

An Experimental Look at Interactions between Passive and Japanese Aspectual Verbs

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1. Introduction

Across languages, aspectual verbs commonly select for a clausal complement, and they often exhibit transparency to normally clause-bound phenomena, known as ‘restructuring’ behaviors. Language families in which aspectual verbs exhibit restructuring behaviors include Romance (e.g. Aissen and Perlmutter 1976, 1983, Rizzi 1982, Burzio 1986, Cinque 1999, 2003, 2004), Germanic (e.g. Wurmbrand 2001), Austronesian (e.g. Chung 2004), Dravidian (e.g. Agbayani and Shekar 2008), and language isolates such as Basque (e.g. Arregi and Molina-Azaola 2004) and Japanese (Shibatani 1973, 1978, Kageyama 1993, 1999, Nishigauchi 1993, Koizumi 1994, 1995, 1998, and Matsumoto 1996).

One of the restructuring phenomena that has been frequently discussed in previous studies on Japanese aspectual verbs (JAVs) is passive.¹ Previous studies claim that some JAVs allow for *long passive*, or passivization of an embedded object with the passive morpheme attached to the matrix aspectual verbs, in addition to passive in embedded clauses, or *embedded passive*. Other JAVs, however, allow for only one of them (Shibatani 1973, 1978, Kageyama 1993, 1999, Nishigauchi 1993, and Matsumoto 1996). The different behaviors of JAVs with the two passive constructions are some of the reasons that led previous studies to propose a three-way classification of JAVs: (i) optionally restructuring (e.g. allowing for both long and embedded passive), (ii) obligatorily restructuring (e.g. allowing only for long passive), and (iii) non-restructuring (e.g. allowing only for embedded passive). More recently, an analysis of JAVs as functional heads has been proposed based on the same three-way classification (Fukuda 2007, in press).

However, there are at least two potential problems for this classification of JAVs. First, reliability of long passive as syntactic diagnostic has been questioned for other languages. For instance, long passive in German has been deemed too marginal to be a reliable diagnostic in some studies (e.g. Reis and Sternefeld 2004). Second, there are disagreements among previous studies about acceptability judgments of some of the combinations between JAVs and the two passive constructions. While Shibatani (1973, 1978), Nishigauchi (1993), Matsumoto (1996) claim that one of the JAVs, *oe* ‘finish₁’, only allows for long passive, Kageyama (1993) claims that it also allows for embedded passive at least for some speakers. Because of these factors, a more systematic examination of interactions between JAVs and passive is desirable to find out whether (i) long passive with JAVs is a robust phenomenon and (ii) the contrasts among JAVs with the two passive constructions reported in previous studies can be replicated.

In this study, I report the results of two acceptability judgment experiments that examined the interactions between the two passive constructions, long and embedded, and four JAVs: *hajime* ‘begin’, *tsuzuke* ‘continue’, *oe* ‘finish₁’, and *owar* ‘finish₂’. These four JAVs were chosen because they represent the core aspectual distinctions (i.e. inception, continuation, and termination) and were frequently discussed in previous studies. The results of these experiments show that long passive is a robust phenomenon in Japanese and confirm the contrasts among JAVs with the two passive constructions with *hajime* ‘begin’, *tsuzuke* ‘continue’ and *oe* ‘finish₁’. However, our findings also show that *owar* ‘finish₂’ is compatible with neither of the two passive constructions, despite the claim in previous studies that it is compatible with embedded passive (Matsumoto 1996). I discuss implications of our findings for an analysis of JAVs and proposed an analysis of the gap between previous studies and our experiments with *owar* ‘finish₂’.

This paper is structured as follows. Section 2 introduces the observations reported in previous studies about interactions between the four JAVs and the two passive constructions. Section 3 briefly introduces the functional head analysis of JAVs (Fukuda 2007, in prep.), which has been motivated based on the three-

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¹Another phenomenon that has been discussed in previous studies of JAVs with respect to their differing syntactic behaviors is subject honorification (e.g. Shibatani 1973, Kuno 1987).

way classification of JAVs proposed in earlier studies, and discusses two potential problems for the three-way classification of JAVs. Section 4 reports the results of two acceptability judgment experiments that examined interactions between the four JAVs and the two passive constructions. Section 5 discusses implications of the findings from the experiment to an analysis of JAVs and presents a possible account of the gap between previous studies and our findings with *owar* ‘finish₂’. Section 6 concludes the paper.

2. Previous Studies

Previous studies have shown that the four JAVs behave differently with respect to passive (Shibatani 1973, 1978, Nishigauchi 1993, Kageyama 1993, 1999, Matsumoto 1996). First, it has been claimed that three of the four Japanese aspectual verbs, *hajime* ‘begin’, *tsuzuke* ‘continue’ and *oe* ‘finish₁’, allow for *long passive*, as shown by the acceptability of examples such as (1).

- 1) Sono-rombun-ga (Jon-niyotte) yomi hajime/tuzuke/oe -rare -ta
*that-paper-NOM (J-BY) read begin/continue/finish₁ -PASS -PST*²
‘The paper began/continued/finished being read by John.’ (modified from Nishigauchi 1993: 79)

In (1), in spite of the embedded verb being in the active form, passivization of the matrix aspectual verbs apparently triggers the ‘long distance’ promotion of the embedded object to the matrix subject, or long passive. Under the normal circumstances, long passive would incur a minimality violation under the assumption that there is an embedded subject in the embedded clause.

