potential forms, *ik-e-ru* ‘can go’ and *tukur-e-ru* ‘can make.’ The examples in (14) indicate the typical potential sentences.

- (14) a. Taroo -wa hitoride supagetti -o tabe -**rare** -ru.  
           -Top by oneself spaghetti -Acc eat -Pot -Pres  
           ‘Taroo can eat spaghetti by himself.’
- b. Hanako -wa hitoride gakkoo-ni ik -**e** -ru.  
           -Top by oneself school -Dat go-Pot -Pres  
           ‘Hanako can go to school by herself.’

There are several important proposals regarding the structure of potentials (e.g., Tada (1992) and Koizumi (1995) for the AGR-based approach, Saito and Hoshi (1998) for the Head-Head Merger approach, and Takano (2003) for the Prolepsis approach). In this paper, we assume Bobaljik and Wurmbrand’s (2005, 2007) analysis that the potential morpheme *-(rar)e* is the head of the *vP*. Given their analysis, the structure of (14a) would be the one shown in (15).



Thus, under the *v*-VP frame analysis, the potential morpheme *-(rar)e*, transitive and intransitive morphemes, and the causative morpheme *-(s)ase* in lexical causatives are all the head of the *vP*.

In the following sections, we analyze the undergeneration and the overgeneration in *-(s)ase* causatives and *-(rar)e* potentials, and provide some supporting evidence for the hypothesis that children, in the course of language acquisition, fail to realize the correct adult form for the *v* (Murasugi and Hashimoto 2004, Murasugi 2007a,b,c).

### 3. The Undergeneration

According to Murasugi and Hashimoto (2004), the structure of VP-shell itself is acquired very early,<sup>5</sup> but it takes time for the Japanese-speaking children to acquire the “correct” lexical form of the *v*. Murasugi and Hashimoto (2004) propose that there is a stage where children hypothesize that the *v* is realized phonetically null. This stage corresponds to what we call the stage of the undergeneration.

#### 3.1. The Undergeneration in *-(S)ase* Causatives

In the early two-year-old, children’s utterances which have the causative meaning (or intention) are produced without the causative morpheme *-(s)ase* (Murasugi and Hashimoto 2004). We call such phenomenon ‘the undergeneration.’ A couple of examples are given in (16a=(1)) and (16b).

- (16) a. Mama Akkun *non -de*. (Akkun, 2;8) (adult form: nom-(s)ase-te)  
 mommy drink -Req  
 Literal meaning: ‘Mommy, (please) drink Akkun(/me).’  
 Intended meaning: ‘Mommy, (please) feed Akkun(/me) (with milk).’  
 (Murasugi and Hashimoto 2004)
- b. Kutyu *hai -te*. (Sumihare, 2;1) (adult form: hak-(s)ase-te)  
 a pair of shoes put on -Req  
 Literal meaning: ‘(Please) put on (your) pair of shoes.’  
 Intended meaning: ‘(Please) put a pair of shoes on (me).’  
 (Murasugi, Hashimoto and Fuji 2007)

As shown in (16a), Akkun intends to say *nom-(s)ase-te* to ask his mother to feed him, but utters *non-de* ‘please drink’ instead, without lexically realizing *-(s)ase*. Murasugi, Hashimoto and Fuji (2007) find the same type of undergeneration error in the longitudinal data of Sumihare (Noji 1974-1977). In (16b), Sumihare produces *hai-te* instead of *hak-(s)ase-te*. He does not produce *-(s)ase* though it is clear that he intends to ask someone to put a pair of shoes on him. This type of erroneous causative has been widely observed in previous literatures (e.g., Okubo 1967, Suzuki 1987, Ito 1990, Arai 2003, among others).

<sup>5</sup> From around 1;5 through 3 years of age, the sentences with onomatopoeic expressions and *suru/sita/site* ‘do/did/doing’ as in (i) are often produced by Japanese-speaking children.

