# VP-SHELL ANALYSIS FOR THE ACQUISITION OF JAPANESE POTENTIALS[*]

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## 1.    Introduction

In this paper, we analyze the undergeneration and overgeneration phenomena observed in the acquisition of -(*rar)e* potential complex predicates in Japanese, and propose that the intermediate acquisition stages can be explained by Murasugi and Hashimoto's (2004) *v*-VP frame analysis of the acquisition of causatives and agentive (di)transitive verbs. According to their analysis, children have knowledge of VP-shell at a very early stage of language acquisition, but they produce some erroneous causative, transitive and unaccusative forms in the course of language acquisition because they hypothesize that the small *v* is phonetically null, and they lexically realize the small *v* with the non-adultlike (incorrect) forms.

Regarding the acquisition of potentials, Yano (2007a, b, c, d) finds that children acquire potentials in the early two-year-old. However, she also mentions that some children produce erroneous potential forms until 3;7. Extending her observation and the analysis based on the observation made by Shibuya (1994) and Arai (2006), we show that Murasugi and Hashimoto's (2004) *v*-VP frame analysis basically holds in the acquisition of potential constructions.

Japanese -*(rar)e* potential forms are constructed by adding the suffix -*(rar)e* '-able' to verb stems. The vocalic verb stems take the suffix -*rare*, and the consonantal verb stems take the suffix -*e* in the potential constructions, as shown in (1) (Shibuya 1993, Kinsui 2003, Arai 2006, among others).

(1)  a.    Vocalic verbs: stem +-**rare**

|  | 'eat-can-tense/neg' | 'see-can-tense/neg' |
|---|---|---|
| present: | tabe-rare-ru | mi-rare-ru |
| past: | tabe-rare-ta | mi-rare-ta |
| negation: | tabe-rare-nai | mi-rare-nai |

b.  Consonantal verbs: stem + -**e**

|  | 'go-can-tense/neg' | 'make-can-tense/neg' |
|---|---|---|
| present: | ik-e-ru | tukur-e-ru |
| past: | ik-e-ta | tukur-e-ta |
| negation: | ik-e-nai | tukur-e-nai |

As seen in (1a), *tabe-ru* 'eat' and *mi-ru* 'see' are vocalic verbs, whose stems end with vowels, and the suffix *-rare* is attached to the verb stems to derive the potential forms, *tabe-rare-ru* 'can eat' and *mi-rare-ru* 'can see.' In (1b), *ik-u* 'go' and *tukur-(r)u* 'make' are consonantal verbs, whose stems end with consonants, and the suffix *-e* is attached to the verb stems to derive the potential forms, *ik-e-ru* 'can go' and *tukur-e-ru* 'can make.' The typical potential constructions are as follows:[1]

(2) a.  Taroo-wa  hitoride   sono  to  -o    ake  **-rare** -ru
        -Top   by oneself  the    door -Acc   open-can   -Pres

'Taroo can open the door by himself.'

b.  Hanako -wa   hitoride    gakkoo-ni  ik -**e**   -ru
       -Top   by oneself  school -Dat  go-can -Pres

'Hanako can go to school by herself.'

c.  Taroo-wa  hitoride   sono  to  -o    ake  **-rare**-nai
        -Top   by oneself  the    door -Acc   open-can -Neg

'Taroo cannot open the door by himself.'

d.  Hanako -wa   hitoride    gakkoo-ni  ik -**e**   -nai
       -Top   by oneself  school -Dat  go-can -Neg

'Hanako cannot go to school by herself.'

Since *ake-ru* 'open' is a vocalic verb, *-rare* is chosen as in (2a). In (2b), the suffix *-e* attaches to the stem of the consonantal verb *ik-u* 'go.' The examples in (2c) and (2d) indicate that the same phonological rule is applied to the negated case, yielding *ake-rare-nai* 'cannot open' and *ik-e-nai* 'cannot go.'

   It has been reported that children at around 2 to 4 years old make some "errors" in the acquisition of *-(rar)e* potentials (Okubo 1967, Ito 1990, Shibuya 1994, Arai 2006, Yano 2007a, b, c, d, among others). Some typical "errors" are given in (3) .[2]

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[1]  Abbreviations used in the glosses are as follows:
    Acc=accusative Case, Cause=causative, Dat=dative Case, Gen=genitive Case, Int=interjection, Nom=nominative Case, Nomz=nominalizer, Pres=present, Past=past, Prog=progressive, Q=question marker, Req=request, Sug= suggestion, Top=topic

[2]  We use italics in bold face to indicate non-adultlike usage.

(3)  a.      Mother: Zenbu tabe -rare -ru      kara    ne.
                  all       eat -can -Pres  as       Int

           'You can eat all.'

      Child: Zenbu ***tabe-ϕ*** -ru      ne.    (2;1)                (adult form: **tabe-rare**-ru)
                  all       eat      -Pres  Int

           Literal meaning:     '(I) eat all.'
           Intended meaning:  '(I) can eat all.'

      Father's comment:    'When he replied to his mother, he failed to repeat
                          "tabe-rare-ru" correctly but uttered "tabe-ru ne" instead.'
                                          (Noji 1974-77 II; 144 [our translation])

   b.    ***Sime-ϕ*** -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)

   c.    Taakun     hitoride  tukur-***(r)are***-ta.      (3;0)          (adult form: tukur-**e**-ta)
                  by onself make-can    -Past

         'Taakun (I) could make (this) by myself.'                        (Arai 2006)

   d.    Yar   -***(r)are*** -nai.      (3;5)                (adult form: yar-**e**-nai)
         do     -can    -Neg

         'I cannot do.'                                          (Arai 2006)

   e.    Ik  -e   ***-rare***  -nai.    (3;8)                (adult form: ik-**e**-nai)
         go  -can -can    -Neg

         '(I) cannot go.'                                        (Okubo 1967)

   f.    Zyoozuni  mot ***-e***  ***-rare***  -ta.    (4;2)          (adult form: mot-**e**-ta)
         well          have -can -can     -Past

         'I could bring (this) up very well.'                        (Arai 2006)

   g.    ***Narabe-ϕ***-ru   kana,  narabe ***-re*** ***-rare***-ru      kana,  narabe **-rare**-ru
         line      -Pres Q    line    -can -can -Pres  Q      line    -can -Pres
         kana.   (2;9)                                  (adult form: narabe**-rare**-ru)
         Q

         Intended meaning: 'Could (I) line (them) up?'              (Shibuya 1994)

(3a) is an example of *-rare* omission errors. The observer, Sumihare's father, describes that in

the context of (3a), the child repeats his mother's utterance without using the *-rare* form (Noji 1974-1977). According to Noji's comment, the child fails to produce *tabe-rare-ru*, but rather, the child employs the plain form *tabe-ru*. (3b) is another example of the *-rare* omission. For (3b), Okubo (1967) reports that the child intends to say *sime-rare-nai* 'cannot close,' but in the actual speech, he omits *-rare*, yielding *sime-ϕ-nai* 'don't close.' The examples in (3c) through (3f) show the erroneous potential forms. The child intends to say that he can make it by himself in (3c) and that he cannot do something in (3d). Since *tukur-(r)u* 'make' and *yar-(r)u* 'do' are consonantal verbs, *-e* should be put on the stems. However, the child puts *-rare* on them, and erroneous forms are produced. In (3e-f), instead of attaching the suffix *-e*, the children attach *-erare*, yielding the unacceptable potential forms *ik-erare-nai* in (3e) or *mot-erare-nai* in (3f). In (3g), it seems that the child is trying several possible suffixes. First, he omits *-rare*, employing the plain verb *narabe-ru* 'put in line.' Then, he attaches the erroneous suffix *-erare*, producing *narabe-re-rare-ru*, and finally he succeeds in producing the correct adult form *narabe-rare-ru*.

The purpose of this paper is to give an explanation for these undergeneration and overgeneration phenomena observed in the acquisition of *-(rar)e* potential constructions in (3). We introduce Murasugi and Hashimoto's (2004) VP-shell analysis on the intermediate acquisition stages of *-(s)ase* causatives and agentive (di)transitive verbs. We show that the similar intermediate stages are also observed in the acquisition of potential constructions, and discuss that the *v*-VP frame analysis will provide an elegant explanation for the under/overgeneration phenomena of potential constructions.

In Section 2, we overview the structure of the Japanese *-(rar)e* potential construction in the adult grammar we assume. Passing by, we also mention that there are not a few of dialectical and idiolectal variations in morphological realization of *-(rar)e* in Japanese adult usage. Section 3 overviews Murasugi and Hashimoto's (2004) VP-shell analysis for the acquisition of causatives and agentive (di)transitive verbs. In Section 4, we review the longitudinal acquisition studies of potentials in the previous literature, and we reanalyze their descriptive findings under the VP-shell analysis. We show that the acquisition of *-(rar)e* potentials proceeds in the same way as *-(s)ase* causatives with the parallel intermediate stages, and supports Murasugi and Hashimoto's (2004) analysis for the acquisition of complex predicates. Section 5 concludes this paper.

## 2. Potentials in the Japanese Adult Grammar

## 2.1. The Variations in Morphological Realization

In this subsection, we show how the potential suffix *-(rar)e* is realized in the adult grammar.

As we mentioned briefly in Section 1, the suffix *-rare* attaches to a vocalic verb stem, and the suffix *-e* attaches to a consonantal verb stem in "standard" Japanese (Shibuya 1993, Kinsui 2003, Arai 2006 among others).

In some Japanese dialects and idiolects, the other type of *-(rar)e* potentials, which we call "*Ra*-omission Type," are widely observed. As shown in (4a), the suffix *-re* instead of *-rare* attaches to the vocalic verb stems. While the potential form of *tabe-ru* is *tabe-rare-ru* in "standard" Japanese, it is pronounced as *tabe-re-ru* in these dialects. The potential form of a consonantal verb is identical in "standard" Japanese and the "*Ra*-omission" dialects.

(4)  a.  Vocalic verbs: stem +**-re**

|  | 'eat-can-tense/neg' | 'see-can-tense/neg' |
|---|---|---|
| present: | tabe-re-ru | mi-re-ru |
| past: | tabe-re-ta | mi-re-ta |
| negation:(nai) | tabe-re-nai | mi-re-nai |

b.  Consonantal verbs: stem + **-e**

|  | 'go-can-tense/neg' | 'make-can-tense/neg' |
|---|---|---|
| present: | ik-e-ru | tukur-e-ru |
| past: | ik-e-ta | tukur-e-ta |
| negation:(nai) | ik-e-nai | tukur-e-nai |

Examples in (5) indicate *Ra*-omission Type potentials. The phonological rule in (4) is applied to negatives as in (5c) and (5d) as well.

(5)  a.  Taroo-wa    hitoride      sono   to  -o     ake **-re** -ru
             -Top   by oneself  the     door -Acc   open-can -Pres

'Taroo can open the door by himself.'

b.  Hanako -wa    hitoride      gakkoo-ni  ik **-e**   -ru
             -Top   by oneself  school -Dat go-can -Pres

'Hanako can go to school by herself.'

c.  Taroo-wa    hitoride      sono   to  -o     ake **-re** -nai
             -Top   by oneself  the     door -Acc   open-can -Neg

'Taroo cannot open the door by himself.'

d.  Hanako -wa    hitoride      gakkoo-ni  ik **-e**   -nai
             -Top   by oneself  school -Dat go-can -Neg

'Hanako cannot go to school by herself.'

The *Ra*-omission Type potentials are found in several dialects. Potentials in both the Kyoto and the Osaka dialects, for example, can be basically categorized as *Ra*-omission Type.

However, when the negative marker *-hen* 'not,' a negative form used in the Kansai dialects, attaches to a potential verb, these two dialects show slight differences.

The Kyoto dialect is of the *Ra*-omission Type as shown in (6) and (7).