- 2) Sono-rombun_i-ga [[ec t_i yomi] hajime/tuzuke/oe -rare] -ta
that-paper_i-NOM [[ec t_i read] begin/continue finish₁ -PASS] -PST

In addition to long passive, *hajime* ‘begin’ and *tsuzuke* ‘continue’ also allow for a passive complement, or *embedded passive*, as in (3). However, *oe* ‘finish₁’ does not, as indicated by the unacceptability of (4):

- 3) Mise-no-garasu-wa booto-ni war -are hajime/tsuzuke -ta
Store-GEN-glass-TOP rioter-BY break -PASS begin/continue -PST
‘The stores’ windows began/continued to be broken by the rioters.’ (Shibatani 1973: 85, (35b))
- 4) *Natsuko-to-Tsuyoshi-no-kutsu-ga migak -are oe -ta
N-and-T-GEN-shoes-NOM polish -PASS finish₂ -PST
‘Natsuko and Tsuyoshi’s shoes finished being polished.’ (modified from Shibatani 1978: 152, (219))

The traditional analysis of sentences like (3) is that passivization within the embedded clause promotes the internal argument to be the embedded subject, which shares the same referent with the matrix subject due to some syntactic dependency, e.g. A-movement, as in (5).

- 5) [Mise-no-garasu_i-wa [ec_i t_i war -are] hajime/tsuzuke] -ta
[Store-GEN-glass_i-TOP [ec_i t_i break -PASS] begin/continue] -PST

The fourth aspectual verb, *owar* ‘finish₂’, only allows for embedded passive, as shown in (6).

- 6) a. Sono-machi-ga koogekis -are owar -ta
that-city-NOM attack -PASS finish₂ -PST
‘That city finished being attacked.’ (Matsumoto 1996: 178, (13a))
- b. *Sono-hon-wa yooyaku kaki owar -are -ta
That-book-TOP finally write finish₂ -PASS -PST
‘That book finally finished being read.’ (Matsumoto 1996: 176 (10a))

² Abbreviations: ACC = accusative, BY = by-phrase, GEN = genitive, GER = gerundive, NOM = nominative, PASS = passive, PST = past, TOP = topic.

Thus, the compatibility with the two passive constructions classifies these JAVs into three different classes. While *hajime* ‘begin’ and *tsuzuke* ‘continue’ are compatible with both long and embedded passive, *oe* ‘finish₁’ is compatible only with long passive and *owar* ‘finish₂’ only with embedded passive. These observations are summarized in Table 1 below.

Table 1: Interactions between the four Japanese aspectual verbs and passive

	<i>oe</i> ‘finish ₁ ’	<i>owar</i> ‘finish ₂ ’	<i>hajime</i> ‘begin’ and <i>tsuzuke</i> ‘continue’
long passive	✓	✗	✓
embedded passive	✗	✓	✓

The acceptability of long passive with *hajime* ‘begin’, *tsuzuke* ‘continue’, and *oe* ‘finish₁’ indicates that sentences with these aspectual verbs behave as simple clauses, i.e. they involve restructuring. The fact that embedded passive is also grammatical with *hajime* ‘begin’ and *tsuzuke* ‘continue’ suggests that these aspectual verbs may also have a bi-clausal structure with a full clausal complement. In other words, *hajime* ‘begin’ and *tsuzuke* ‘continue’ are optionally restructuring. On the other hand, the observation that *oe* ‘finish₁’ cannot have embedded passive suggests that *oe* ‘finish₁’ is obligatorily restructuring. Finally, the observation that *owar* ‘finish₂’ does not allow long passive suggests that it never involves restructuring.

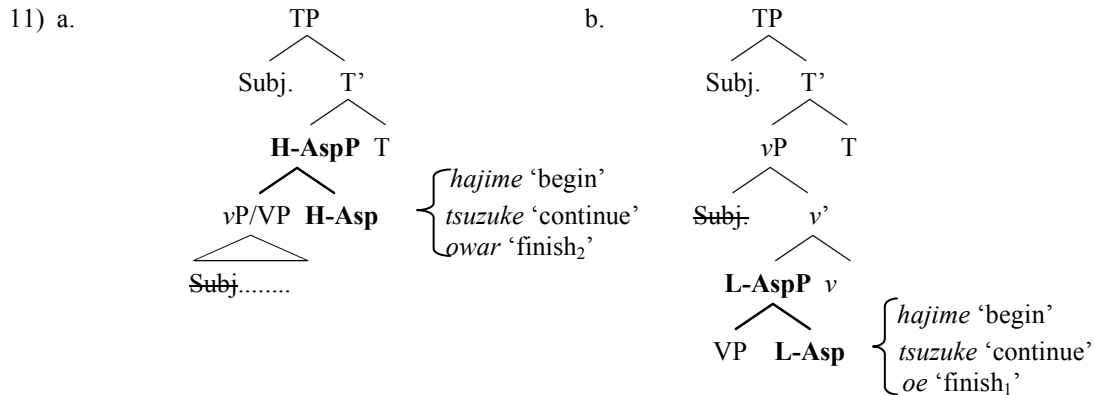
Interestingly, scope interactions between JAVs and a focus marker *-dake* ‘only’ attached to an embedded object suggests the same three-way classification of the JAVs (Koizumi 1994, 1995, 1998). First, when *-dake* ‘only’ is under *hajime* ‘begin’ and *tsuzuke* ‘continue’, it can take scope over JAVs or can be under their scope, as indicated in (7) and (8). On the other hand, *-dake* must take scope over *oe* ‘finish₁’, as shown in (9), and it must be under the scope of *owar* ‘finish₂’, as shown in (10).