- (i) Mama Akkun *hai doozyo tiyu*. (tiyu = suru) (Akkun, 2;5)  
 mommy yes please do  
 ‘Akkun(/I) will give (it) to Mommy.’ (Murasugi and Hashimoto 2004)

Murasugi and Hashimoto (2004) propose that *suru/sita/site* assigns an agent role to a subject. That is, the *v* is realized as *suru/sita/site* in this stage, and children have VP-shell structures. See Murasugi and Hashimoto (2004) and Murasugi, Hashimoto and Fuji (2007) for more data and detailed analysis.



Murasugi and Hashimoto (2004) point out that the period in which erroneous causatives in (16) are observed overlaps with that of children's transitive/intransitive alternation errors observed by them and other researchers (Okubo 1967, Ito 1990, among others). Children start producing the intransitive and the transitive verbs "correctly" (i.e., in the adult form) at around the age of two. It should be noted, however, not all the verbal forms are always "correct." The relevant examples of the transitive/intransitive alternation errors are given in (17).

- (17) a. Akkun ima kaya koe *nayab* -u. (*nayab*-u = *narab*-(r)u) (Akkun, 2;11)  
 now from this be-in-line-Pres (adult form: **narab-e-ru**)

Intended meaning: 'From now, Akkun(/I) will put these in line.'

(Murasugi and Hashimoto 2004)

- b. *Nui*-ta koko. (Sumihare, 2;1) (adult form: **nuk-e-ta**)  
 pull-Past here

Intended meaning: '(This) is out from here.'

(Fuji 2006, Murasugi, Hashimoto and Fuji 2007)

In (17a), instead of the transitive verb *narab-e-ru* 'to put...in line,' Akkun erroneously produces what corresponds to the intransitive verb *narab-(r)u* 'to be...in line.' In contrast, in (17b), the intransitive verb *nuk-e-ta* 'came off' must be used in the adult grammar. However, Sumihare uses the transitive form *nui-ta* 'pulled.'

Murasugi and Hashimoto (2004) argue that both of the causatives without *-(s)ase* and the transitive/intransitive alternation errors are due to children's initial hypothesis that the [ $\pm$ cause] *v* is phonetically null. To be precise, the utterances in (16) are not 'omission' errors, but they are 'the undergeneration.' Although the children apparently omit *-(s)ase*, they just assume the *v* to be null. This also holds for the transitive/intransitive alternation errors. As discussed in Section 2.1, in adult Japanese, the [ $\pm$ cause] *v* are basically overt, and therefore a transitive verb and an intransitive verb have different forms, such as *utu-s-u* 'to photograph' and *utu-r-u* 'to be photographed.' However, children assume the [ $\pm$ cause] *v* to be null in this period, and they do not distinguish the two forms. Thus, Murasugi and Hashimoto (2004) propose that this is the stage where children know that either *-s* or *-r* should be attached to the verb (probably because they never hear the verb without these morphemes), and hence, children randomly attach these morphemes directly onto the V. This is why children sometimes produce verbal forms correctly and sometimes do not.

### 3.2. The Undergeneration in *-(Rar)e* Potentials

Like causatives, children start producing potentials without the potential morpheme *-(rar)e* in the early two-year-old. We find the same type of undergeneration as causatives, as shown in (18).

- (18) a. Child: Zenbu tabe  $\phi$  -ru ne. (Sumihare, 2;1) (adult form: tabe-**rare**-ru)  
 all eat -Pres Int

Literal meaning: ‘(I) eat all.’

Intended meaning: ‘(I) can eat all.’ (Noji 1974-1977)

- b. Sime  $\phi$  nai wa yo. (2;3) (adult form: sime-**rare**-nai)  
 close Neg Int Int

Literal meaning: ‘(I) don’t close (it).’

Intended meaning: ‘(I) cannot close (it).’ (Okubo 1967)

In (18a=(3)), as we mentioned in Section 1, Sumihare repeats after his mother without using the *-rare* form, despite the fact that the mother speaks to her son using the *-rare* form *tabe-rare-ru* ‘can eat.’ (18b) is the same type of utterance produced by another Japanese-speaking child. Okubo (1967) reports that the child intends to say *sime-rare-nai* ‘cannot close,’ but in the actual speech, he produces the verbal form *sime-nai* ‘don’t close,’ without attaching the potential morpheme *-rare*. Given that the potential morpheme is in the *v* (Bobaljik and Wurmbrand 2005, 2007), this error can be well explained under Murasugi and Hashimoto’s (2004) VP-shell analysis. That is, children in this stage, at around the age of two, hypothesize that the *v* is phonetically null.