(6)   a.    Vocalic verbs: stem+**-re**

                              'eat-can-tense/neg'     'see-can-tense/neg'
             present:         tabe-re-ru          mi-re-ru
             past:             tabe-re-ta          mi-re-ta
             negation:(nai)   tabe-re-nai         mi-re-nai
             negation:(hen)  tabe-re-hen        mi-re-hen          [*-hen* = not]

      b.    Consonantal verbs: stem + **-e**

                              'go-can-tense/neg'      'make-can-tense/neg'
             present:         ik-e-ru            tukur-e-ru
             past:             ik-e-ta            tukur-e-ta
             negation:(nai)   ik-e-nai          tukur-e-nai
             negation:(hen)   ik-e-hen          tukur-e-hen     [*-hen* = not]

In the Kyoto dialect, the *-hen* negative potential form of *ake-ru* 'open' is *ake-re-hen*, and that of *ik-u* 'go' is *ik-e-hen,* as shown in (7).

(7)   a.    Taroo-wa    hitoride     sono   to  -o     ake **-re** -hen       [*-hen* = not]
                   -Top   by oneself  the     door -Acc   open-can -Neg

          'Taroo cannot open the door by himself.'

      b.    Hanako -wa    hitoride     gakkoo-ni  ik **-e**  -hen         [*-hen* = not]
                   -Top   by oneself  school -Dat go-can -Neg

          'Hanako cannot go to school by herself.'

The Osaka dialect is also basically of the *Ra*-omission Type, putting the suffix *-re* to a vocalic verb stem and *-e* to a consonantal verb stem. However, the crucial difference between the Osaka dialect and the Kyoto dialect is found in the negative forms; i.e., in the Osaka dialect, *-ra* is <u>not</u> omitted when it is associated with the negative *-hen*, as in (8) and (9).[3]

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(8)  a.  Vocalic verbs: stem +**-re**, stem + **-rare-hen** 'not'

|  | 'eat-can-tense/neg' | 'see-can-tense/neg' | |
|---|---|---|---|
| present: | tabe-re-ru | mi-re-ru | |
| past: | tabe-re-ta | mi-re-ta | |
| negation:(nai) | tabe-re-nai | mi-re-nai | |
| negation:(hen) | tabe-rare-hen | mi-rare-hen | [*-hen* = not] |

   b.  Consonantal verbs: stem + **-e**, stem+**-are-hen** 'not'

|  | 'go-can-tense/neg' | 'make-can-tense/neg' | |
|---|---|---|---|
| present: | ik-e-ru | tukur-e-ru | |
| past: | ik-e-ta | tukur-e-ta | |
| negation:(nai) | ik-e-nai | tukur-e-nai | |
| negation:(hen) | ik-are-hen | tukur-are-hen | [*-hen* = not] |

                                        (Sanada 1995, Shibuya 1993, Arai 2006, among others)

(9)  a.  Taroo-wa   hitoride   sono   to   -o   ake **-re** -ru   /-nai
         -Top   by oneself   the   door -Acc   open-can -Pres   -Neg

      'Taroo can open the door by himself.'

   b.  Hanako -wa   hitoride   gakkoo-ni   ik **-e**   -ru /-nai
         -Top   by oneself   school  -Dat go-can -Pres -Neg

      'Hanako can go to school by herself.'

   c.  Taroo-wa   hitoride   sono   to   -o   ake **-rare** -hen      [*-hen* = not]
         -Top   by oneself   the   door -Acc   open-can   -Neg

      'Taroo cannot open the door by himself.'

   d.  Hanako -wa   hitoride   gakkoo-ni   ik **-are** -hen          [*-hen* = not]
         -Top   by oneself   school -Dat go-can -Neg

      'Hanako cannot go to school by herself.'

In (9a), the suffix *-re* attaches to the stem, yielding *ake-re-ru* 'can open' and *ake-re-nai* 'cannot open,' just as in *Ra*-omission dialects. However, when the sentence is negated with the negative marker *-hen*, *-rare*, but not *-re/-e*, attaches to the stem, yielding the negative potential form *ake-rare-hen* 'cannot open' in (9c). Similarly, in (9b), the suffix *-e* is attached to the stem, yielding *ik-e-ru* 'can go' and *ik-e-nai* 'cannot go,' just as in *Ra*-omission Type. Once the sentence is negated with the negative marker *-hen*, however, *-are* is attached, yielding *ik-are-hen* 'cannot go' as in (9d). Thus, potentials in the Osaka dialect are categorized as "Mixed Type" being slightly distinguished from *Ra*-omission Type. (See Arai (2006) also for the morphological differences between the Kyoto dialect and the Osaka dialect.)

There are some other interesting cases. For example, in the Ehime dialect, *Ra*-omission

Type potentials are used. Hence, the suffix *-re* attaches to vocalic verbs. According to Shibuya (2006) and Masumi Aono (an Ehime dialect speaker, p.c.), they put *-rere* to a verbal stem to emphasize the potential meaning. Compare (10a) and (10b).

(10) a.    (after trying to open the window which had seemed not to be opened)
Att, kono mado    ake **-re**    -ta
Int this    window open-can    -Past

'Oh, I could open this window.'

    b.    (after trying to open the window again and again)
Kono mado    yatto ake **-rere**-ta
this window finally open-can -Past

'Finally I could open this window.'    (Shibuya 2006, 64; Masumi Aono p.c.)

Although the past potential form of the verb *ake-ru* 'open' is *ake-re-ta* 'could open' in an ordinary meaning in (10a) for the phonological rule of *Ra*-omission Type, the meaning, "Finally I could open," is expressed by doubling of *-re*, or *–rere*, as shown in (10b).

According to Kinsui (2003), the morphological variations do not affect the actual meaning of a sentence *per se*.[4] However, the empirical facts we saw above clearly show that Japanese potential morphemes are realized in various ways even in the adult usage.

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[4]    Interestingly, however, Shibuya (1993, 2006), Inoue (1998), Shin (2002) and Takeda (2006) claim that there are two types of interpretation of -(*rar)e* potentials; potentials for person's ability and potentials for situations. The examples are given in (i).

(i)    a.    Potentials for person's ability
Uti-no mago    -wa zi -o    oboe-ta    node    hon -ga /o
our-Gen grandchild-Top letter-Acc learn-Past because book-Nom/Acc
yom-**e** -ru
read-can -Pres

'Since our grandchild has learned how to read letters, (he/she) can read a book.'

    b.    Potentials for situations
Dentoo-ga    akarui node    sinbun -ga /o yom-**e**    -ru
light -Nom bright because newspaper-Nom/Acc read-can -Pres

'Since the light is well-lighted, the newspaper is readable.'
(Takeda 2006: 52-53, slightly modified)

In (ia), the potential phrase *yom-e-ru* 'can read' expresses the grandchild's ability. In (ib), the potential phrase *yom-e-ru* 'can read' that the newspaper is readable. According to Takeda (2006), some dialects distinguish (ia) and (ib) by using different morphological forms. In this paper, however, we do not go into this issue in detail.

## 2.2. The Syntax of Potentials

We now turn to the syntactic structure of *-(rar)e* potentials.

In the Japanese transitive construction, it has been observed that non-stative predicates take accusative objects in (11a) and stative predicates take nominative objects in (11b).

(11) a.　John -ga　　rosiago　-o/*-ga　　　yom -(r)u
　　　　　　-Nom　Russian　-Acc/*-Nom　read -Pres

　　　'John reads Russian.'

　　b.　John -ga　　rosiago　-ga/*-o　　　wakar　　　-(r)u
　　　　　　-Nom　Russian　-Nom/*-Acc　understand　-Pres

　　　'John understands Russian.'　　　　　　　　　　　　　　(Kuno 1973)

When the predicate is non-stative, such as *yom-(r)u* 'read' in (11a), the object is marked with the accusative Case. Crucially, it cannot be marked with the nominative Case. When the predicate is stative, such as *wakar-(r)u* 'understand,' however, the object is not marked with the accusative Case, but is marked with the nominative Case as in (11b).

Now, when a stative suffix *-(rar)e* '-able' attaches to a non-stative verb stem, the object can be marked either with the accusative Case or with the nominative Case as in (12).[5]

(12) John -ga　　rosiago　-ga/-o　　　　yom-**e**　-ru
　　　　　-Nom Russian　-Nom/-Acc　　　read-can　-Pres

　　'John can read Russian.'　　　　　　　　　　　　　　　(Kuno 1973)

In (12), the potential suffix *-e* attaches to the stative predicate *yom-(r)u* 'read,' and the object *rosiago* 'Russian' can get either the nominative Case *-ga* or the accusative Case *-o*.

It has been argued that a nominative object and an accusative object take different scope (Sano 1985, Tada 1992, Koizumi 1995, Saito and Hoshi 1998, Takano 2003, Nomura 2005, Bobaljik and Wurmbrand 2007). Compare (13a) and (13b).

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[5]　When the subject is marked with the dative Case, the object must be marked with the nominative Case.

(i)　　John　-ni　　rosiago -ga/*-o　　　yom-**e**　　-ru
　　　　　　　-Dat　Russian -Nom/*-Acc read-can　-Pres

　　'John can read Russian.'

(13) a.　　John-ga　　migime dake-ga　　ake **-rare** -ru
　　　　　　John-Nom　　right eye only -Nom　open-can　　-Pres

　　　　　'John can only open his right eye.'　　　　　　　　　　only > can, *can > only[6]

　　　b.　　John-ga　　migime　　dake-o　　ake **-rare** -ru
　　　　　　John-Nom　　right eye　　only -Acc　open-can　　-Pres

　　　　　'John can open only his right eye.'　　　　　　　　　only > can, can > only

The nominative object must take scope over *-(rar)e* as in (13a) while the accusative object may take either wide scope or narrow scope as in (13b). Two interpretations are given in (14).

(14)　only>can:　He cannot open his left eye for some reason and he can open only his right
　　　　　　　　eye.
　　　can>only:　He has "special ability" to open only his right eye (closing his left eye).

These scopal differences between the nominative object and the accusative object are observed with the *Ra*-omission Type potentials, as in (15).

(15) a.　　John-ga　　migime　　dake-ga　　ake **-re** -ru
　　　　　　John-Nom　　right eye　　only -Nom　open-can -Pres

　　　　　'John can only open his right eye.'　　　　　　　only > can, *can > only

　　　b.　　John-ga　　migime　　dake-o　　ake **-re** -ru
　　　　　　John-Nom　　right eye　　only -Acc　open-can -Pres

　　　　　'John can open only his right eye.'　　　　　　　only > can, can > only

In (15), *-re* attaches to the verb stem for the phonological rule of *Ra*-omission Type. As shown in (15a) and (15b), the sentences have the same interpretations as (13a) and (13b), respectively. This fact indicates that the variation of morphological realization of *-(rar)e* does not affect its interpretation.

　　There are several important proposals regarding the structure of potentials (see Tada

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[6]　Contrary to the generalization that a nominative object cannot take low scope, Matsumoto (1996) and Nomura (2005) observe that a nominative object can take low scope.

(i)　Taro-ga　　koyubi-dake-ga　mage-rare -ru　　no　　-wa sit　-te
　　　-Nom　　pinkie -only-Nom crook-can -Pres　Nomz -Top know-Prog
　　-ita　-ga,　　(kare-ga)　　kusuriyubi-dake-ga　　mage-rare-ru　　no　　-ni -wa
　　-Past-Nom　(he -Nom)　ring finger-only -Nom　crook-can-Pres Nomz-Dat-Top
　　odoroi　-ta
　　surprise-Past

　　'I had known that Taro could crook only his pinkie but I was surprised that he could also crook
　　only his ring finger.'　　　　　　　　　　　　　　　　　　(Nomura 2005)

(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 (2007) analysis.

