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Factors Causing Overpassivisation of Unaccusative Verbs by Japanese Learners of English

Abstract

It has been reported that second language (L2) learners of English including Japanese learners of English (JLEs) overpassivise unaccusative verbs although it is a kind of intransitive verbs. In order to account for the phenomenon, several assumptions have been proposed. However, so far, it is unclear which assumption is the most effective for explaining the overpassivisation of unaccusatives. Thus, this study tries to examine which of the three factors, animacy of subjects, existence of conceptualizable agents, or telicity of verbs, the most strongly affects overpassivisation of unaccusative verbs by JLEs. In this study, we conducted two experiments to examine this question. Study 1 was conducted with 100 university JLEs to compare the effect of animacy of subjects with that of the existence of conceptualizable agents. As a result, it was found that the animacy of subjects more strongly affected the overpassivisation of unaccusatives than the existence of conceptualizable agents. We conducted Study 2 with 101 university JLEs to examine which of the two factors, the existence of conceptualizable agents or the degree of telicity, is more influential. The results showed that the former was influential, but the latter was less so on the overpassivisation of unaccusatives. From the results of the two experiments, we concluded that the animacy of subject is the strongest influential factor among the three. On the other hand, the telicity of verbs hardly influences any errors.

Keywords: overpassivisation, unaccusative verbs, animacy, conceptualizable agents, telicity

It has been reported that second language (L2) learners of English overpassivise unaccusative verbs (Balcom, 1997; Hirakawa, 1995, 2006; Ju, 2000; Kondo, 2009, 2019; Kondo & Shirahata, 2015, 2018; Kondo et al., 2016, 2020; Montrul, 2000, 2001; Oshita, 1997, 2000; Sato, 2015; Shirahata et al., 2019, 2020; Yip, 1995; Yusa, 2003; Zobl, 1989). Because unaccusative verbs are a kind of intransitive verb, they must not be used as passives. Let us take an example of a verb *arrive*.

- (1) a. A letter arrived.
 - b. *A letter was arrived.

Since the verb *arrive* is an unaccusative verb, the active voice like (1a) is grammatical, but L2 learners erroneously passivise it as shown in (1b). This error is called an overpassivisation error.

A number of studies so far have argued why L2 learners including Japanese learners of English (JLEs) make such an error, and they have discussed and proposed plausible factors to account for the phenomenon. For example, some studies have supported the NP Marker Movement Hypothesis proposed by Zobl (1989), which supposes that L2 learners inappropriately associate the subject movement of unaccusatives with that of passive (Hirakawa, 1995; Oshita, 1997; Yip, 1995). Some claimed that existence of external agents in the discourse affected the overpassivisation of unaccusatives (Ju, 2000; Sato, 2015). Others stated that the first language (L1) transfer of the morphology was considered to be the factor causing the overpassivisation (Montrul, 2000, 2001; Kondo, 2009). Moreover, Yusa (2003) suggested that the property of telicity which unaccusatives have was influential on the error. More recently, Shirahata et al. (2020) argued that animacy of the subjects had influence on the overpassivisation, and also the degree of telicity of unaccusatives partially affected the error. There are also some studies that examined the overpassivisation from pedagogical perspectives such as the influence of instruction in L2 classrooms and in English textbooks (Kondo & Shirahata, 2015, 2018; Kondo et al., 2016, 2020; Shirahata et al., 2019).

In this way, various plausible factors for the phenomenon have been proposed in the previous studies. However, few of them have compared these factors at the same experiment. Thus, so far, it is unclear which factor can most strongly affect the overpassivisation of unaccusatives. Therefore, to clarify which factor is the most influential among the several factors proposed so far, we will focus on three factors in this study: They are the animacy of subjects, the existence of agents in the discourse, and the degree of verb telicity.

Research Background

Classification of English Verbs

Verbs appear in various types of syntactic structures. On the basis of whether they need an object or not, they are categorized into the following three types, intransitive verbs, transitive verbs, and verbs used as both an intransitive and a transitive. Intransitive verbs like *happen*, *appear*, and *sneeze* do not need an object, so they only take one argument of subject, that is, a subject. On the other hand, transitive verbs such as *resemble*, *discuss*, and *persuade* need two arguments, a subject and an object. Thus, they appear in the form of a DP(Determiner Phrase)-V(Verb)-DP structure. While intransitive verbs in the form DP-V-DP and transitive verbs in the form of DP-V are ungrammatical, some verbs like *break*, *open*, and *melt* are used both with the form of an intransitive and a transitive.