- 7) John-wa ringo-**dake**-o tabe hajime -ta
J-TOP apple-only-ACC eat begin -PST
 ‘John began to eat only apples.’
 i. only > begin (It is only apples that John began to eat.)
 ii. begin > only (John began to eat only apples.) (modified from Koizumi 1994: 216, (10))
- 8) John-wa banana-**dake**-o tabe tsuzuke -ta
J-TOP banana-only-ACC eat continue -PST
 ‘John continued to eat only bananas.’
 i. only > continue (Among the fruits that he ate, it is only bananas that John kept eating.)
 ii. continue > only (John kept eating bananas and he didn’t eat anything else.) (modified from Koizumi 1994: 217, (14))
- 9) John-wa ringo-**dake**-o tabe oe -ta
J-TOP apple-only-ACC eat finish₁ -PST
 ‘John finished eating only apples.’
 i. only > finish (Among different fruits that John ate, it is only apples that he finished eating.)
 ii. #finish > only (John finished only eating apples.) (modified from Koizumi 1998: 5, (12))
- 10) John-wa ringo-**dake**-o tabe owar -ta
J-TOP apple-only-ACC eat finish₂ -PST
 ‘John finished eating only apples.’
 i. #only > finish (Among different fruits that John ate, it is only apples that he finished eating.)
 ii. finish > only (John finished only eating apples.)

Assuming that scope is clause-bound, the observation that *-dake* attached to an embedded object must take scope over *oe* ‘finish₁’ shows that sentences with *oe* ‘finish₁’ involve a mono-clausal structure, another indication that it is obligatorily restructuring. In contrast, the observation that *-dake* on an embedded object must be under the scope of *owar* ‘finish₂’ shows that sentences with *owar* ‘finish₂’ involve a bi-clausal structure, showing that it does not involve restructuring. Finally, the observation that *hajime* ‘begin’ and *tsuzuke* ‘continue’ exhibit the scope ambiguity with *-dake* suggests that sentences with these JAVs can be either mono- or bi-clausal, another indication that they are optionally restructuring.

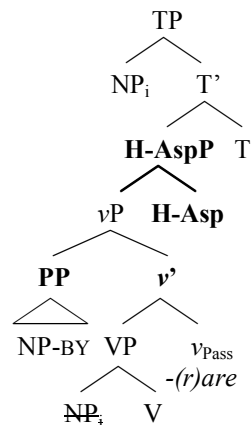
3. A Functional Head Analysis of JAVs

While earlier analyses of JAVs assumed that sentences with JAVs are basically bi-clausal and occasionally involve a mono-clausal structure (Kageyama 1993, 1999, Matsumoto 1996, Koizumi 1998), I have argued elsewhere that JAVs are best analyzed as parts of a mono-clausal structure (Fukuda 2007, in prep.) According to this analysis, JAVs are heads of functional projections *aspect phrases* (Travis 1991, Borer 1994). An aspect phrase is selected by T and *v*. Thus, it occurs in two positions in a clause. When selected by T, it is called *high-aspect* (H-Asp) and takes an entire verbal projection as its complement, which can be either VP or *v*P. When selected by *v*, it is called *low-aspect* (L-Asp) and takes VP as its complement. Moreover, JAVs are distributed differently between these two positions. While *hajime* ‘begin’ and *tsuzuke* ‘continue’ can be either H- or L-Asp, *oe* ‘finish₁’ can only be L-Asp and *owar* ‘finish₂’ can only be H-Asp.

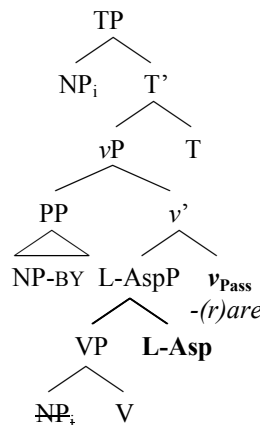


Under the functional head analysis, the different compatibility of the four JAVs with the two passive constructions is accounted for with an assumption that the passive morpheme *-(r)are* is a head of *v*P (e.g. Krazter 1994, 1996). Under this assumption, the passive morpheme is expected to appear below an aspectual verb in H-Asp, deriving embedded passive (12a), while it is expected to appear above an aspectual verb in L-Asp, deriving long passive, as in (12b).