Bobaljik and Wurmbrand (2007) propose two different structures for each interpretation of *-(rar)e* potential construction; the structure (16a) for (13a) and (15a), and the structure (16b) for (13b) and (15b).

(16) a.    only > can; *can > only          b. only > can; can > only
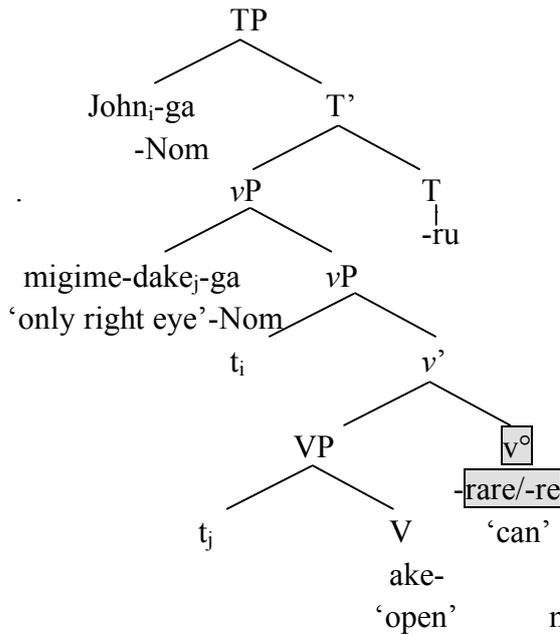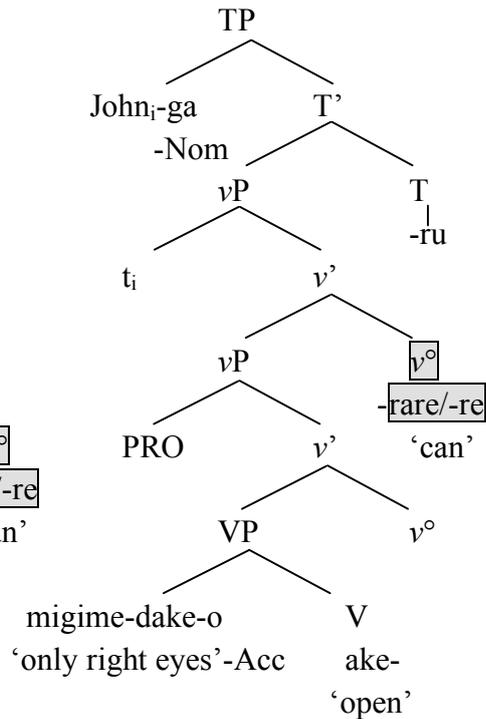


(Bobaljik and Wurmbrand 2007)

Bobaljik and Wurmbrand (2007) argue that the nominative-accusative alternation on the embedded object depends on whether *-(rar)e* takes a VP complement or a *v*P complement, and with which morpheme the small *v* is realized in each structure. Given that the small *v* is realized with one of the potential morphemes *-(rar)e*, *-re*, or *-rere* in the adult grammar as we have seen in 2.1, it is plausible to consider that children also use various morphemes for the position of the small *v* at some intermediate acquisition stages.

Given Bobaljik and Wurmbrand's (2007) analysis, the children's "errors" of potential constructions are assimilated to Murasugi and Hashimoto's (2004) VP-shell analysis of children's errors on -(*s)ase* causatives and the agentive (di)transitive verbs. In the next section, we overview Murasugi and Hashimoto (2004) and see how causative acquisition data can be analyzed under their VP-shell analysis.

## 3.    The Acquisition of Causatives

Several researches have worked on the acquisition of Japanese *-(s)ase* causatives (Ito

1990, Morikawa 1997, Murasugi, Hashimoto and Kato 2003, Murasugi and Hashimoto 2004, Fuji 2006a, b, Okabe 2007, Murasugi, Hashimoto and Fuji 2007, among others).

Murasugi and Hashimoto (2004), based on their 6-year longitudinal study, propose the VP-shell analysis, which uniformly accounts for the acquisition of lexical causatives, syntactic causatives and agentive (di)transitive verbs.

It has been observed that Japanese -*(s)ase* causatives are ambiguous (Matsumoto 2000, Murasugi, Hashimoto and Kato 2003, Murasugi and Hashimoto 2004, among others). (17), for example, has two meanings in (18).

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

    'Taro made Hanako eat some bread.'

(18) a.    Taro gave an order to Hanako and Hanako ate some bread.
     b.    Taro fed Hanako with some bread.

When (17) is interpreted as in (18a), both the causer *Taroo* and the causee *Hanako* are agent. This suggests that the sentence has the biclausal structure as in (19a). In contrast, in the interpretation of (18b), the causee *Hanako* is not an agent but a goal. This indicates that the sentence has the mono-clausal structure in (19b).

(19)      a.  syntactic causative                    b. lexical causative
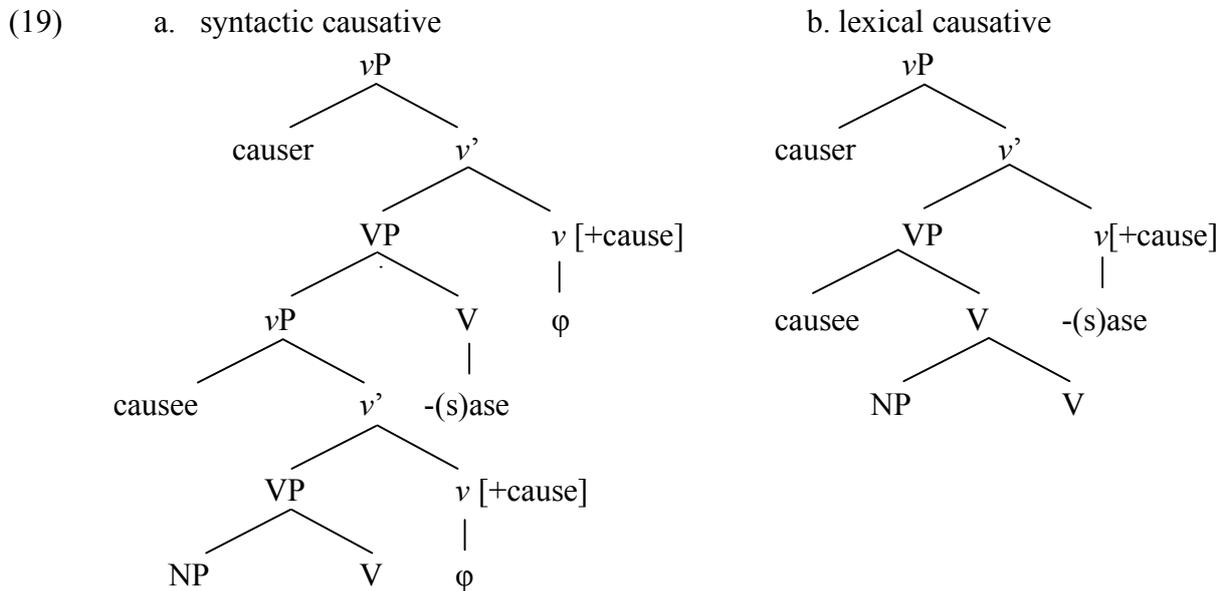


(Murasugi and Hashimoto 2004)

Causatives which have the biclausal structure in (19a) are called syntactic causatives, and causatives which have the mono-clausal structure in (19b) are called lexical causatives.[7]

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[7] See Matsumoto (2000), and Murasugi, Hashimoto and Kato (2003) for detailed argument about two types of causatives.

The longitudinal studies of Murasugi and Hashimoto (2004), Murasugi, Hashimoto and Fuji (2007), and Arai (2003) indicate that there are four stages in the acquisition of *-(s)ase* causatives. These four stages and Pre-stage I are illustrated in (20).

(20)  Pre-Stage I:   the small *v* is *tiyu/tita/tite* 'do/did/doing'
      Stage I:        the small *v* is null
      Stage II:      a verb (preverbal form) + *-sase*
      Stage III:     a causative verb + *-sase*
      Stage IV:     the adult form

In the following subsections, we will show typical examples observed in each stage, and overview the analysis for it.

### 3.1.   Pre-Stage I: No Overt Verbs or the Small *v Tiyu* 'do'

According to Murasugi and Hashimoto (2004), their subject, Akkun, first produces a sentence without pronouncing an overt ditransitive verb until 2;5 to express giving action, though he really intends to say that he wants to give something to someone or something. We call this stage as Pre-Stage I in this paper. An example is given in (21).

(21) Motto   koe buubu   φ   (2;1)
     more     this  water

     '(I will give) more water to this.'          (Murasugi and Hashimoto 2004)

In (21), the verb *age-ru* 'give' is missing. Later, Akkun starts putting *tiyu/tita/tite* 'do/did/doing' at the end of sentences as in (22).

(22) Mama   Akkun hai   doozyo   *tiyu*   (2;5)
     mommy         yes     please   do

     'Akkun (/I) will give it to Mommy.'          (*Ibid.*)

The phrase 'Hai doozyo,' or 'Hai doozo' in adult speech, is used when one gives something to someone, just like the English phrase 'Here you are.' Akkun utters *hai doozyo* and *tiyu/tita/tite* 'do/did/doing' instead of a ditransitive verb. Murasugi and Hashimoto (2004) propose that the small *v* is realized as *tiyu/tita/tite* and that it assigns an agent role to a subject. The structure proposed by Murasugi and Hashimoto (2004) is given in (23).

(23)



     (*Ibid.*)

Their analysis shows that a child acquires the VP-shell structure at the very early stage of language acquisition.

### 3.2. Stage I: The Null Realization of the Small *v*

In Stage I, Akkun starts using the verbs correctly, but at the same time he also produces some "errors," alternating unaccusative and transitive.

(24) a.　Mama　　tyotto　　**ageyu**　　　　(2;7)
　　　　 mommy　a little　　give (Pres)

　　　　　'Mommy, (I will) give you a little bit.'　　　　　(Murasugi and Hashimoto 2004)

　　　b.　Dango　-ga　　uta　pakan　　　tite,　dango　-ga　　**atta**　(2;9)
　　　　　dumpling -Nom　lid　*onomatopoeia* doing　dumpling -Nom　there-be(Past)

　　　　　'There was a dumpling (when I) opened the lid of the dumpling (box).'　　(*Ibid.*)

In (24a), the ditransitive verb *age-yu* 'give,' or *age-ru* in adult speech, is correctly used, and in (24b), the past form of the unaccusative verb *a-ru* 'be' is correctly used. Nevertheless, Akkun produces some erroneous verbal forms as in (25).

(25) a.　Kore, ***ai***　　　　　　-toku　　kara saa　(4;5)
　　　　　this　open (unaccusative)-keep　　as　　Int

　　　　　'(I will) open this and keep it open.'　　　　　(Murasugi and Hashimoto 2004)

　　　b.　***Todok***-ok-ka,　ano　　hito　　ni　***todok***-(y)oo　***todok***-(y)oo　(4;8)
　　　　　arrive -let's　　that　　person　to　arrive-let's　　arrive-let's

　　　　　'Let's send (it). Let's send (it) to that person.'　　　　　(*Ibid.*)

In (25a), the transitive verb *ake-ru* 'open' must be used in this context. However, Akkun erroneously uses the preverbal form of the unaccusative verb *ak-(r)u* 'be open,' *ai*. The similar error is found in (25b). The transitive form *todoke-ru* 'deliver something' should be used in the adult usage, but Akkun uses the unaccusative form *todok-(r)u* 'be delivered' instead.

Murasugi and Hashimoto (2004) report that lexical causatives without the causative suffix *-(s)ase* are observed in the same period. A couple of examples are given in (26).