On the other hand, the “correct” potential forms also appear in the children’s early production (Okubo 1967, Ito 1990, Shibuya 1994, Arai 2006, Yano 2007a,b,c, among others). Shibuya (1994) and Arai (2006) report that children start producing the correct potential forms with the morpheme *-e* at around the age of two. Based on her analysis of Noji corpus from CHILDES database (MacWhinney 2000), Yano (2007a,b,c) also finds that *-e* potentials appear very early, at around 2;0. Some examples of Sumihare’s potential sentences are given in (19).

- (19) a. Too -r -e -n. (Sumihare, 2;0)  
 pass -Intr -Pot -Neg

‘(I) cannot pass (here).’ (Yano 2007a,b,c)

- b. Kakko -ga hak -e -n. (Sumihare, 2;2)  
 shoes -Nom put on -Pot -Neg

‘(I) cannot put on my shoes.’ (Yano 2007a,b,c)

In (19a) and (19b), Sumihare apparently produces potential forms correctly. *Too-r-e-n* ‘cannot pass’ in (19a) and *hak-e-n* ‘cannot put on’ in (19b) are the short forms of *too-r-e-nai* and *hak-e-nai*. Those are possible truncated forms in some Japanese dialects.

Then, are potentials really acquired in such an early stage, even at the age of two? An possible answer for this question is a positive one, i.e., the adult syntax of potentials is acquired very early compared with other complex predicates. The other possibility is, on the

contrary, what apparently looks like the adult potential form does not, in fact, have exactly the same structure as adults'. Murasugi (2007a,b,c) gives an answer to this problem. She proposes that children's predicates produced at the early age of two are the uninflected (undifferentiated) form, and that the *v* is phonetically null in this stage. Hereafter, we support the latter possibility or Murasugi's (2007a,b,c) analysis: Sumihare's potential predicates produced at the early age of two, in fact, are the undifferentiated form, and this is the stage where the *v* is phonetically null as well. In other words, in this stage, the children attach the potential morpheme *-e* onto the V.

Some evidence for this proposal is found in Murasugi and Fuji's (2007) analysis of the longitudinal data of Sumihare (Noji 1974-1977). First, Sumihare, in the stage where the undergeneration in question is observed, produces "erroneous" tense inflections as shown in (20).

- (20) Tootyan, koko gomi tui **-ta** yo. (Sumihare, 2;1)  
       father here dust stick-Past Int (adult form: tui-**tei-ru** (perfect))

Intended meaning: 'Daddy, you have got the dust here (=on your cheek).'

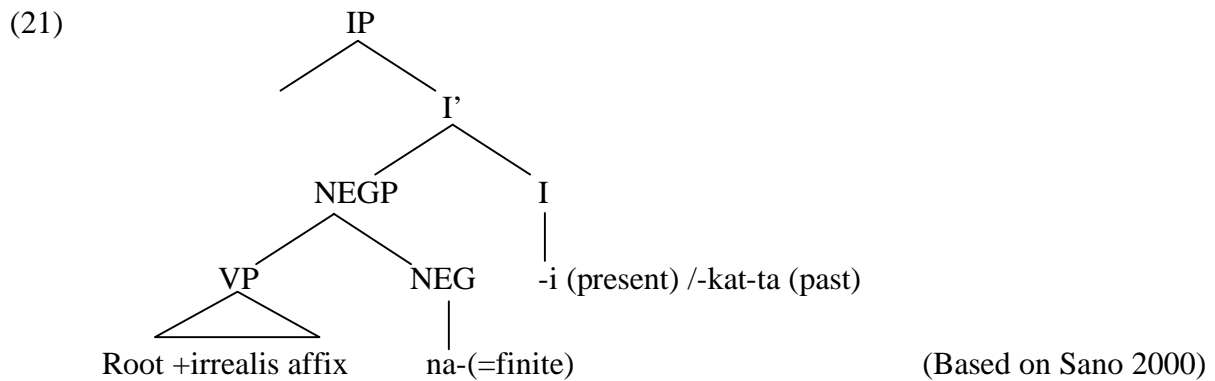
(Murasugi and Fuji 2007)