Intransitive verbs have two subcategories: unergative verbs and unaccusative verbs. Although they seemingly have the same syntactic structure, the semantic role that the subject of each verb bears is different. When unergative verbs such as *swim*, *run*, and *sleep* are used, the subject of the sentence generally becomes an agent of the action, who has a will to do the action like the subject *Ken* as in (2a). By contrast, unaccusative verbs like *fall*, *happen*, and *appear* require the semantic role of theme or patient for the subject. For instance, the subject *Tom* in (2b) does not intend to do the action, but the event happens without his will. In this setting, the semantic role of the subject is a theme.

- (2) a. Ken swam.
 - b. Tom fell into the lake.

Since these two types of verbs give the sentential subject a different semantic role, their derivations of the syntactic structures are also different. In the process of generating the structure of unergatives as in (3a), the DP *Ken* merges with the verb *swam* and receives the semantic role of agent at the specifier of verb phrase (VP) from the verb *swam*. Then, the DP *Ken* moves to the specifier of the tense phrase (TP) to get assigned nominative case. Thus, the DP *Ken* becomes the subject with the semantic role of agent.

On the other hand, for unaccusative structures such as 'The earthquake happened' in (4a), the earthquake does not possess its own will to carry out an event, so the semantic role is a theme, not an agent. In a syntactic structure of unaccusatives as in (4b), the DP the earthquake is originally at the complement of the VP. Then, it receives the semantic role of theme there. After that, the DP moves to the specifier of the TP to get nominative case and becomes a sentential subject.

(4) a. The earthquake happened. b. [$_{TP}$ The earthquake [$_{T}$ Ø [$_{VP}$ [$_{V}$ happened] the earthquake-]]]

Therefore, since there is a difference of semantic roles of the subjects between unergative and unaccusative structures, these sentential subjects are originally at different positions in the VP. The idea that the subject of unaccusative verbs is originally at the position of VP complement (object) in the syntactic structure was first articulated in the Unaccusative Hypothesis (Perlmutter, 1978).

Passive in English and Japanese

Transitive verbs can be used for passive as in (5b). In that case, the DP at the VP complement position moves to the subject position, and the auxiliary verb be is used. The agent Ken can be expressed with a preposition phrase "by + DP"

- (5) a. Ken wrote the book.
 - b. The book was written by Ken.
 - c. $[_{TP}$ The book $[_{T}$ was $[_{VP}$ $[_{V}$ written] the book]]]]

On the other hand, unergatives and unaccusatives have only one argument, a subject, so they cannot be passivised. Thus, unaccusatives with a passive form like (6b) is ungrammatical.

- (6) a. The ball fell into the lake.
 - b. *The ball was fallen into the lake.

Let us discuss the usage of unaccusatives in Japanese. Similar to English, since unaccusatives in Japanese are used in active voice, the structure becomes ungrammatical when they are used in passive voice. For instance, the sentence

with an unaccusative *todoku* (*arrive* in English) is ungrammatical if it is used in passive as in (7b) (in Japanese, passive voice is formed by adding morphological maker 'reru' or 'rareru').

todoi-ta. (7) a. Tegami-ga Ken-no ie ni 手紙が ケンの 家 に 届いた a letter-Nom Ken's arrive-past house at 'A letter arrived at Ken's house.'

b. *Tegami-ga Ken-no ie ni todoka-re-ta. 手紙が ケンの 家 に 届かれた a letter-Nom Ken's house at arrive-passive-past '*A letter was arrived at Ken's house.'

Therefore, unaccusatives are used in active voice both in English and in Japanese. However, even though unaccusatives are used in a similar construction in both languages, the overpassivisation error like (6b) is often observed in JLEs' production of English sentences. Why does this happen? In the next section, we will examine previous studies dealing with the overpassivisation of unaccusatives by L2 learners.

Previous Studies

NP Movement Marker Hypothesis

As a pioneering study investigating the overpassivisation of unaccusatives by L2 learners of English, Zobl (1989) examined a corpus of written productions of L2 learners. From the data, he found that overpassivisation errors happened more frequently to unaccusatives than unergatives.