12) a. Embedded passive



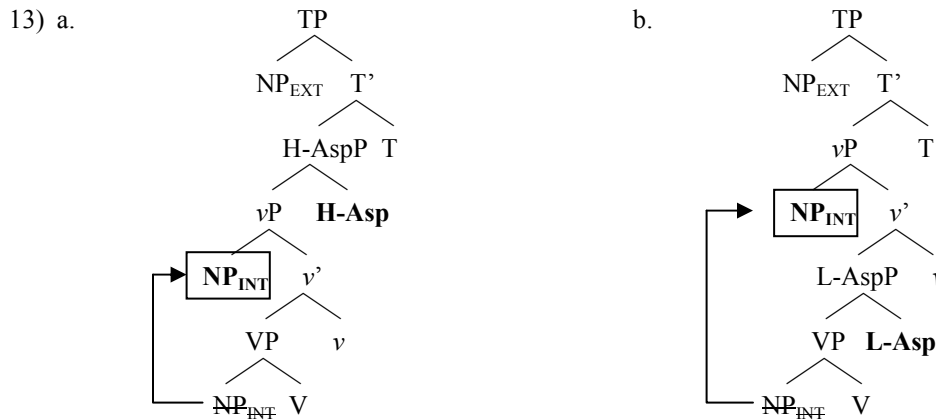
b. Long passive



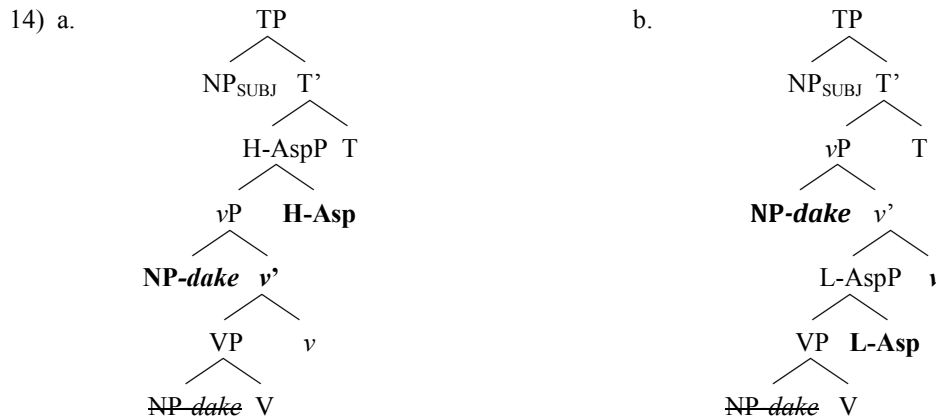
Because *hajime* ‘begin’ and *tsuzuke* ‘continue’ can be both H- and L-Asp, they are compatible with both embedded and long passive. Only long passive is grammatical with *oe* ‘finish₁’, however, because it can only be L-Asp. With *owar* ‘finish₂’, only embedded passive is grammatical because it can only be H-Asp.

Similarly, the functional head analysis accounts for the differing scope interactions between the focus marker *-dake* on an embedded object and the four JAVs with two assumptions. First, as is standardly assumed within the *v*P syntax, I assume that internal arguments move to [Spec, *v*P] to be case-licensed. Second, I assume that the A-moved arguments do not reconstruct into their Θ -marked positions (Johnson

and Tomioka 1997, Bobaljik and Wurmdrand 2005, 2007). Under these two assumptions, the internal argument in a transitive sentence with an aspectual verb would be in a position where it is dominated by H-Asp (13a) but it dominates L-Asp (13b), once it has gone through the movement to [Spec, vP]:³



The differing scope interactions between *dake* and the four JAVs derive from these two possible hierarchical relations between the A-moved internal argument with *dake* and JAVs.⁴ With *hajime* ‘begin’ and *tsuzuke* ‘continue’, *dake* can take the wide or narrow scope because these JAVs can be either H- or L-Asp. When they are H-Asp, *-dake* attached to the internal argument is structurally dominated by these JAVs after the A-movement to [Spec, vP], as in (14a). Thus, it has the narrow scope with respect to these JAVs. When these JAVs are L-Asp, *-dake* attached to the internal argument can only have the wide scope with respect to these JAVs, as in (14b), assuming that the A-moved internal argument does not reconstruct.



The scope interactions between *dake* and *oe* ‘finish₁’ and *owar* ‘finish₂’ can be explained in the same manner. Since *oe* ‘finish₁’ can only be L-Asp, *-dake* must be under the scope of *-dake* in [Spec, vP], as in (14b). With *owar* ‘finish₂’, *-dake* would never be structurally higher than *owar* ‘finish₂’, which is H-Asp. Thus, *dake* can only have the narrow scope with respect to *owar* ‘finish₂’, as in (14a). Therefore, the functional head analysis provides accounts for the differing restructuring behaviors of JAVs.

However, there are at least two potential problems with the passive data that partially motivate the functional head analysis of JAVs. First, reliability of long passive as syntactic diagnostic has been questioned for other languages. For instance, long passive in German has been deemed too marginal to be a reliable diagnostic in some studies (e.g. Reis and Sternefeld 2004). Second, there are disagreements among previous studies on JAVs about acceptability judgments of some of the combinations between JAVs and passive. While Shibatani (1973, 1978), Nishigauchi (1993), Matsumoto (1996) claim that *oe* ‘finish₁’ only

³ The base-generated position for an external argument is omitted from these structures.

⁴ Following Koizumi (1994, 1995, 1998), I assume that scope interaction between *-dake* ‘only’ and another element is determined by a c-command relation between the constituent to which *dake* ‘only’ attaches and the other element.

allows for long passive, Kageyama (1993) claims that it allows for both of the passive constructions at least for some speakers (ibid: 166). These observations necessitate a more systematic examination of the interactions between JAVs and passive. In particular, robustness of long passive and the contrasts among JAVs with the two passive constructions need to be carefully examined.

4. Evidence from Acceptability Judgment Experiments

Two acceptability judgment experiments were conducted to examine the interactions between passive and the four JAVs. Experiment 1 examined the interactions between the four JAVs and the two passive constructions with 36 native speakers of Japanese. Experiment 2 further examined the interactions between two of the four JAVs, *oe* ‘finish₁’ and *owar* ‘finish₂’, with the two passive constructions. As shown below, our findings show that long passive is a robust phenomenon and *hajime* ‘begin’, *tsuzuke* ‘continue’, and *oe* ‘finish₁’ show the contrasts with the two passive constructions as previous studies report. However, our findings also show that *owar* ‘finish₂’ is compatible with neither of the two passive constructions despite the claim in previous studies that it is compatible with embedded passive.

4.1. Experiment 1

4.1.1. Participants and Stimuli

Experiment 1 examined the interactions between all four JAVs and the two passive constructions, long and embedded, with 36 native speakers of Japanese. The stimuli consisted of 72 sentences, 8 of which represented the 8 conditions for this experiment: 4 JAVs in each of the two passive constructions. Six different verbs were used to create 6 versions of each of the 8 conditions, which were evenly distributed across six stimuli sets, so that no participant saw the same JAV with the same verb more than once. The stimuli are presented in a pseudo-randomized order. Examples of the stimuli are provided below:

15) a. Saikin-wa omoshiroi-eiga-ga wakate-eigakantoku-niyotte tsukur **-are**
Recent-TOP interesting-movie-NOM young-director-BY make -PASS
 hajime -ta
begin -PST
 ‘Recently, interesting movies began to be made by young directors.’ (embedded passive)

b. Saikin-wa omoshiroi-eiga-ga wakate-eigakantoku-niyotte tsukuri hajime
Recent-TOP interesting-movie-NOM young-director-BY make begin
-rare -ta
-PASS -PST
 ‘Recently, interesting movies began to be made by young directors.’ (long passive)