The context of (20) is that Sumihare wants to tell his father that his father has dust on his cheek. In this context, the perfect form *-tei-ru*<sup>6</sup> should be used. However, Sumihare employs the simple past form and says *tui-ta* 'stuck' instead of *tui-te iru* 'have been stuck.' Based on the detailed analysis of other perfect and progressive forms produced by Sumihare (Noji 1974-1977), Murasugi and Fuji (2007) argue that tense/aspectual markers such as *-ta*, *-(r)u*, or *-te(iru)* and the stems of verbs are not differentiated at the very early stage. This analysis stands upon the proposal by Murasugi (2007a,b,c) that the verbal forms of Japanese-speaking children at around the age of two are the unmerged form of the verb and the tense, and that the children's functional categories such as T and *v* are not phonetically realized at the very early stage in such agglutinative language as Japanese. The verbs and the tense/aspectual markers are unanalyzed (undifferentiated), and they are base-generated in the V. That is, Sumihare regards the whole verbal form *tui-ta* in (20) as V.

The second evidence is, as is discussed in Murasugi and Fuji (2007), found in Sumihare's erroneous negative forms observed in the intermediate acquisition stage in question. In adult Japanese, *-nai* 'not' is a verbal predicate which itself carries finite tense (Sano 2000). The structure of negation is represented schematically in (21).

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<sup>6</sup> Japanese *-tei-ru* sentences are ambiguous between the progressive and the perfect interpretations.



The examples in (22), however, indicate that Sumihare, in an early age of two, does not have the structure in (21).

- (22) a. Father: Sinbun tot -ta?  
Newspaper take -Past 'Have (you) fetched the newspaper yet?'  
Sumihare: Tot **-ta** -nai. (Sumihare, 2;1) (adult form: tot-**te**-nai)  
take -Past -Neg  
Intended meaning: '(I) haven't.'
- b. Mother: Oti -ru yo.  
fall down -Pres Int '(You) will fall down.'  
Sumihare: Oti **-ta** -nai. (Sumihare, 2;1) (adult form oti-**te**-nai/oti-nai)  
fall down -Past -Neg  
Intended meaning: '(I) won't.' (Murasugi and Fuji 2007)

In (22a), Sumihare is asked if he has already fetched the newspaper, and he intends to say, 'No, I haven't.' For this context, the negative form *tot-te-nai* 'haven't taken' should be used. However, Sumihare puts *-nai* on the past tense form *tot-ta* 'took,' and produces the unacceptable negative form *tot-ta-nai*. (22b) shows the same type of error. Even though his mother speaks to him using the present verbal form *oti-ru* 'fall down,' the child produces *oti-ta-nai*, putting *-nai* on the past tense form *oti-ta* 'fell down,' despite the fact that the negative form *oti-te-nai* or *oti-nai* should be used for this context.

Recall here that in such agglutinative language as Japanese, the functional categories such as T and *v* are not phonetically realized in the early stage, and the verbal forms of Japanese-speaking children at around the age of two are the unmerged form (Murasugi 2007a,b,c). The examples given above create one of the good cases for this hypothesis. The negative marker *-nai* 'not' is attached to the verbal form, *totta* or *otita* in this acquisition stage, because the child regards the whole verb containing the tense marker as a rote form.

Thus, the discussion so far leads us to presume that Sumihare, at the early age of two, produces the undifferentiated verbal forms as Murasugi (2007a,b,c) discusses. Then, it is

natural to consider that the potentials found in this period are also undifferentiated verbs. Given this analysis, the examples in (19) would be, in fact, the “lexical potentials.” That is, the child attaches the potential morpheme *-e*, not as a realization of the *v*, but as a part of the V. This analysis seems to be plausible since none of early potentials produced by Japanese-speaking children has the *-(r)are* form. The *-(r)are* potentials forms appear at around the age of 2;5, according to Noji (1974-1977), Shibuya (1994) and Arai (2006) (see Fuji, Hashimoto and Murasugi (2008a) for details.)