(26) a.　Mama　　Akkun ***non***　***-de***.　(2;8)
　　　　　mommy　　　　　drink　-Req

　　　　　Literal meaning: 'Mommy, drink Akkun(/me).'
　　　　　Intended meaning: 'Mommy, please feed Akkun(/me) (with milk).'　　(*Ibid.*)

b.　Mama-ga　　　pantyu　　***nui　　-da***　　toki.　　(3;2)
　　mommy-Nom　underpants　undress　-Past　when

Literal meaning: '(I hurt) when Mommy took her underpants off.'
Intended meaning: '(I hurt) when Mommy took my underpants off me.'　　　(*Ibid.*)

In (26a), the causative form *nom-(s)ase-te* should be used in this context, but Akkun omits *-(s)ase* and produces *non-de* instead. He intends to say 'Mommy, please feed me,' but the meaning of what actually he says is 'Mommy, drink Akkun.' Similarly, in (26b), the causative form *nug-(s)ase-ta* should be used in this context, but Akkun omits *-(s)ase* and produces *nui-da* instead. He intends to say 'I hurt when Mommy undressed my underwear,' but (26b) means 'I hurt when Mommy took off her underwear.'

For the unaccusative and transitive alternation "errors" and the *-(s)ase* omission "errors," Murasugi and Hashimoto (2004) provide an elegant account. They propose that children assume the [±cause] *v* to be phonetically null at Stage I.

Now, take (27) into consideration. (27a) and (27b) are the verb pair of transitive and unaccusative in adult grammar. The syntactic structures proposed by Murasugi and Hashimoto (2004) under the *v*-VP frame are given in (28a) and (28b), respectively.

(27) a.　Taroo-ga　　Hanako-o　　syasin-ni　utu-s　　-(r)u.　　　　　(transitive)
　　　　　-Nom　　　　　-Acc　picture-Dat　photograph　-Pres

'Taro takes a picture of Hanako.'

　　b.　Hanako -ga　　syasin -ni　utu-r　　-(r)u.　　　　　　　　(unaccusative)
　　　　　-Nom　picture -Dat　photograph　-Pres

'Hanako appears in a picture.'　　　　　　　　　　　　　　　　(*Ibid.*)

(28)　　a.　　　　　*v*P　　　　　　　b.　　　*v*P



(*Ibid.*)
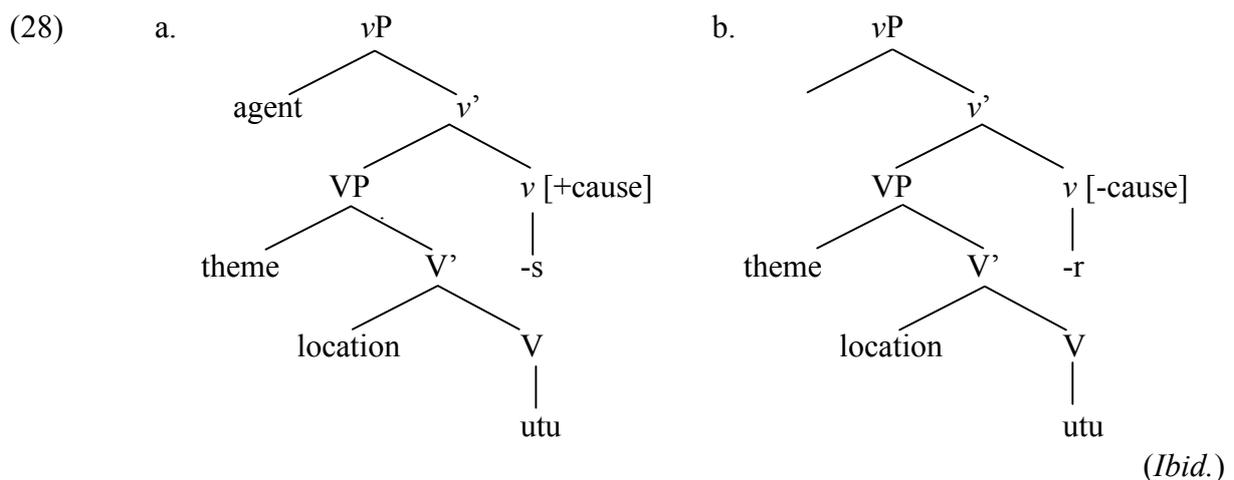
In (28a), which has a transitive verb, the [+cause] *v* is realized as the transitive suffix -*s*, while in (28b), which has an unaccusative verb, the [-cause] *v* is realized as the unaccusative suffix -*r*. If a child hypothesizes that the [±cause] *v* is phonetically null and does not distinguish

(28a) from (28b), the structures s/he has in mind are (29a) and (29b) instead of (28a) and (28b).

(29)   a.
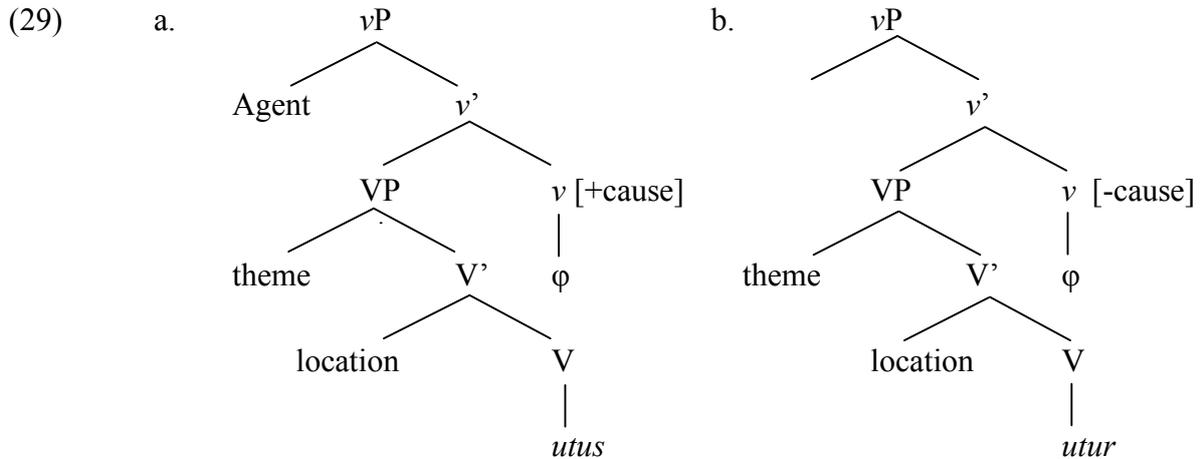


Note here that a child probably notices that either *-s* or *-r* must be attached to the verb, because verbs <u>without</u> the morphemes *-s*/*-r* are never heard in the input. Under this *v*-VP frame analysis, since the child assumes that the [±cause] *v* is null, the "erroneous" morphemes are attached to V, and "errors" of the unaccusative-transitive alternation take place. Similarly, the *-(s)ase* omission "errors" take place, since the suffix *-(s)ase* is in the position of the small *v* in lexical causatives as shown in (19b), which is repeated in (30) below. Here, since a child hypothesizes that the [±cause] *v* is null, s/he would omit *-(s)ase*.

(30)
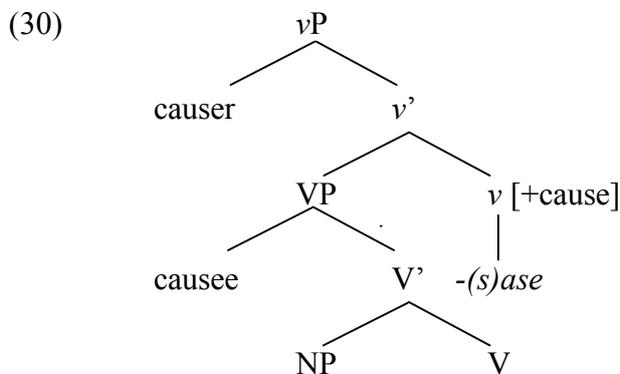


According to Murasugi and Hashimoto (2004), since a child assumes that the [+cause] *v* is null, s/he omits the overt suffix *-(s)ase* and still thinks s/he can express causative meaning.

Fuji (2006a, b) and Murasugi, Hashimoto and Fuji (2007) provide supportive empirical evidence for Murasugi and Hashimoto's (2004) analysis, based on Sumihare's data (Noji 1974-1977) in CHILDES database (MacWhinney 2000).

The *-(s)ase* omission errors are also found in Sumihare's data.

(31) Kutyu        ***hai***     ***-te***.     (2;1)
     a pair of shoes      put on  -Req

     Intended meaning: '(Please) put on (your) pair of shoes.'
     Literally meaning: '(Please) put a pair of shoes on me.'

                                             (Murasugi, Hashimoto and Fuji 2007)

In the context of (31), the causative form *hak-(s)ase-te* 'shoe me please' should be used. However, Sumihare omits the causative suffix *-(s)ase*, and produces *hai-te* 'put on please.' This type of "errors" indicates that Sumihare initially hypothesizes that the [+cause] *v* is null.

     As in (32), Sumihare also produces some "errors" of unaccusative and transitive alternation.

(32) a.     Kaatyan    ***ai***       ***-te***.     (2;1)
          mother      be open   -Req

          Literal meaning: '(Please) be open, mother.'
          Intended meaning: '(Please) open (the door), mother.'               (*Ibid*.)

    b.    ***Nui***-ta     koko.     (2;1)
          pull-Past    here

          Literal meaning: 'I pulled (this) here.'
          Intended meaning: '(This) is out from here.'                     (*Ibid*.)

In (32a), an adult would use the transitive verb, *ake-ru* 'open,' but Sumihare uses the unaccusative verb *ak-(r)u*. In (32b), inversely, the unaccusative verb *nuk-e-ta* 'came off' must be used in the adult grammar. However, Sumihare uses the transitive form *nui-ta* 'pulled' "by mistake." The data like (32b) is crucial because it indicates that not only the [+cause] *v*, but the [-cause] *v* is also null at one point of language acquisition.

### 3.3.   Stage II: A Verb (Preverbal Form) + *-sase* (Acquisition of Lexical Causatives, Transitives, and Unaccusatives)

     In Stage II, Akkun starts producing lexical causatives correctly in (33). In this stage, the small *v* is considered to be lexically realized, and the "erroneous" alternation of unaccusative-(di)transitive / causative drastically decreases in number.

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

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

In (33), *Akkun* is not the agent but the goal since he is asking his mother to put some food directly into his mouth. Thus, (33) is an example of lexical causatives, where the [+cause] *v* is phonetically realized as *-(s)ase*.

However, at the same time, Akkun and other children produce the erroneous lexical causatives as in (34).

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

        'Please feed (me with miso soup.)'           (Murasugi and Hashimoto 2004)

    b.   Gyunyu ***nomi-sase***   -te.     (Taatyan (B)[8], 2;9)      (adult form: **nom-(s)ase**-te)
        milk     drink-Cause-Req

        'Please feed (me) with milk.'                 (Arai 2003)

    c.   Boku-no     ringo   tabe ***-si***    -te   ageru.   (3;10)     (adult form: tabe-**sase**-te)
        I      -Gen    apple   eat   -Cause-Req give

        'I'll let (you) eat my apple.'                (Ito 1990)

In (34a), the correct causative form of the verb *nom-(r)u* 'drink' is *nom-(s)ase-ru*. However, Akkun "erroneously" attaches *-tyatye*, or *-sase* in adult speech, to its preverbal form *nomi*, and produces *nomi- tyatye-te*. The same type of "errors" is reported by Arai (2003), as in (34b). In (34c), *-sase* must be attached to the stem of the verb *tabe-ru* 'eat', but the child puts the erroneous suffix *-si* to it instead.

These data indicate that even after children acquire the adult form of lexical causatives, they are still confused by the choice of appropriate morphemes in the small *v*.

## 3.4. Stage III: A Causative Verb + *-sase*

In Stage III, children produce another type of "errors": a causative verb +-*sase*, as given in (35).