4.1.2. Procedure

The 72 stimuli sentences were visually presented in 8 blocks of 9 sentences after 5 practice sentences. The participants judged sentences using a 5-point scale, with 5 being ‘completely natural’ and 1 being ‘completely unnatural’. Since each condition was seen by each participant exactly once, 36 judgments were obtained for each of the conditions, except for *oe* ‘finish₁’, with which 3 out of the 6 versions were later removed due to errors. Thus, the data for *oe* ‘finish₁’ were based on 18 sentences each. An analysis of variance (ANOVA) was performed on the data to examine which factor, if any, is a significant predictor of variability in acceptability judgments. If there was a significant predictor, parametric (paired *t*-test) and non-parametric (Wilcoxon Signed Rank test) pair-wise statistical analyses were performed.

4.1.3. Results

With *hajime* ‘begin’, the mean acceptability of the embedded passive sentences was 3.86 (sd = 1.25), while the mean acceptability of the long passive sentences was 3.50 (sd = 1.56). With *tsuzuke* ‘continue’, the mean acceptability for the embedded passive sentences was 3.17 (sd = 1.59), and the mean acceptability of the long passive sentences was 2.72 (sd = 1.41). The results of an ANOVA showed that the differences in the acceptability judgments of the embedded passive sentences and long passive sentences were not significant with these two JAVs, as shown in Figure 1.

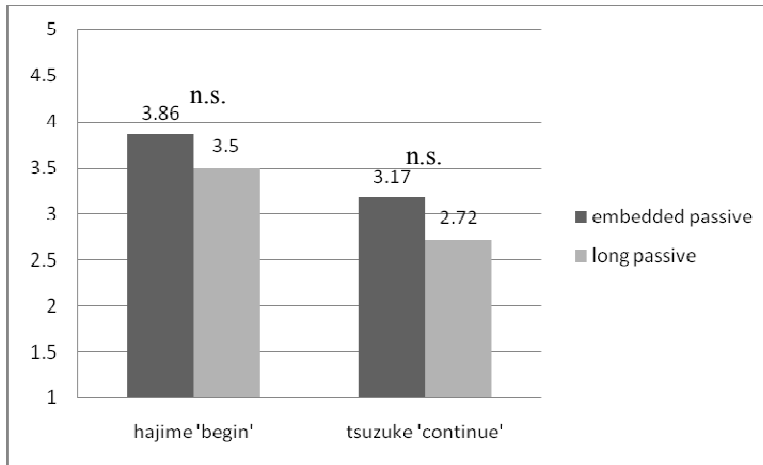


Figure 1: *hajime* 'begin' and *tsuzuke* 'continue' with long and embedded passive

Neither the passive types ($F(1, 35) = 1.219, p = .274$) nor the embedded verbs ($F(5, 35) = .786, p = .564$) were significant predictors of judgment variability with *hajime* 'begin', and their interactions were also not significant ($F(5, 35) = .648, p = .664$). Similarly, neither passive types ($F(1, 35) = 1.60, p = .212$) nor embedded verbs ($F(5, 35) = 1.5771, p = .180$) were significant predictors of judgment variability with *tsuzuke* 'continue' and neither were their interactions ($F(5, 35) = .592, p = .706$).

With *oe* 'finish₁', the mean acceptability of the embedded passive sentences was 2.17 (sd = 1.34), while the mean acceptability of the long passive sentences was 4.22 (sd = 1.31). With *owar* 'finish₂', the mean acceptability of the embedded passive sentences was 2.25 (sd = 1.3), whereas the mean acceptability of the long passive sentences was 1.58 (sd = 1.08). The results of an ANOVA showed that there were significant differences between the acceptability judgments of the two passive types with both *oe* 'finish₁' and *owar* 'finish₂', as shown in Figure 2 below.

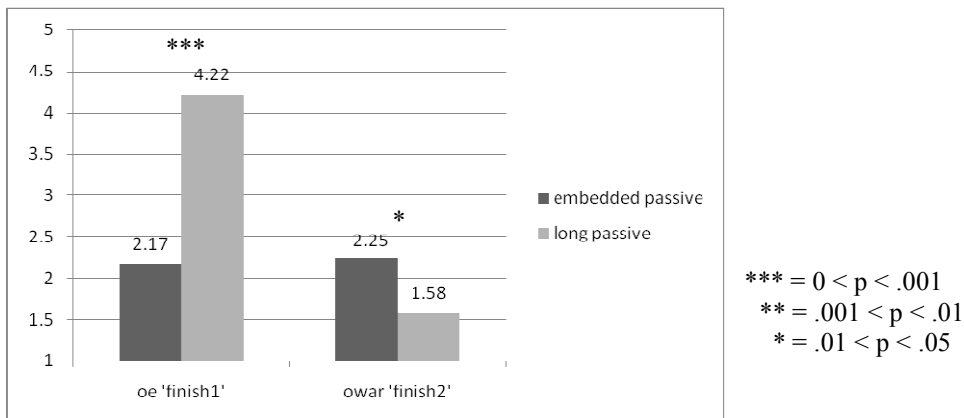


Figure 2: *oe* 'finish₁' and *owar* 'finish₂' with long and embedded passive

The passive types were significant predictors of judgment variability with *oe* 'finish₁' ($F(1, 17) = 23.362, p < .001$), while the embedded verbs were not significant predictors ($F(2, 17) = 2.78, p = .078$). Interactions between the two factors were not significant ($F(2, 17) = .529, p = .595$). The passive types were also predictors of judgment variability with *owar* 'finish₂' ($F(1, 35) = 6.606, p = .013$) as were the interactions between the embedded verbs and the passive types ($F(5, 35) = 3.000, p = .018$). The embedded verbs were not significant predictors, however ($F(5, 35) = 1.431, p = .226$).