Note here that the children’s potentials without a potential morpheme *-(rar)e* and the “lexical potentials” are all used with the potential meaning in the “correct” context. Hence, it is plausible that the *v* does exist and it has the feature (i.e., [+potential]) at this point, but it is phonetically null in the stage of the undergeneration, as Murasugi and Hashimoto (2004) propose.

#### 4. The Overgeneration

In Section 3, we argued that the undergeneration phenomenon observed in Japanese causatives and potentials are elegantly explained under Murasugi and Hashimoto’s (2004) *v*-VP frame analysis. In this section, we turn to the overgeneration phenomenon. We point out that the two types of overgeneration are observed in a parallel way in the acquisition of Japanese causatives and potentials. We argue there is an intermediate acquisition stage where the children know that the *v* has to be phonetically realized in their target grammar, but the children (i) have not acquired the “correct (adult)” lexical forms, and/or (ii) have still the undifferentiated rote verbal forms.

##### 4.1. The Overgeneration in *-(S)ase* Causatives

After the stage of the undergeneration, Japanese-speaking children start producing lexical causatives (at around the age of three for Akkun, and around 2;5 for Sumihare) (Murasugi and Hashimoto 2004, Murasugi, Hashimoto and Fuji 2007).

- (23) a. Akkun -ni tabe **-sase** -tee. (Akkun, 3;6)  
           -Dat eat -Cause -Req

‘(Please) feed Akkun(/me) (with food).’ (Murasugi and Hashimoto 2004)

- b. Seizi-kun boku-ga ne nak-**asi** -tan ja -nai -no yo. (Sumihare, 2;7)  
       I -Nom Int cry -Cause -Past Cop -Neg-C/N Int

‘It is not me who made (Mr.) Seiji cry.’ (Murasugi, Hashimoto and Fuji 2007)

In (23a), *Akkun* is not an agent but a goal, since Akkun is asking his mother to put some food directly into his mouth. *Seizi-kun* in (23b) is not an agent either, because his action, i.e., crying, was caused by someone else. The object *Seizi-kun* is scrambled to (or topicalized in) the sentence-initial position, and the agent is *boku* (I, or Sumihare). Thus, the verbs in (23) are

analyzed to be lexical causatives, and it is plausible to consider that each sentence in (23) has a mono-clausal structure. Children, at this stage, are apparently aware that the [ $\pm$ cause]  $v$  must be phonetically realized.

Note here that, exactly at this stage, the overgeneration also takes place. There are in fact two types of overgeneration: one is “a verb +  $-(s)ase$ ” form, and the other is “a causative verb + a causative morpheme” form. The examples of the first type of overgeneration are given in (24).

- (24) a. Ok *-i -sasi* -te. (Sumihare, 3;1) (adult form: ok-**osi**-te)  
 get up-Intr -Cause -Req  
 Intended meaning: ‘(Please) get (me) up.’ (Noji 1994-1997)
- b. *Nomi -tyatye* -te. (-tyatye = -sase) (Akkun, 3;7) (adult form: nom-(**s**)**ase**-te)  
 drink -Cause -Req  
 Intended meaning: ‘(Please) feed (me with miso soup.)’  
 (Murasugi and Hashimoto 2004)
- c. Gyunyu *nomi -sase* -te. (Taatian, 2;9) (adult form: nom-(**s**)**ase**-te)  
 milk drink -Cause -Req  
 Intended meaning: ‘Please feed (me) with milk.’ (Arai 2003)

In (24a), Sumihare asks someone to get him up. Here, the imperative form of the lexical causative verb *ok-os-(r)u* ‘to get ... up,’ or *ok-osi-te*, is expected in the adult grammar, but Sumihare erroneously attaches *-sasi* (which is sometimes used instead of the standard *-sase* in his dialect) to the stem of the intransitive verb *ok-i-ru* ‘to get up.’ (24b=(2a)) shows the similar type of error. The correct causative form of the verb *nom-(r)u* ‘to drink’ is *nom-(s)ase-ru*, which is formed by attaching the causative morpheme *-ase* to the verb stem, *nom*. However, Akkun erroneously attaches *-tyatye*, or the child’s phonetic form of *-sase-* to its preverbal form *nomi*, and makes *nomi-tyatye-te*. In (24c), a child (not Sumihare) also produces *nomi-sase-te*, instead of *nom-(s)ase-te*. Those children commonly overgenerate the causative morpheme *-sase* in the cases where the transitive morpheme *-os* or the causative morpheme *-ase* should be chosen.