(35) a.   Kuruma -o    ***toos* -*(s)i*  *-sase***  -ru.     (3;10)        (adult form: **toos-**(r)u)
        car      -Acc    pass -Cause-Cause -Pres

        'I'll pass a car through.'                 (Arai 2003)

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

        'I'll show you next time.'                  (Arai 2003)

In (35a), although the transitive verb, *toos-(r)u* 'pass through' itself can be a causative verb, the child further puts the additional causative suffix *-sase* to it, and produces the unacceptable form *toos-(s)i-sase-ru*. (35b) is another doubled causative example. The correct causative form must be *mi-se-ru* 'show,' but the child adds the causative suffix *-si* and produces

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8   See fn.12 for Taatyan (B).

*mi-se-si-te* "by mistake." (See Fuji, Hashimoto and Murasugi (in preparation) for the analysis of the doubled causative forms.) While some children, like Akkun and Taatyan (B) erroneously realize the small *v* in Stage II and III, overgenerating two types of forms associated with *–sase*, some children, like Sumihare, never do so.

### 3.5. Stage IV: Adult Forms

Stage IV is the stage where all children start producing the "correct" adult form for all verbs. As for Sumihare, as far as Yano (2007a, b, c, d) and we examine, all of the lexical causatives he produces conform to the adult usage as in (36).

(36) a.  Okaatyan  hak  -asi  -te.  (3;0)
Mommy  put on  -Cause  -Req

'Mommy (please) put (a pair of shoes) on me.'

(Murasugi, Hashimoto and Fuji 2007)

  b.  Seizi-kun boku  -ga  ne  nak-asi  -tan  janaino  yo.  (2;7)
I  -Nom  Int  cry-Cause  -Past  not  Int

'It is not me who made Seiji cry.'  (*Ibid.*)

In (36a), Sumihare asks his mother to put a pair of shoes directly on him. In (36b), Sumihare wants to explain that it is not Sumihare who made Seizi cry. In both cases, Sumihare produces the correct causative forms with an appropriate morpheme *-ase*; *hak-asi-te* 'shoe me please' in (36a) and *nak-asi-ta* 'made him cry' in (36b).[9]

Syntactic causatives are acquired later than lexical causatives. Akkun starts producing syntactic causatives around the age of 5. Sumihare's syntactic causatives appear around 2;7, and become productive around the age of 4.

### 3.6. Summary

In this section, we have shown four acquisition stages of causatives. These four stages are repeated in (37) with actual verbs, *nom-(r)u* 'drink' and *toos-(r)u* 'pass through.'

Under the *v*-VP frame analysis (Murasugi and Hashimoto 2004), we can make the following analysis. Stage I is the stage of undergeneration. In Stage I, children hypothesize that [±cause] *v* is null. Hence, they produce unaccusative-transitive alternation "errors" and causative sentences without *-(s)ase*. In Stage II, the small *v* is lexically realized, and the correct verbal forms are observed productively. Hence, this stage contains the adult forms (Stage IV) as well. However, in Stages II and III, the overgeneration of *-sase* is also observed because the lexical realization of the small *v* is not still fully acquired. It takes some time to acquire the complete adult forms of causatives, which we will call the Stage IV.

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9  In Sumihare's dialect, *hak-ase̲-te* and *nak-ase̲-ta* are often pronounced as *hak-asi̲-te* and *nak-asi̲-ta*.

(37)  Table 1: The acquisition stages of causatives

| Stage | Children's causatives | utterances |
|---|---|---|
| I | *v* = null | *-(s)ase* omission errors and transitive-intransitive alternation errors |
| II | a verb (preverbal form) +*-sase* | *nomi*            *-sase*    *-te*<br>the preverval form of the verb *nom-(r)u*-Cause    -Req<br>'please let me go through'      (Adult form: nom-ase-te) |
| III | a causative verb + *-sase* | *toos-i*             *-sase*    *-te*<br>the preverval form of the causative verb *toos-(r)u*-Cause-Req<br>'please let me go through'      (Adult form: too-si-te) |
| IV | the adult form | |

Then, how are other complex predicates, for example, *-(rar)e* potentials acquired? In the next section, we will examine the acquisition of *-(rar)e* potentials in Japanese.

## 4. The Acquisition of Potentials

In the previous section, we showed the four acquisition stages of *-(s)ase* causatives. In this section, we will examine the acquisition data by Yano (2007a, b, c, d), Shibuya (1994), and Arai (2006), and show that the same stages can be found in the acquisition of *-(rar)e* potentials.

### 4.1. Stage I: The Null Realization of the Small *v*

As we discussed in 3.2, in the acquisition of causatives, children go through Stage I, where the small *v* is not phonetically realized. In this section, we will show that this stage is also found in the acquisition of potentials. Note here that Stage I includes two types of "errors" as for potentials: the one that the potential morpheme *-(rar)e* is omitted (4.1.1.), and the other that *-(rar)e* is produced as a part of the unanalyzed form of the large V (4.1.2.).

### 4.1.1. The Non-Morphological Realization of the Small *v*

In the initial stage, the potential morpheme is not realized phonetically as in (38).

(38) a.    Mother:   Zenbu tabe -rare-ru     ne.     (=3a)
                      all     eat -can -Pres   Int

                      'You can eat all.'

           Sumihare: Zenbu **tabe-ϕ** -ru     ne.    (2;1)         (adult form: **tabe-rare**-ru)
                      all     eat     -Pres   Int

                      Literal meaning:'(I) eat all.'
                      Intended meaning: '(I) can eat all.'          (Noji 1974-77)

    b.   ***Tabe-ϕ* -naku  nattyau.**    (2;2)          (adult form: **tabe-rare**-naku)
        eat     -Neg   become

        Literal meaning:  'I will not eat.'
        Intended meaning:  '(It) will be uneatable.'          (Ito 1990)

    c.   ***Sime-ϕ* -nai   wa   yo.**    (2;3)          (=3c)
        close   -Neg   Int   Int          (adult form: **sime-rare**-nai)

        Literal meaning:  '(I) don't close (it).'
        Intended meaning:  '(I) cannot close (it).'          (Okubo 1967)

(38a) is the same example as (3a). As we mentioned in Section 1, in this context, according to the observer (Noji, 1974), the child repeats after his mother without using *-rare* form, despite the fact that the mother speaks to her son using *-rare* form *tabe-rare-ru* 'can eat.' In (38b), according to Ito (1990), the potential form *tabe-rare-nai* 'cannot eat' must be used in this context. However, the child omits *-rare*, and the negative morpheme is attached to the verb stem directly as in *tabe-nai* 'don't eat.' (38c) (=3c) indicates the same type of error reported in Okubo (1967). Given the transcribers' comments, this stage seems to correspond to Stage I we proposed for the acquisition of causatives, where the small *v* is not phonetically realized.

### 4.1.2.  Uninflected Adult Forms

    While the omission of *-(rar)e* is observed in the early 2 year-old, it is reported that "correct" potential sentences are also produced at around 2;0 (Okubo 1967, Ito 1990, Shibuya 1994, Arai 2006, Yano 2007a, b, c, d).

    Based on her analysis of Noji corpus from CHILDES database, Yano (2007a, b, c, d) finds that *-e* potentials appear very early, at 2;0. Some examples of Sumihare's potential sentences are given in (39).

(39)  a.    Toor **-e**   -n.    (2;0)
            pass   -can -not

            '(I) cannot pass.'          (Yano 2007a, b, c, d)

      b.    Kakko -ga   hak   **-e**   -n.    (2;2)
            shoes   -Nom  put on -can -not

            '(I) cannot put on my shoes.'          (*Ibid.*)

      c.    Tor  **-e**  -ta.    (2;2)
            take   -can -Past

            '(I) could take (this).'          (*Ibid.*)

In (39a) through (39c), Sumihare apparently produces potential forms correctly. *Toor-e-n*

'cannot pass' in (39a) and *hak-e-n* 'cannot put on' in (39b) are the short forms of *toor-e-nai* and *hak-e-nai*. Those phrases are often used even in the adult grammar. In (39c), Sumihare produces the "correct" potential form *tor-e* 'can take' with the past tense marker *-ta*.

Then, are potentials really acquired in such an early stage, even at 2;0? A 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 that the answer for the question is negative; what apparently looks like the adult potential form does not have exactly the same structure as adults,' but rather, it is an unanalyzed form. Hereafter, we support the latter possibility, and propose that Sumihare's potential sentences produced at early age of 2 are, in fact, uninflected adult forms, and hence, this is the stage where the small *v* is phonetically null as well. In other words, in this stage, the child puts the potential morpheme *-(rar)e* onto V. This claim is supported by three pieces of evidence from Sumihare's acquisition data.

The first evidence is found in the "erroneous" inflection forms of tense markers. According to Murasugi and Fuji (2007), Sumihare (Noji 1974-1977) produces some erroneous inflection forms in this stage.

(40) a.  Tootyan, koko  gomi  tui *-ta*  yo  (2;1)  (adult form: tui-**te iru**(perfect))
         father   here  dust  stick-Past  Int

         'Daddy, you have got the dust here (=on your cheek).'    (Murasugi and Fuji 2007)

   b.  Sumihare: Nak-***u***  nak-***u***  (2;1)  (adult form: nai-**te iru** (progressive))
         cry -Pres  cry -Pres

         Literal meaning: '(He) cries, cries.'
         Intended meaning: '(He) is crying.'

      Father:  Dare-ga  nai-**te iru**  no?
         who-Nom  cry-*te iru* (progressive)  Q

         'Who is crying?'                                        (*Ibid.*)

The context of (40a) is that Sumihare wants to tell his father that his father has dust on his cheek. In this context, the perfect form *-te iru* should be used. However, Sumihare employs the simple past form and says *tui-ta* 'stuck' instead of *tui-te iru* 'be sticking.' In (40b), Sumihare intends to describe that somebody is crying. Thus, the *-te iru* form which conveys the progressive meaning in this case should be used in the adult grammar. Nevertheless, Sumihare uses the present form and produces *nak-u* 'cry' instead of *nai-te iru* 'be crying.'

Based on the close study on the acquisition of progressive forms of Sumihare (Noji 1974-1977), Murasugi and Fuji (2007) propose that tense markers such as *-te(iru)*, *-ta*, or *-(r)u*, are not realized as T independently at the very early stage of language acquisition, but

rather, they are realized as V together with the verbs. That is, Sumihare puts these tense markers onto V and regards the whole *tui-ta* in (40a) and *nak-u* in (40b) as V.

The second evidence is found in the acquisition of negation. In adult Japanese, *-nai* 'not' is a verbal predicate which itself carries finite tense (Sano 2000). The structure of negation is represented schematically in (41).

(41)

```
                        IP
                       /  \
                         I'
                        /  \
                NEGP        I
               /    \       -i (present) /-kat-ta (past)
            VP        NEG
    Root+irrealis affix    na-
    (=non-finite)    (=finite)
```

(Sano 2000; 132 slightly modified)
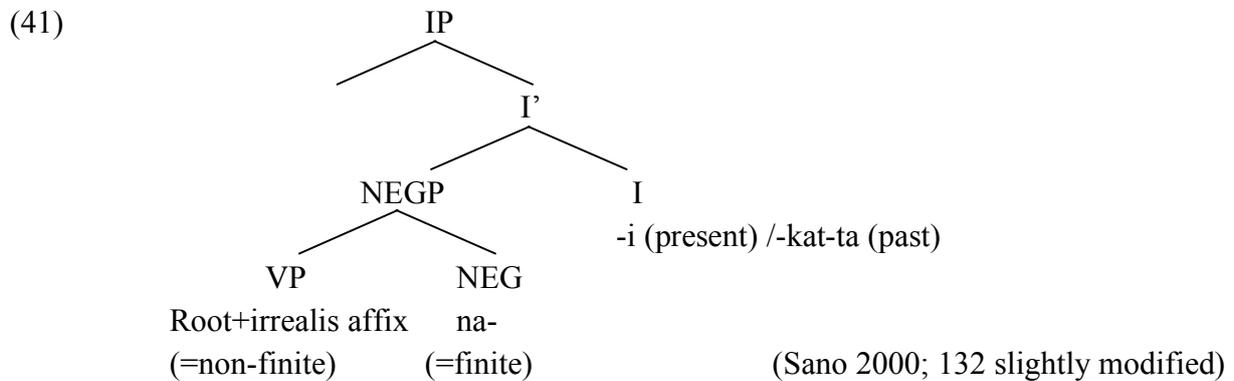
The following examples in (42) indicate that Sumihare does not have the structure in (41).