With *oe* 'finish₁', the results of the two parametric analyses showed that the acceptability judgments of the long passive sentences were significantly higher than the embedded passive sentences (paired *t*-tests: $t(17) = 4.05, p < .001$, Wilcoxon Signed Rank test: $v(17) = 138.5, p = .003$). With *owar* 'finish₂', the acceptability judgments of the embedded passive sentences were significantly higher than the long passive sentences (paired *t*-test: $t(35) = 2.415, p = .021$; Wilcoxon Signed Rank test: $v(35) = 54, p = .018$).

4.1.4. Discussion

First, the fact that there is no significant difference between the long and embedded passive sentences with *hajime* ‘begin’ and *tsuzuke* ‘continue’ is consistent with the observation in previous studies that these JAVs are compatible with both types of passive constructions. Our findings with *oe* ‘finish₁’ also support the claims in previous studies such as Shibatani (1976, 1978), Nishigauchi (1993), as they showed that the acceptability judgments of the long passive sentences were significantly better than the embedded passive sentences with *oe* ‘finish₁’. Our findings with *owar* ‘finish₂’ were also consistent with the claims in previous studies such as Matsumoto (1996), as the acceptability judgments of the embedded passive sentences were significantly better than the long passive sentences with *owar* ‘finish₂’. Over all, the results of Experiment 1 (i) show that long passive with JAVs is a robust phenomenon and (ii) confirm the contrasts with JAVs with the two passive constructions reported in previous studies.

However, there were two issues in Experiment 1 that needed be addressed. First, although the results with *oe* ‘finish₁’ were robust and consistent with the observations in previous studies, they were based only on 18 sentences for each of the two conditions, as opposed to 36 sentences for other conditions. Second, while our findings with *owar* ‘finish₂’ also confirmed the claims in previous studies, the mean acceptability judgments for the sentences with *owar* ‘finish₂’ in both types of passive constructions were alarmingly low (embedded passive = 2.25, long passive = 1.58), providing a reason to suspect if the statistically significant difference between them really is meaningful. Thus, Experiment 2 was conducted to further prove into the interactions between the two passive constructions and *oe* ‘finish₁’ and *owar* ‘finish₂’.

4.2. Experiment 2

4.2.1. Participants and Stimuli

A different group of 36 mono- and bi-lingual Japanese native speakers participated in Experiment 2. The stimuli consisted of 50 sentences, with 4 representing the 4 conditions with the two JAVs (*oe* ‘finish₁’ and *owar* ‘finish₂’) in the two passive constructions. Six verbs were used to create the stimuli, but one lexicalization was eliminated after the experiment due to an error. Thus, 30 judgments were obtained for each of the 4 conditions.

4.2.2. Procedure

The stimuli were visually presented in 5 blocks of 10 sentences after 6 practice sentences. The participants judged sentences on a 5-point scale, with 5 being ‘completely natural’ and 1 being ‘completely unnatural’.

4.2.3. Results

With *oe* ‘finish₁’, the mean acceptability of the embedded passive sentences was 2.17 (sd = 1.44), while the mean acceptability for the long passive sentences was 3.53 (sd = 1.55). With *owar* ‘finish₂’, the mean acceptability of the embedded passive sentences was 1.67 (sd = 1.09), and the mean acceptability of the long passive sentences was 1.87 (sd = 1.25). Figure 3 below shows the results of Experiment 2.

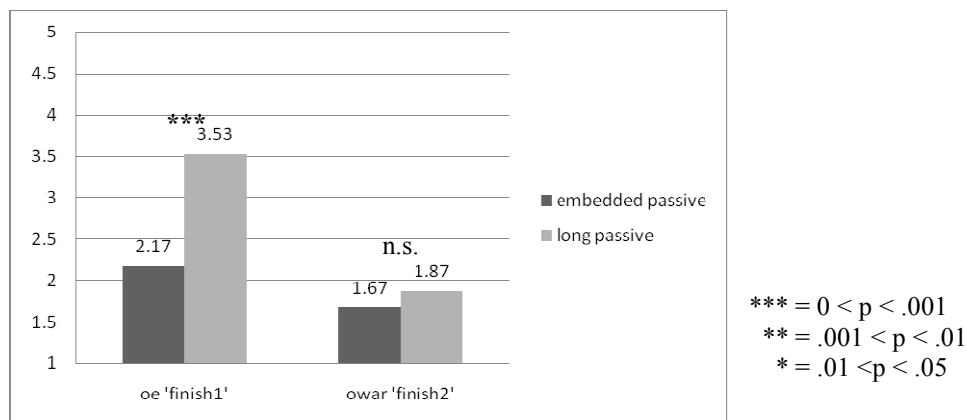


Figure 3: *oe* 'finish₁' and *owar* 'finish₂' with long and embedded passive

With *oe* ‘finish₁’, the results of an ANOVA showed that the passive types were significant predictors of judgment variability ($F(1, 29) = 13.535, p < .001$), while the embedded verbs were not ($F(4, 29) = 1.457, p = .229$). The interactions between these two factors were not significant either ($F(5, 29) = 1.699, p = .165$). The two pair-wise statistical analyses showed that the acceptability judgments of the long passive sentences were significantly higher than the acceptability judgments with the embedded passive sentences (paired t -test = $t(29) = 4.180, p < .001$, Wilcoxon Signed Rank test = $v(29) = 210, p < .001$).