These data indicate that the children know that the  $v$  should be phonetically realized to make causatives, but they fail in choosing the right one among several ways of the realization of the causative morphemes. Interestingly enough, those children tend to choose the unmarked bound morpheme form, i.e., *-sase*.

The second type of overgeneration, “a causative verb + a causative morpheme,” is produced at around later three years old upto five years old. The relevant examples are shown in (25).

- (25) a. Kuruma -o too *-si* *-sase* -ru. (Taatyan, 3;10) (adult form: too-s-(r)u)  
 car -Acc pass -Cause -Cause -Pres

Intended meaning: ‘(I’ll) let the car pass through.’ (Arai 2003)

- b. Kondo mi *-se* *-si* -te ageru kara ne. (Taatyan, 4;6)  
 next time see -Cause -Cause -I give/let as Int (adult form: mi-se-te)

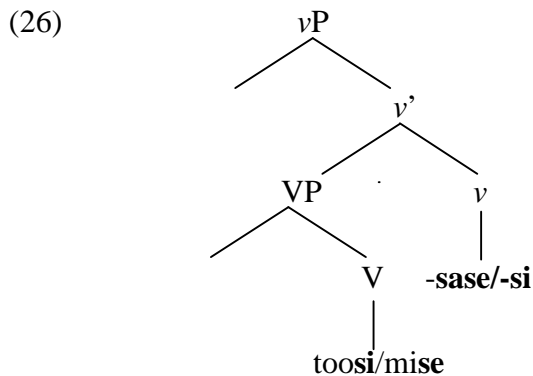
Intended meaning: ‘(I’ll) show (it to) you next time.’ (Arai 2003)

- c. Mag *-e* *-si* -te. (3;11) (adult form: mag-e-te)  
 bend-Cause -Cause -Req

Intended meaning: ‘(Please) bend (this).’ (Ito 1990)

In (25a (=2b)), the transitive verb *too-s-(r)u* ‘to let ... pass,’ which is a causative verb as well, is erroneously associated with an additional causative morpheme *-sase*. (25b) is another example of doubly-marked causatives. The transitive verb *mi-se-ru* ‘to show’ or ‘to let ... see’ is, in fact, a causative verb containing the transitive (or causative) morpheme *-se* in it. However, the child adds the additional causative morpheme *-si*<sup>7</sup> and produces *mi-se-si-te* “by mistake.” The example in (25c) reported by Ito (1990) can also be classified into the causative doubling overgeneration. The verb *mag-e-ru* ‘to bend’ is a lexical causative verb containing the transitive (or causative) morpheme *-e* in it, but the child wrongly attaches the additional *-si* to the already-lexical causative verb.

Then, why does the second type of overgeneration take place? We conjecture that this is the stage where children still have difficulty in finding the appropriate form for the stem of a verb as well as the correct form of a bound morpheme. What children know at this stage is an undifferentiated causative verb as the stem of a bare verb, and the mechanism that the *v* should be phonetically realized to make a causative verb. Hence, those children attach additional causative morphemes *-sase* or *-si* onto the undifferentiated V, as illustrated in (26).



<sup>7</sup> The causative morphemes *-(s)ase* and *-(s)e* are often produced as *-(s)asi* and *-(s)i* in the western dialects of Japanese.

Since children regard the whole verbal forms *toosi* and *mise* as V, they add the causative morphemes in the position of the *v* to realize it phonetically. This is probably the reason for the causative doubling phenomenon or the second overgeneration phenomenon where the lexical causatives are associated with additional unnecessary causative morphemes.<sup>8</sup>

#### 4.2. The Overgeneration in *-(Rar)e* Potentials

Japanese-speaking children start producing potential sentences with the morpheme *-rare* at around the age of 2;5 (Shibuya 1994, Arai 2006, Fuji, Hashimoto and Murasugi 2008a, among others). (27) is an example from Arai (2006).