(42) a.  Father:  Sinbun    tot  -ta?
                  newspaper take -Past   'Have (you) taken newspaper yet?'

         Sumihare: Tot *-ta*  *-nai*.   (2;1)                (adult form: tot-**te-nai**)
                   take-Past-not    '(I) haven't.'      (Murasugi and Fuji, 2007)

     b.  Mother:  Oti        -ru    yo.
                  fall down -Pres  Int     '(You) will fall down.'

         Sumihare: Oti       *-ta*   *-nai*   (2;1)       (adult form: oti-**te-nai**/oti-**nai**)
                   fall down -Past  -not    '(I) won't.'                    (*Ibid.*)

In (42a), Sumihare is asked if he has already taken newspaper, and intends to answer 'No, I haven't.' In the adult grammar, the negative form *tot-te-nai* 'haven't taken' should be used, but Sumihare puts *-nai* to the past tense form *tot-ta* 'took,' and produces the unacceptable negative form *tot-ta-nai*. (42b) is the same type of error. Even though his mother speaks to him with the present verbal form *oti-ru* 'fall down,' he says *oti-ta-nai*, putting *-nai* to the past tense form *oti-ta* 'fell down,' though the negative form *oti-te-nai* or *oti-nai* should be used.

These data indicate that Sumihare does not consider the past tense marker to appear in the head of IP. He puts *-ta* directly to V instead. Thus, it can be conjectured that Sumihare regards the whole past tense form of verbs, *totta* or *otita*, as V, and puts *-nai* 'not' to them. [10]

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[10]  Sano (2000) shows that children produce erroneous negative forms such as in (i).

(i)  a.  Nor-u    nai.   (2;6)
         ride-Pres not     '(It) does not ride.'

The third evidence is found in the acquisition of causatives discussed in Section 3. Recall here that Sumihare produces a lot of transitive and unaccusative alternation "errors" from 2;1 to 2;5, as shown in (43).

(43) a.   Kaatyan   ***ai***     ***-te***.    (2;1)                          (=32a)
         mother    be open  -Req

         Literal meaning: '(Please) be open, mother.'
         Intended meaning: '(Please) open (the door), mother.'
                                  (Murasugi, Hashimoto and Fuji 2007)

    b.   ***Nui***-ta    koko.   (2;1)                            (=32b)
         pull-Past  here

         Literal meaning: 'I pulled (this) here.'
         Intended meaning: '(This) is out from here.'              (*Ibid.*)

As mentioned above in Section 3, children produce such errors since they hypothesize that the [±cause] *v* is null. Thus, in (43), Sumihare puts a transitive or an unaccusative suffix to V not *v*, and produces erroneous verbal forms (Murasugi and Hashimoto 2004, Murasugi, Hashimoto and Fuji 2007).

The three pieces of evidence lead us to conjecture that Sumihare, at early age of 2, produces unanalyzed verbal forms and the examples in (39) are "lexical potentials." He

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    b.   Tuk  -u    nai.   (2;4)
        attach -Pres  not    '(It) does not attach.'     (Sano 2000, 134 slightly modified)

In (i), children attach *nai* 'not' to a finite non-past form of the verbs. Sano (2000) reports that erroneous forms like in (i) are rarely observed with verbs which have roots ending with a vowel. Based on these observations, Sano (2000) proposes that it takes some time for children to acquire the irrealis form of a verb. He argues that children assume the structure in (ii) for negations instead of (41).

(ii)
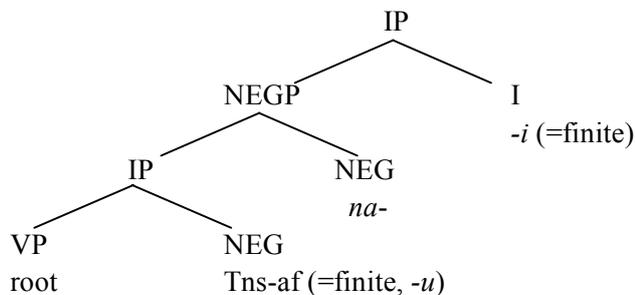
```
                              IP
                          /        \
                     NEGP            I
                   /      \         -i (=finite)
               IP          NEG
             /    \        na-
          VP        NEG
         root    Tns-af (=finite, -u)
```
                                               (Sano 2000, 141)

In this structure, the negated verb is finite and it is selected by NEG. See Murasugi (2007a,b,c) and Murasugi, Fuji and Hashimoto (2007).

attaches tense morphemes or transitive or unaccusative morphemes to V though they are in I (or T) or the small *v* in the adult grammar.[11]

Therefore, Stage I of the acquisition of *-(rar)e* potentials seems to be parallel to that of the acquisition of *-(s)ase* causatives. In this stage, children hypothesize that the small *v* is phonetically null.

Note here, however, that the close examination of the acquisition data of *-(s)ase* causatives and *-(rar)e* potentials reveals some differences between them. First, the omission "errors" are found more often in causatives than potentials. Second, erroneous verbal forms in the acquisition of causatives have more varieties than those in the acquisition of potentials. That is, while the transitive and unaccusative alternation "errors" are observed besides the *-(s)ase* omission "errors" in the causative acquisition, only the *-(rar)e* omission "errors" are observed in the acquisition of potentials. The third difference is the age when children retreat from such "errors." The *-(rar)e* omission "errors" produced by Sumihare and by other children reported in Okubo (1967) and Ito (1990) are all observed in the early 2 years old. On the other hand, the *-(s)ase* omission "errors" and the unaccusative and transitive alternation "errors" are observed until relatively late, 2;6 for Sumihare and 4;8 for Akkun.

We conjecture that these differences are grounded in the properties of two features: [±cause] and [±potential]. When the small *v* has [+cause], a verb is transitive or causative, while when the small *v* has [-cause], a verb is unaccusative. In the acquisition of causatives, children need to learn how each realization of the [±cause] *v* is correlated to verbal properties, such as transitive, unaccusative and causative. Hence, even after they notice that the [±cause] *v* must be realized phonetically, they still make some errors on their forms. Thus, children are easily confused by the realization of the [±cause] *v*. On the other hand, [+potential] just adds the potential meaning to a verb. There is no antonymous lexeme associated with [-potential]. In the acquisition of potentials, what children need to learn is just to put a potential suffix to a verb as a realization of [+potential]. Therefore, the three differences listed above, i.e., the frequency of the suffix omission "errors, the existence/non-existence of transitive and unaccusative alternation "errors", and the age when children retreat from such "errors," could all be captured by the asymmetries in the lexical realization of [±cause] and [±potential] features.[12]

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[11] When Sumihare produces "lexical potentials" as in (39), he also produces other forms of those verbs, such as present tensed form and past tensed form (e.g. *too-ru* (pass-Pres) and *toot-ta* (pass-Past) for *toor-en* (cannot pass)). Although Sumihare's potential forms are uninflected adult forms, he uses those potential forms in the correct situations. That indicates that the small *v* is not phonetically realized, but it has the [+potential]. Hence, the null realization of the small *v* does not indicate that it does not have its feature.

[12] We would like to thank Mamoru Saito for making this point to us.

## 4.2. Stage II, Stage III and Stage IV

In 4.1, we showed that children go through Stage I, where the small *v* is phonetically null, in the acquisition of *-(rar)e* potentials. Then, how about other stages? In this section, we will show that some children produce "errors" in *-(rar)e* potentials just like the "errors" produced in Stage II and III in the acquisition of causatives (Shibuya 1994, Arai 2006), while Sumihare produces very few erroneous potential sentences.

### 4.2.1. The Case of Sumihare (Yano 2007a, b, c, d)

Yano (2007a,b,c,d) analyzes potential sentences in Sumihare's productive data (CHILDES) in line with Murasugi and Hashimoto (2004). She shows that *-e* potentials are acquired as early as lexical causatives which has a mono-clausal structure in (30) and thereby supports the VP complement structure proposed by Bobaljik and Wurmbrand (2007), as shown in (16a)(=(44b)). The structures in (30) and (16a) are repeated below in (44).

(44) a.    the structure of lexical causatives      b. the structure of the nominative object construction
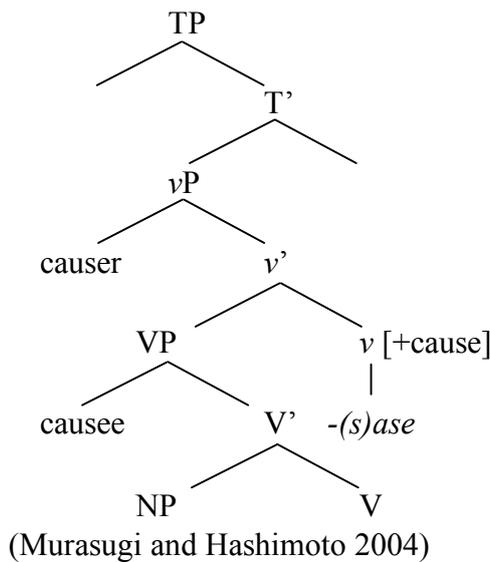


(Murasugi and Hashimoto 2004)        (Bobaljik and Wurmbrand 2007)
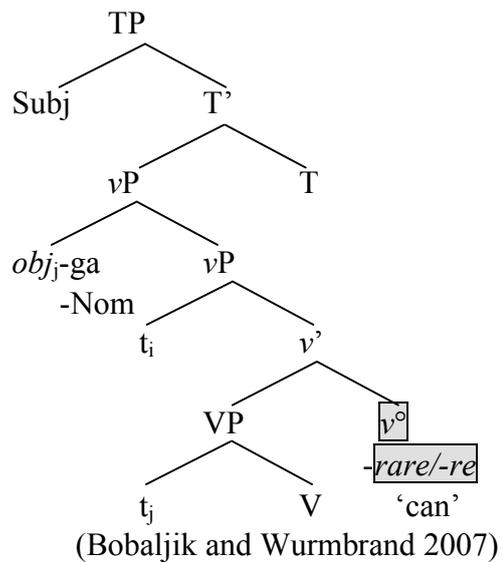
Given the analysis that the potentials in early 2 year-old are uninflected adult forms and that *-e* potentials are acquired as early as lexical causatives, it is plausible to consider that Sumihare starts producing the potential morpheme *-e* as a realization of the small *v* at the time when he acquires lexical causatives.

According to Murasugi, Hashimoto and Fuji (2007), Sumihare starts producing lexical causatives at around 2;3. Some examples are shown in (45).

(45) a.    Mi -se    -te  -goran    (2;3)
          see-Cause  -Req-Sug

          'Why don't you show (it) to me?'             (Noji 1974-1977)

b.  Kiiroino  fuku      ki  -tye  -te      (2;5)
    yellow    clothes   wear-Cause -Req

'Please put the yellow clothes on me.'                                    (*Ibid*.)

Sumihare utters (45a) when he is watching his mother trying to repair his younger brother's toy (Noji 1974-1977 II; 388). He correctly uses the causative verb *mi-se-te* 'show me.' In (45b), he asks his mother to put the yellow clothes on him (Noji 1974-1977 II; 631). *Ki-tye-te* is *ki-se-te* 'dress me' in adult speech, which is the correct causative verb in this context.