With *owar* ‘finish₂’, there was no significant difference between the acceptability judgments of the embedded and long passive sentences. The results of an ANOVA showed that neither the passive types nor the embedded verbs were significant predictors of judgment variability with *owar* ‘finish₂’ (passive types = $F(1, 29) = 0.446, p = .508$, embedded verbs = $F(4, 29) = 1.064, p = .384$). The interactions between them were also not significant ($F(5, 29) = 1.312, p = .278$). Moreover, the mean acceptability judgments of the two passive sentences with *owar* ‘finish₂’ in Experiment 2 were 1.67 (sd = 1.09) for the embedded passive sentences and 1.87 (sd = 1.25) for the long passive sentences.

4.2.3. Discussion

With *oe* ‘finish₁’, Experiment 2 replicated the results of Experiment 1 with a larger number of participants (n=30), showing that *oe* ‘finish₁’ is compatible only with long passive. However, the results from Experiment 2 with *owar* ‘finish₂’ turned out to be different from Experiment 1. First, Experiment 2 failed to replicate a significant difference between the embedded and long passive sentences with *owar* ‘finish₂’. Second, the mean acceptability judgments of the embedded and long passive sentences with *owar* ‘finish₂’ in Experiment 2 were even lower than their equivalents from Experiment 1. While the mean acceptability for the embedded passive sentences was 2.25 (sd = 1.30) and the mean acceptability for the long passive sentences was 1.58 (sd = 1.08) in Experiment 1, their equivalents in Experiment 2 were 1.67 (sd = 1.09) and 1.87 (sd = 1.25), respectively.

4.3. Summary of the Experiments

The results of Experiment 1 confirmed the acceptability judgments reported in previous studies with respect to *hajime* ‘begin’ and *tsuzuke* ‘continue’, according to which these JAVs are compatible with both types of passive constructions. Experiment 1 also supported the claims that *oe* ‘finish₁’ is only compatible with long passive and that *owar* ‘finish₂’ is only compatible with embedded passive.

Experiment 2 was conducted to address two issues with *oe* ‘finish₁’ and *owar* ‘finish₂’ that arose in Experiment 1. First, the results with *oe* ‘finish₁’ were based only on 18 sentences. Second, the mean acceptability judgments of the sentences with *owar* ‘finish₂’ were alarmingly low. With *oe* ‘finish₁’, Experiment 2 provided a further confirmation that it is compatible only with long passive. However, with *owar* ‘finish₂’, Experiment 2 failed to replicate the results from Experiment 1, as there was no significant difference in the acceptability judgments of the two passive sentences with *owar* ‘finish₂’. Moreover, the mean acceptability judgments of the two passive sentences with *owar* ‘finish₂’ were even lower in Experiment 2, reinforcing our suspicion that that *owar* ‘finish₂’ is not quite compatible with either type of passive construction for the participants of our experiments. These findings are summarized in Table 3.

Table 3: Interactions between the four Japanese aspectual verbs and passive (acceptability judgment experiments):

	<i>oe</i> ‘finish ₁ ’	<i>owar</i> ‘finish ₂ ’	<i>hajime</i> ‘begin’ and <i>tsuzuke</i> ‘continue’
long passive	✓	?	✓
embedded passive	✗	?	✓

5. Implications of our Findings for an Analysis of JAVs

Our findings from the two acceptability judgment experiments provide confirmations to most of the claims made in previous studies about JAVs and their interactions with passive, while our results also differ from the acceptability judgments reported in previous studies in at least one aspect.

First of all, our findings show that long passive with JAVs is a robust phenomenon. The acceptability judgments provided by the native speakers of Japanese who participated in our experiments clearly indicate that long passive is grammatical with JAVs such as *hajime* ‘begin’, *tsuzuke* ‘continue’, and especially *oe* ‘finish₁’. Second, our findings also confirmed the interactions between *hajime* ‘begin’, *tsuzuke* ‘continue’,

and *oe* ‘finish₁’ and the two passive constructions that were reported in previous studies such as Shibatani (1976, 1978) and Nishigauchi (1993). The acceptability judgments of the long and embedded passive sentences were reasonably high and were not significantly different from each other with *hajime* ‘begin’ and *tsuzuke* ‘continue’, suggesting that these JAVs are compatible with both types of passive constructions. Also, the long passive sentences were judged as significantly better than the embedded passive sentences with *oe* ‘finish₁’, supporting the claim that *oe* ‘finish₁’ is only compatible with long passive. These findings provide confirmations to the different restructuring behaviors claimed to be exhibited by these JAVs in previous studies and provide further support for the functional head analysis of JAVs, proposed based on the acceptability judgments reported in previous studies.

However, our findings do not support the claims in previous studies entirely. According to previous studies, *owar* ‘finish₂’ is only compatible with embedded passive. Under the functional head analysis, this is accounted for by analyzing *owar* ‘finish₂’ as only occurring as H-Asp. Our finding that *owar* ‘finish₂’ is compatible with neither type of passive constructions is both inconsistent with previous studies and problematic to the functional head analysis. Why were embedded passive sentences with *owar* ‘finish₂’ judged unacceptable in our experiments while they were reported as acceptable in previous studies? If *owar* ‘finish₂’ occurs in H-Asp, why is it incompatible with a passivized complement?

I suggest that the embedded passive sentences with *owar* ‘finish₂’ were given conflicting judgments because (i) while passive clauses with an activity verb can be interpreted as either telic or atelic, the more salient interpretation is telic and (ii) the completive aspect that *owar* ‘finish₂’ provides can be perceived as redundant when its complement is interpreted as telic. Under this hypothesis, our participants rated the embedded passive sentences with *owar* ‘finish₂’ poorly because they interpreted passive complements under *owar* ‘finish₂’ as expressing telic events and perceived *owar* ‘finish₂’ to be redundant. In contrast, the judgments about similar sentences reported in previous studies were based on the less salient atelic interpretation of passive complements, with which *owar* ‘finish₂’ would not be redundant. Evidence that the salient interpretation of passive clauses with activity verbs is telic comes from the distribution of temporal adverbs and the interpretation of the aspectual marker, *teiru*. First, in Japanese, NPs that denote an amount of time, as in *ni-jikan* ‘two hours’ in (16) below, serve as temporal adverbials that specify durations of events. An interval between which an event takes place is expressed with a postpositional phrase headed by *-de* with a time expression as its complement, as in *ni-jikan-de* ‘in two hours’, also shown in (16).