(27) Ake *-rare-nai*. (Taatian, 2;5)  
open -Pot -Neg

‘(I) cannot open.’ (Arai 2006)

In (27), Taatian produces the potential sentence correctly with the morpheme *-rare*. Children apparently know by this stage that the potential morpheme *-(rar)e* is the realization of the *v*.

However, just like the causatives, in the acquisition of potentials as well, we find in Noji (1974-1977), Shibuya (1994), and Arai (2006) that the Japanese-speaking children go through the stage of overgeneration. And just like the causatives, two types of overgeneration are also found in the acquisition of *-(rar)e* potentials. One type of overgeneration is “a verb + *-rare*.” Observe the examples in (28a) and (28b (=4a)) found in Arai (2006).

(28) a. Taakun *hitori-de tukur -(r)are-ta*. (Taatian, 3;0) (adult form: *tukur-e-ta*)  
by oneself make -Pot -Past

Intended meaning: ‘Taakun(/I) could make (this) by himself(/myself).’

(Arai 2006)

b. Yar-*(r)are -nai*. (Taatian, 3;5) (adult form: *yar-e-nai*)  
do -Pot -Neg

Intended meaning: ‘I cannot do.’

(Arai 2006)

In the standard Japanese, *-rare* is attached to vocalic verb stems, while *-e* is attached to consonantal verb stems, as is discussed in Section 2. However, the child overgenerates *-rare* in this stage. According to Arai (2006), the child has his own morpho-phonological rule, and puts *-rare* on the vocalic verbs, and *-are* on the consonantal verbs. Thus, in (28a) and (28b), the morpheme *-are* attaches to the stems of the verbs *tukur-(r)u* ‘to make’ and *yar-(r)u* ‘to

<sup>8</sup> Mamoru Saito brought our attention to this analysis. The overgeneration in (25) can be considered as the morphological one since the number of argument does not increase unlike the famous example of the syntactic overgeneration ‘Don’t giggle me’ (Bowerman 1982). We would like to thank Jean Crawford and William Snyder for also making this point to us.



do,’ though the morpheme *-e* should be attached in the adult grammar.<sup>9</sup>

The same type of overgeneration is found in Sumihare’s data as well (Fuji, Hashimoto and Murasugi 2008a).

- (29) Kaatyan nakanaka tor *-(r)are* -n yo. (Sumihare, 3;3)  
 mommy not easily take -Pot -Neg Int

Intended meaning: ‘Mommy, (I) can’t take (it) easily.’ (Noji 1974-1977)

In (29), the morpheme *-e* should be attached to yield the potential form *tor-e-n*, but Sumihare attaches *-(r)are* to the verb stem and produces the erroneous potential form. (28) and (29) indicate that children tend to choose an unmarked potential morpheme for the overgeneration just like the case of the causative *-sase*. In the case of potentials, *-rare* seems to be the unmarked potential morpheme. In the stage where the overgeneration in the acquisition of potentials is found, children have knowledge that the *v* is phonetically realized, but they do not know the “correct” adult bound form for the *v*, and hence, they choose the unmarked potential morpheme *-rare*.

The second type of overgeneration, i.e., “a potential verb + a potential morpheme,” is also observed in Japanese-speaking children at three through five years of age.<sup>10</sup> A couple of examples are given in (30a) and (30b (=4b)).