Therefore, we conjecture that potential sentences produced after 2;3 are not uninflected adult forms any more. In other words, the potential morpheme -*e* is produced as a realization of the small *v*, but not V. A couple of examples are given in (46).

(46) a.  Ame-ga    futte    onmo   -de asyob -**e**  -nai ne    (2;3)
         rain -Nom fall     outside-in   play    -can -not Int

         'Since it's raining, (I) cannot play outside.'          (Yano 2007a, b, c, d)

    b.  Boku yoku   kam -**e**  -ru      yo     (2;5)
        I      good   chew-can -Pres   Int

        'I can chew (this) very well.'                          (Noji 1974-1977)

*Asyob-e-nai* in (46a) is a child phonetic form of *asob-e-nai* 'cannot play', which is a correct potential form. (46b) is uttered when Sumihare is eating a sweet (Noji 1974-1977 II; 594). The correct potential form *kam-e-ru* 'can chew' is used.

At around the age of 2;5, Sumihare starts producing potentials attaching the suffix -*(r)are*. However, at around the age of 3, Sumihare produces some erroneous potential forms. Some examples are given in (47a) through (47c).

(47) a.  Kaatyan   nakanaka    tor  -**are** -n     yo    (3;3)
         mommy     not easily  take -can -Neg   Int

         'Mommy, I can't take (it) easily.'

    b.  Mada     ik-**are**-n      (3;4)
        still      go-can-Neg

        '(I) still cannot go.'

    c.  Gakko-ni    ik -**e -re**  -ru     (3;1)
        school-to    go-can-can  -Pres

        '(I) can go to school.'

In (47a) and (47b), the suffix -*e* should be attached to yield the potential form *tor-e-n* in (47a)

and *ik-e-n* in (47b). However, Sumihare attaches *-(r)are* to the verb stems and produces erroneous potential forms. In (47c), Sumihare correctly attaches the suffix *-e* to the verb *ik-* 'go.' Yet, he attaches another potential suffix *-re*, and yields the unacceptable potential form.

Thus, although Sumihare produces few erroneous causatives, it seems that he is confused by the choice of appropriate morphemes in the small *v* in this stage.

In the proceeding subsections, we will introduce two empirical findings of the erroneous potential verbs as for the intermediate stages of potential acquisition. Together with Sumihare's data given above, the longitudinal studies reported in Shibuya (1994) (4.2.2.) and Arai (2006) (4.2.3.) seem to show exactly the same four stages as we found in causatives, thereby supporting Murasugi and Hashimoto's (2004) *v*-VP frame analysis.

### 4.2.2. The Case of Taatyan (A) (Shibuya 1994)

Shibuya (1994), based on his corpus study of Taatyan (A)'s data[13] from National Institute for Japanese Language, reports that there are four stages in acquiring *-(rar)e* potentials as in (48).

(48)  Stage I:    the "verb+-*e*" form[14]
      Stage II:   the "verb+-*rare*" form
      Stage III:  the "verb+-*e+-rare*" form
      Stage IV:   the adult form

According to Shibuya (1994), Taatyan (A) starts producing the "verb+-*e*" form first. Some examples are given in (49).

(49)  a.    tor-**e**-ru    'can take'   (2;1)

    b.    ik-**e**-ru    'can go'    (2;2)

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[13]   This child is different from Taatyan in Arai (2006) we discuss later in 4.2.3. For convenience, we distinguish those two children who have the same nickname accidentally, by using Taatyan (A) for Shibuya (1994) and Taatyan (B) for Arai (2006).

[14]   Before Stage I, Taatyan (A) seems to understand potential sentences (Shibuya 1994).

(i)    Adult: Taatyan    yoguruto  tabe-rare-ru?
                  yogurt     eat -can-Pres        'Can you eat yogurt?'

    Child:  Un.    (2;0)
           yes    'Yes.'                                    (*Ibid.*)

In (i), the mother asks her child if he can eat yogurt using the *-(rar)e* potential form, and the child answers correctly. Thus, Shibuya (1994) reports that even *-(rar)e* potentials are never produced in this age, before 2-years-old, it seems that the child understands *-(rar)e* potential sentences.

    c.    hair-**e**-ru    'can enter'    (2;3)                (Shibuya 1994)

In (49a) through (49c), all potential forms are "correctly" produced.

Note here that the "correct" potential forms produced by Taatyan (A) in this stage look similar to those produced by Sumihare in the same age, i.e., the "verb+*e*" form. Thus, as we discussed in 4.1.2, potential sentences in this stage are considered to be uninflected adult forms. Despite its appearance, it is plausible to consider that he puts the potential morpheme -*e* to V.

Shibuya (1994) reports that after Stage I, in Stage II, the "verb+-*rare*" form appears. In this stage, such overgeneration as in (50) is observed.

(50)  Deki-**rare**-nai.    (3;7)                     (adult form: deki-nai)
     can  -can-not    '(I) cannot do.'                    (*Ibid.*)

In (50), the verb *deki-ru,* which itself means 'can,' does not need any potential suffix. However, Taatyan (A) overgenerates -*rare*, yielding the unacceptable negative form *deki-rare-nai* instead of the correct form *deki-nai*.

Since "verb+-*rare*" forms are observed in the stage termed Stage II by Shibuya (1994), this stage seems to be the same as Stage II in the acquisition of causatives, where "verb+-*sase*" forms appear.

In the next stage, Taatyan (A) starts producing "verb+-*erare*" forms, which are not correct in the adult grammar. A couple of examples are given in (51).

(51)  a.    Adult:  Sutoroo  dasi      -te     Taatyan.
                    straw     take out  -Req   'Taatyan, take a straw out.'

           Child:  Das      **-e**   **-rare**-nai   (3;0)        (adult form: das-**e**-nai)
                 take out  -can -can -not      '(I) cannot take it out.'     (*Ibid.*)

    b.    ***Narabe*** -**ϕ**-ru    kana,  narabe **-re** **-rare**  -ru    kana,  narabe **-rare**-ru
         line      -Pres Q      line   -can -can  -Pres Q    line   -can -Pres
         kana.  (2;9)                                         (=3g)
         Q

         Intended meaning:  'Could (I) line (them) up?'      (adult form: narabe-**rare**-ru)
                                                         (*Ibid.*)

In (51a), the adult form should be *das-e-nai* 'cannot take out' with the potential suffix -*e*, but Taatyan (A) puts the erroneous suffix -*erare* and produces *das-erare-nai*. (51b) is the same example we looked at in Section 1. It seems that the child tries some possible suffixes. First he omits -*rare*. Next, he puts the erroneous suffix, -*rerare*, and finally he produces the correct form. Shibuya (1994) refers this stage as Stage III.

Considering these data closely, we find that Taatyan (A) puts *-rare* to potential verbs in this stage. In (50a), *das-e* 'can take out' is the correct potential form if one puts the negative *-nai* to it, but he inserts *-rare* between the potential morpheme and the negative marker. In (50b), *narabe-re* 'can line up' is the correct form in the *Ra*-omission Type if one puts the present tense marker *-ru* to it. Taatyan (A) inserts *-rare* between the potential morpheme and the present tense marker in this example, too. Therefore, this stage seems to be parallel to Stage III in the acquisition of causatives, where the incorrect "causative verb+-*sase*" form is produced. And finally, in Stage IV, Taatyan (A) starts producing potentials as the same form as adult usage (Shibuya 1994).

Thus, the four acquisition stages of *-(rar)e* potentials proposed by Shibuya (1994) are parallel to those of causatives in (20). In the next subsection, we will discuss another longitudinal study on potentials made by Arai (2006), which apparently proposes different four stages, but in fact does not, as we discuss in 4.2.4.

### 4.2.3. The Case of Taatyan (B) (Arai 2006)

Arai (2006) observes the utterances of his son, Taatyan (B), longitudinally from 1;10 to 6;8.[15] He reports that Taatyan (B) produces erroneous potential sentences, and proposes that the errors are of two types of overgeneration.

Taatyan (B)'s *-e* potential sentences are observed at the very early stage of language acquisition, at the age of two (Arai 2006). Arai (2006) terms this stage as Conservative Stage. He discusses that in Conservative Stage, the child produces potential sentences as what he actually hears and he does not use them productively. In other words, the child just imitates what adults say.

Arai's (2006) analysis is similar to our analysis that potential sentences in early age of two are uninflected adult usage. Therefore, the stage termed Conservative Stage by Arai (2006) is the same as Stage I, where the small *v* is phonologically null.

Arai (2006) reports that from 2;8 to 3;5, Taatyan (B) erroneously puts *-rare* to verbs as shown in (52).

(52) a.    Taakun    hitori-de      tukur *-(r)are*-ta   (3;0) (adult form: tukur-**e**-ta)     (=3c)
                by oneself     make-can   -Past

            'Taakun (/I) could make (this) by himself(/myself).'          (Arai 2006)

    b.    Yar-*(r)are* -nai.                (3;5)   (adult form: yar-**e** nai)    (=3d)
           do -can    -Neg       'I cannot do.'                 (*Ibid.*)

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[15]   He recorded Taatyan (B)'s naturalistic data everyday focusing on transitive verbs, causatives, and potentials. Taatyan (B) was born in Osaka where Mixed Type *-(rar)e* potentials, according to Arai (2006), are spoken. When Taatyan (B) was three years old, he moved to Shiga prefecture. The dialect spoken there is similar to the Kyoto dialect, or *Ra*-omission Type we discussed in 2.1.

In standard Japanese, *-rare* is attached to vocalic verb stems while *-e* to consonantal verb stems as shown in Section 1, but Taatyan (B) overgenerates *-rare* in this stage. He obeys his own morpho-phonological rule, according to Arai (2006), and puts *-rare* to vocalic verbs while *-are* to consonantal verbs. Thus, in (52a) and (52b), the suffix *-are* attaches to the stems of the verbs *tukur-(r)u* 'make' and *yar-(r)u* 'do,' though the suffix *-e* should attach in the adult grammar. This stage is the same as Stage II we discussed in 4.2.2.

After Stage II, Arai (2006) reports that there is another type of overgeneration observed. Taatyan (B) erroneously puts *-rare* to a verb without following his morpho-phonological rule mentioned above at the age of 3;5. According to Arai's (2006) analysis, the child puts *-rare* even to a consonantal verb and inserts the vowel *-e* between the ending consonant of a verb stem and the beginning consonant of *-rare*, as shown in (53).

(53) a.　Konnani　ippai　hakob-***e***　　***-rare-***ta.　(3;11)　　(adult form: hakob-**e**-ta)
　　　　like this　many　carry -Vowel　-can -Past　　　　　　　　　(*Ibid.*)

　　　　'(I) could carry so many things like this.'

　　b.　Zyoozuni　　mot -***e***　　***-rare***　-ta.　(4;2)　　(adult form:mot-**e**-ta) (=3f)
　　　　well　　　　have -Vowel-can　　-Past

　　　　'I could bring (this) up very well.'　　　　　　　　　　　　　　　　(*Ibid.*)

In (53a), the stem of the verb *hakob-(r)u* 'carry' ends with a consonant *-b*, but Taatyan (B) attaches *-rare*, inserting the vowel *-e* between the verb stem and *-rare*. The same error is found in (53b). Taatyan (B) puts *-rare* to the consonantal verb *mot-(r)u* and inserts the vowel *-e* between the consonants, yielding an unacceptable form *mot-e-rare-ta*.

According to Arai (2006), Taatyan (B) goes through the four stages in acquiring *-(rar)e* potentials as illustrated in (54).