- 16) a. Sono-sakka-ga shinsaku-o ni-jikan/ni-jikan-de kak -ta
That-writer-NOM new_book-ACC 2-hour/2-hour-in write -PST
 ‘The writer wrote his new book for two hours/in two hours.’
- b. Shokunin-ga biru-no-kabe-o ni-jikan/ni-jikan-de nur -ta
Worker-NOM building-GEN-wall-ACC 2-hour/2-hour-in paint -PST
 ‘The workers painted the building’s wall for two hours/in two hours.’

The fact that (16a) and (16b) are compatible with both durational and interval adverbs show that sentences with activity transitive verbs in the active form can have either atelic or telic interpretation. In contrast, the passive counterparts of these sentences, as in (17) below, are natural only with the interval adverb, suggesting that the more salient and accessible interpretation of passive clauses is that it is telic.

- 17) a. Shinsaku-ga sono-sakka-niyotte #ni-jikan/ni-jikan-de kak -are -ta
New_book-NOM that-writer-BY #2-hour/2-hour-in write -PASS -PST
 ‘The new book was written by the writer #for two hours/in two hours.’
- b. Biru-no-kabe-ga shokunin-niyotte #ni-jikan/ni-jikan-de nur -are -ta
building-GEN-wall-NOM worker-BY #2-hour/2-hour-in paint -PASS -PST
 ‘The workers painted the building’s wall #for two hours/in two hours.’

Interpretations of the aspectual marker *teiru* provide another argument for a telic reading being the default interpretation of passive complements with activity verbs. *Teiru* is known to have either a progressive or perfective interpretation depending on the inherent telicity of the verb to which *teiru* attaches (Kindaichi 1976, Jacobson 1992, Ogihara 1998 among others). With verbs that express telic events (e.g. achievement verbs), its natural interpretation is perfective; while its natural interpretation is progressive with verbs that

express atelic events (e.g. activity verbs). Interestingly, when *teiru* occurs with the active and passive forms of an activity transitive verb, there is a difference in the interpretation of *teiru* (Ogihara 1998). With the active form, the natural interpretation of *teiru* is progressive, as in (18a), while the natural interpretation of *teiru* with their passive counterparts is perfective, as in (18b). Thus, the interpretation of *teiru* also suggests that the salient interpretation of passive clauses with activity verbs is telic.

18) a. Dareka-ga bento-o tabe -te i -ta
someone-NOM lunch-ACC eat -GER be -PST
 'Someone was eating lunch.' / '#Someone has eaten lunch' [progressive > perfective]

b. Bento-ga (dareka-niyotte) tabe-are -te i -ta
Lunch-NOM (someone-BY) eat -PASS -GER be -PST
 'The lunch has been eaten.' / '#The lunch was being eaten.' [perfective > progressive]

With a passive complement interpreted as expressing a telic event, the completive aspect that *owar* 'finish₂' provides is essentially redundant. I suggest that the embedded passive sentences with *owar* 'finish₂' were rated poorly in our experiments because of this aspectual redundancy. In order for *owar* 'finish₂' to not be redundant with a passive complement, the passive complement must be interpreted as atelic. Although such an interpretation is available, it is not a salient interpretation as the evidence just reviewed shows. The remaining question is why this aspectual redundancy affected the acceptability of the embedded passive sentences with *owar* 'finish₂' in our experiments but not in previous studies. There are two factors that could account for this difference: the settings and the speakers. First, the participants in our experiments were instructed to give acceptability judgments about the stimuli sentences within a reasonable amount of time. In contrast, the judgments reported in previous studies are based on intuitions of the researchers who had potentially unlimited time to consider under what interpretation embedded passive sentences with *owar* 'finish₂' can be grammatical. Second, our participants were naïve native speakers of Japanese who are not accustomed to dealing with multiple interpretations of the same sentences, while the judgments discussed in previous studies were provided by the researchers who were trained to recognize non-salient interpretations. These two factors could have contributed to the difference between our experiments and previous studies. In other words, it is likely that our participants judged the embedded passive sentences with *owar* 'finish₂' with the more accessible and salient telic interpretation of passive complements, while the researchers who reported their acceptability judgments about similar sentences had access to the less accessible and salient atelic interpretation of passive complements.

6. Conclusion

This study experimentally examined interactions between the four JAVs and the two types of passive constructions, embedded and long passive, in order to find out (i) whether long passive with JAVs is a robust phenomenon and (ii) whether the contrasts among JAVs with the two passive constructions reported in previous studies can be replicated. The findings from the two acceptability judgment experiments provided affirmative answers to both of these inquiries. They showed that long passive with JAVs is a robust phenomenon and *hajime* 'begin', *tsuzuke* 'continue', and *oe* 'finish₁' interact with the two types of passive constructions in the way in which previous studies claimed that they do. However, our findings with *owar* 'finish₂' were different from previous studies. While previous studies claim that *owar* 'finish₂' is compatible only with embedded passive, our results showed that it is compatible with neither type of passive constructions. I suggested that this difference is likely to be due to two different interpretations of passive complements under *owar* 'finish₂': while our participants interpreted them as telic, the researchers of previous studies interpreted them as atelic. If this analysis of the discrepancy between this study and previous studies is on the right track, it shows that a grammatical construction may receive different acceptability judgments depending on variables such as differences in settings and backgrounds of native speakers.

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