- (30) a. Gakko -ni ik *-e -re* -ru yo. (Sumihare, 3;1) (adult form: ik-**e**-ru)  
 School -Dat go-Pot -Pot -Pres Int

Intended meaning: ‘(I) can go to school by myself.’ (Noji 1974-1977)

- b. Zyoozuni mot *-e -rare* -ta. (Taatyan, 4;2) (adult form: mot-**e**-ta)  
 well have-Pot -Pot -Past

Intended meaning: ‘(I) could bring (this) up very well.’ (Arai 2006)

In (30), children attach an additional potential morpheme *-re* or *-rare* onto the already-potential-verbs (or “lexical” potentials). (30a) indicates that Sumihare produces an erroneous potential form, *ik-e-re-ru* for *ik-e-ru* (the adult potential form of *ik-u* ‘to go’). The same type of potential doubling error is found in Taatyan’s data, as shown in (30b). Taatyan correctly attaches *-e* to the consonantal verb *mot-(r)u* ‘to have.’ However, he additionally attaches the potential morpheme *-rare*, yielding an unacceptable potential form *mot-e-rare-ta*.

<sup>9</sup> As far as we know, Shibuya (1994) is one of the pioneers who found the productive overgeneration errors found in the acquisition of Japanese potentials. Arai (2003, 2006) reports the overgeneration phenomena in causatives as well as potentials, and attempts to analyze them in a uniform way.

<sup>10</sup> In the case of Sumihare, he starts producing two types of overgeneration at the same age, at around the age of three.

As is the case of causatives, this type of overgeneration would reflect the stage where children still use the undifferentiated potential verbs. This is the stage where children know that a potential morpheme should be attached to make a productive potential form in the target grammar, and hence, they put a potential morpheme such as *-re* or *-rare* on the lexical potential verb.

## 5. Discussion and Conclusion

In line with Yano (2007a,b,c), we overviewed that the parallel intermediate stages in the acquisition of Japanese causatives and potentials are observed. We showed that these intermediate stages, the undergeneration and the overgeneration, can be uniformly analyzed under the VP-shell hypothesis for the acquisition of the Japanese complex predicates proposed by Murasugi and Hashimoto (2004).

First, we introduced Murasugi and Hashimoto's (2004) analysis of undergeneration, where *-(s)ase* as the *v* is not morphologically realized and the transitive/intransitive alternation errors are frequently observed. We pointed out that this analysis can be extended to potentials as well. Japanese-speaking children do not produce *-(rar)e*, and employ the unanalyzed adult form as a potential verb, and like the case of causatives, these errors are due to children's initial hypothesis that the *v* does exist in their grammar, but it is phonetically null. In fact, Murasugi and Hashimoto (2004) relate this stage to the adult English transitive/intransitive alternation, as shown in (31) (See also (11)).

- (31) a. John passed the ring to Mary.  
 b. The ring passed to Mary.

Both the transitive *pass* and the intransitive *pass* are realized as *pass* in English. The children's alternation errors found in Japanese have, in fact, the adult English-type structure: both the *v*'s of [ $\pm$ cause] are realized as zero morphemes.

Second, we discussed two types of overgeneration for causatives and potentials. One type of overgeneration is "a correct (but sometimes inappropriate) stem of a verb + (unmarked) *-sase* or *-rare*."<sup>11</sup> Another type of overgeneration is the causative and the potential doubling: "an undifferentiated causative verb + a causative morpheme" and "an undifferentiated potential verb + a potential morpheme," respectively. We argued that these overgenerations take place, since Japanese-speaking children, at one point of language acquisition, have difficulty in finding the "correct" adult forms of the bound morphemes for causatives and potentials. The agglutinative language learners, at an early stage of language acquisition, have difficulty in differentiating the bound morphemes from the stem of verbs as Murasugi (2007a,b,c) discusses.

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<sup>11</sup> Precisely speaking, this type of error may not be the case of overgeneration, but rather, a morphological error, as Mamoru Saito (p.c.) and Alison Gabriele (p.c.) pointed out to us.

The analysis presented here confirms Murasugi and Hashimoto's (2004) proposal that Japanese-speaking children acquire the  $v$ -VP structure very early, but they seem to be confused in choosing the correct morpho-phonological realization of the  $v$ . This conclusion further provides a piece of supportive evidence for Null Functional Head Hypothesis proposed by Murasugi (2007a,b,c), which states that what is acquired late is not functional categories *per se* but the morpho-phonological realization of functional heads. The undergeneration and the overgeneration observed in the acquisition of Japanese complex predicates are not due to the lack of the related functional category,  $v$ , but due to the difficulty in realizing it with an appropriate morpheme.

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