(54) "conservative stage" (2;0-2;8): The child produces potentials "correctly"
　　　"overgeneration 1" (2;8-3;5): The child overgenerates *-(r)are*, and follows his
　　　　　　　　　　　　　　　　　own morpho-phonological rule
　　　"overgeneration 2" (3;5-4;8): The child overgenerates*-rare*, and follows the
　　　　　　　　　　　　　　　　　phonological rule to insert a vowel between consonants
　　　"the adult form"

Arai (2006) mentions two possible analyses for the four stages given above. One is based on the (morpho-)phonological rules Taatyan (B) obeys as shown in (53). This (morpho-)phonological analysis, however, faces learnability problems, as it is not crystal clear why it is the case that children try various (morpho-)phonological rules and what triggers the transition from one (morpho-)phonological rule to another. Another possible analysis Arai (2006) mentions is based on Bowerman's (1982) examples such as "straigh<u>tenen</u>" that English-speaking children erroneously make. He suggests that the "overgeneration 2" of

Taachan (B) indicates the stage where children doubly attach the potential morphemes, *-e* and *-rare*, like English-speaking children do.

In 4.2.3., we will reanalyze Arai's (2006) data by pursuing the second possibility he mentions, and show that Taatyan (B) goes through exactly the same stages as Taatyan (A) observed by Shibuya (1994), and hence Arai's (2006) four stages are the same as those in causatives as shown in (20).

### 4.2.3. The Reanalysis of Arai's (2006) Data

Table 2 shows Taatyan (B)'s utterances of *-(rar)e* potentials. We put a circle (○) for the correct usage, a spade (♠) for the "verb+-*e*" form, a white diamond (◊) for the "verb+-*rare*" form, and a black diamond (♦) for the "verb+-*erare*" form.

Let us take the first one *tor-e-nai* 'cannot take' as an example. Since this is the correct form, we put a circle (○) to it. Moreover, since the utterance is the "verb+-*e*" form, we also put a spade (♠) to it. We can divide these data into four stages. Interestingly, these stages correspond to the acquisition stages found in causative constructions. These four stages are illustrated in (55).

(55)  Stage I:     the "verb+-*e*" form   (2;0- ) ⟹♠
       Stage II:    the "verb+-*(r)are*" form (2;5- 4;7)  ⟹◊
       Stage III:   the "verb+-*e*+-*rare*" form (3;7-5;8)  ⟹♦
       Stage IV:   the adult form

Stage I, the stage which Arai (2006) terms "Conservative Stage", starts at around the age of two. The potential sentences observed in this stage have the "verb+-*e*" form. This is the same as the case in Sumihare and Taatyan (A). Thus, we conjecture that the "verb+-*e*" form in the early stage is the undifferentiated adult form. This is the stage of undergeneration, or Stage I, where the small *v* is lexically realized null. Note here that the [+potential] feature is there, and the meaning of the verb is [verb+potential].

In Stage II, from 2;5[16] to 4;7, Taatyan (B) produces the "verb+-*(r)are*" form. For example, in 12 of Table 1, Taatyan (B) puts *-are* to the consonantal verb *tukur-(r)u* 'make.' On the other hand, in 24 of Table 1, *-rare* attaches to the vocalic verb *oki-ru* 'get up.' This corresponds to our Stage II.

In Stage III, from 3;7 to 5;8, Taatyan (B) produces the "verb+-*e*+-*rare*" form. For example, in 18 of Table 1, the correct potential form should be *tor-e-ta* 'could take.' As for 34 of Table 1, the correct adult form is *naos-e-ru* 'can repair'. Thus, in this stage, Taatyan (B) adds the extra suffix *-rare* to the correct potential forms, yielding erroneous potential forms such as *tor-e-rare-ta* in 18 and *naos-e-rare-ru* in 34 of Table 1. This corresponds to our Stage

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[16]   Arai (2006) argues that the first overgeneration starts at the age of 2 years and 8 months. However, since the utterance *ake-rare-nai* 'cannot open' is the "verb+-*rare*" form, we classify it into Stage II.

III. Again, it takes some time for Taatyan (B), too, to attain the complete "correct" adult potential forms.

Table 2: Taatyan (B)'s utterances of -(rar)e potentials (based on Arai (2006))

| | age | his utterances | | translations | | age | his utterances | | translations |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 2;0 | tor-e-nai | ○♠ | cannot take | 28 | 4;5 | erab-e-rare-hen | ♦ | cannot choose |
| 2 | 2;5 | ake-rare-nai | ○◊ | cannot open | 29 | 4;5 | sim-e-rare-ta | ♦ | could close |
| 3 | 2;8 | si-e-naku | ♠ | cannot do | 30 | 4;6 | ire-rare-ta | ○◊ | could put in |
| 4 | 2;8 | kir-are-ru | ◊ | can cut | 31 | 4;6 | ut-e-rare-ru | ♦ | can shoot |
| 5 | 2;9 | kake-rare-nai | ○◊ | cannot hang | 32 | 4;6 | ik-e-rare-hen | ♦ | cannot go |
| 6 | 3;0 | tukur-are-ta | ◊ | can make | 33 | 4;7 | naos-e-rare-ta | ♦ | could repair |
| 7 | 3;0 | si-(r)a-(r)e-ru | ◊ | can do | 34 | 4;7 | naos-e-rare-ru | ♦ | can repair |
| 8 | 3;5 | yar-are-nai | ◊ | cannot do | 35 | 4;7 | kowas-e-rare-ta | ♦ | could break |
| 9 | 3;7 | mat-e-ran-nai | ♦ | cannot wait | 36 | 4;7 | muk-e-rare-ta | ♦ | could open |
| 10 | 3;7 | kak-e-rare-ru | ♦ | can write | 37 | 4;7 | ori-re-nai | ◊ | cannot go down |
| 11 | 3;8 | mot-i-rare-ta | ◊ | could lift | 38 | 4;8 | huk-e-rare-ru | ♦ | can wipe |
| 12 | 3;8 | or-e-rare-ta | ♦ | could break | 39 | 4;8 | huk-e-ru | ○♠ | can wipe |
| 13 | 3;10 | tukur-are-ta | ◊ | could make | 40 | 4;8 | huk-e-rare-nai | ♦ | cannot wipe |
| 14 | 3;11 | hakob-e-rare-ta | ♦ | could carry | 41 | 4;9 | mi-re-rare-hen | ♦ | cannot watch |
| 15 | 4;2 | mot-e-rare-ta | ♦ | could lift | 42 | 4;10 | mak-e-ru | ○♠ | can wrap |
| 16 | 4;3 | nuk-e-rare-ru | ♦ | can pull out | 43 | 4;10 | aw-e-nai | ○♠ | cannot meet |
| 17 | 4;3 | kir-are-ta | ◊ | could cut | 44 | 4;10 | mi-rare-soo | ○◊ | can see |
| 18 | 4;3 | tor-e-rare-ta | ♦ | could take | 45 | 4;10 | aw-e-ru | ○♠ | can meet |
| 19 | 4;3 | kat-e-rare-ta | ♦ | could win | 46 | 4;11 | kam-e-rare-ru | ♦ | can bite |
| 20 | 4;3 | yar-are-ta | ◊ | could do | 47 | 5;0 | tukam-e-ru | ♠ | can catch |
| 21 | 4;3 | mak-e-rare-n-de | ♦ | can roll up | 48 | 5;0 | oyog-e-ru | ○♠ | can swim |
| 22 | 4;3 | otos-are-nen-de | ◊ | can drop | 49 | 5;3 | moraw-e-hen | ○♠ | cannot get |
| 23 | 4;3 | oyog-e-rare-ru | ♦ | can swim | 50 | 5;3 | moraw-are-hen | ○◊ | cannot get |
| 24 | 4;3 | oki-rare-ta | ◊ | could get up | 51 | 5;7 | mot-e-rare-ru | ♦ | can grasp |
| 25 | 4;4 | tukur-are-ta | ◊ | could make | 52 | 5;7 | i-rare-nai | ○◊ | cannot be |
| 26 | 4;4 | mi-re-rare-n-de | ♦ | can see | 53 | 5;8 | nokos-i-tok-e-ra | ♦ | can leave |
| 27 | 4;4 | muk-e-rare-ta | ♦ | could open | 54 | 5;8 | nokos-i-tok-e-ru | ♠○ | can leave |

○= the adult form, ♠= the "verb+-e" form, ◊=the "verb+-(r)are" form, ♦=the "verb+-erare" form

The reanalyzed Taatyan (B)'s four acquisition stages of -(rar)e potentials are exactly the same as Taatyan (A)'s four stages proposed in Shibuya (1994), as shown in (55) and (48). And these two children's acquisition stages of -(rar)e potentials are parallel to those of causatives given in (20).

### 4.3. Summary

In this section, we discussed the acquisition of *-(rar)e* potentials. We showed that the four acquisition stages of *-(rar)e* potentials are identical with those of *-(s)ase* causatives. Those stages are illustrated in (56) and (57) respectively.

(56)  The four acquisition stages of *-(s)ase* causatives
      Stage I:     the small *v* is realized null:
                      *-(s)ase* omission errors and transitive-unaccusative alternation errors
      Stage II:    a verb (preverbal form) + *-sase*
      Stage III :  a causative verb + *-sase*
      Stage IV:   the adult form

(57)  The four acquisition stages of *-(rar)e* potentials
      Stage I:     the small *v* is realized null:
                      *-(rar)e* omission errors and the uninflected adult form ("verb+*-e*")
      Stage II:    a verb + *-rare*
      Stage III:  a potential verb **+-*rare*** form
      Stage IV:   the adult form

Furthermore, we pointed out three differences between the acquisition of *-(s)ase* causatives and that of *-(rar)e* potentials: i) the frequency of the suffix omission "errors," ii) the existence/non-existence of transitive and unaccusative alternation "errors," and iii) the difference of the age when children retreat from such "errors." We argued that these differences are due to the properties of [±cause] and [±potential]. While [±cause] is realized in three different kinds of verbs such as unaccusative, transitive, or causative verbs, there is no such variety in [±potential].

### 5.    Conclusion

In this paper, we discussed the acquisition of Japanese complex predicates, in particular, potentials and causatives, and proposed that the "erroneous" verbal forms reflect the stages where the small *v* and T (or I) are lexically realized null as the VP-shell analysis expects (Murasugi and Hashimoto 2004).

In Section 2, we examined *-(rar)e* potentials in the adult grammar. In Section 3, we overviewed Murasugi and Hashimoto's (2004) VP-shell analysis on the acquisition of *-(s)ase* causatives and agentive (di)transitives. Based on their longitudinal study and the CHILDES data (Murasugi, Hashimoto and Fuji 2007), we discussed that causatives are acquired in the four steps: i) children hypothesize that the small *v* is phonetically null, ii) children produce the "verb+*-sase*" form, iii) children produce the "causative verb+*-sase*" form, and iv) children produce adult-like causatives. In passing, we pointed out that there are individual differences regarding whether or not children go through Stage II and Stage III, or the two overgeneration stages.

In Section 4, we turned to the acquisition of potentials. We have reanalyzed Yano (2007a, b, c, d), Shibuya (1994) and Arai (2006) in line with Murasugi and Hashimoto's (2004) VP-shell analysis, and we have shown that potential constructions are acquired in the very similar way to causative constructions. Under the *v*-VP frame analysis, we proposed that intermediate stages of potential acquisition are explained in the parallel way as causative acquisition: i) children hypothesize that the small *v* is phonetically null, ii) children produce the "verb+-*rare*" form, iii) children produce the "potential verb+-*rare*" form, and iv) children produce adult-like potentials. Again, in passing, we pointed out that there are individual differences regarding whether or not children go through the two overgeneration stages.

We thus conclude that although the structures (or the projections of *v* and V) are acquired at a very early stage, the lexical acquisition takes time. One of the intermediate stages observed in the acquisition of complex predicates in an agglutinative language such as Japanese is attributed to the lexical realization of the small *v* in the VP-shell or functional categories (Murasugi 2007a, b, c, d). It is the exact lexical (morphological) realization of the small *v* and the functional categories that takes time for the children to acquire, and this is the origin of the undergeneration and overgeneration phenomena of causatives and potentials in Japanese.

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