Zobl (1989) argued that L2 learners inappropriately associated the NP movement (i.e., NP at the VP complement position moves to the TP specifier) of passive with that of unaccusatives. More specifically, while unergatives have the subject bearing the semantic role of agent, both passive and unaccusatives lack a logical subject (an agentive subject) in the D-structure. Thus, the NP movement is applied in order to fill the lack of the logical subject. Zobl suggested that because passive and unaccusatives are similar in that the NP at the complement position of VP moves to the TP-spec position, L2 learners overextend the passive rule to the unaccusative rule once they have acquired the passive structure.

We call this idea that L2 learners confuse the NP-movement of passive with that of unaccusatives the "NP Movement Marker Hypothesis" (Zobl, 1989). So far, quite a few studies have examined overpassivisation of L2 learners from this perspective, and some of them support this hypothesis (e.g., Hirakawa, 1995; Oshita, 1997; Yip, 1995).

On the other hand, other studies have reported that the rate of overpassivisation of unaccusatives varies depending on verbs, subjects, and discourse type. If the NP Movement Marker Hypothesis is valid, the overpassivisation of unaccusatives should occur at the same rate for any unaccusatives even under different conditions. In the next section, we will discuss some other studies examining overpassivisation of unaccusatives from different points of view.

Auxiliary Selection Hierarchy

As a different approach to overpassivisation of unaccusatives from the NP Movement Marker Hypothesis, some studies have examined the influence of telicity of unaccusatives (Hirakawa, 2006; Kondo, 2019; Shirahata et al., 2020; Yusa, 2003). For example, Yusa (2003) considered the property of telicity that unaccusatives have as a factor causing overpassivisation. Telicity refers to how clearly the endpoint of the activity of verbs is expressed. For instance, as to the verb *arrive* like (8a), we can understand that the action of *arrive* is completed when *Mary* reached the station. So we can imagine the clear endpoint (we call this property 'telic'). On the other hand, for *belong* as in (8b), there is no endpoint (atelic). Thus, we can say that the degree of telicity of *arrive* is higher than that of *belong*, and *arrive* is a typical telic unaccusative and *belong* is an atelic unaccusative.

- (8) a. Mary arrived at the station.
 - b. The land belongs to Mr. Suzuki.

Sorace (2000) suggested that unaccusatives and unergatives can be hierarchized according to the degree of the telicity and agentivity as shown in (9). This is called the Auxiliary Selection Hierarchy (ASH). ASH shows that the higher a verb is located in the hierarchy, the more telic and the less agentive it is. Sorace proposed that, although unaccusatives are more telic than unergatives, there is a difference of the degree of telicity even among unaccusatives. Verbs at the top of the hierarchy 'Change of location' such as *arrive* and *fall* are core unaccusatives, and verbs in the middle position like 'Existence of state' are more peripheral as unaccusatives. Unergatives are located in the lower place of the hierarchy. Thus, the verbs in the bottom 'Controlled non-motional

process' like *play* and *work*, which are the most atelic and the most agentive, are core unergatives.

(9) Auxiliary Selection Hypothesis (ASH, based on Sorace, 2000)

Core Unaccusative selects BE

Change of Location (e.g., arrive, fall, come)

Change of State (e.g., happen, appear)

Continuation of a Pre-Existing State (e.g., remain, stay)

Existence of State (e.g., exist, belong)

Uncontrolled Process (e.g., cough, sneeze)

Controlled Motional Process (e.g., walk, run)

Controlled Non-Motional Process (e.g., play, work)

Core Unergative selects HAVE

Sorace (2000) stated that, in many European languages, auxiliary verbs, be and have are often used when generating perfective aspects. In those cases, the auxiliary verb, be or have, conforms to the ASH. For the verbs being located in the higher position in the ASH, be is used. On the other hand, as verbs go down in the ASH, have is used.

Yusa (2003) claimed that if the auxiliary selection is not only applied to European languages but also to all languages, and if Universal Grammar (UG) functions in L2 acquisition as well as in L1 acquisition, it is not impossible to suppose that any L2 learners inherently have the knowledge of the ASH. Therefore, he assumed that L2 learners are more likely to accept overpassivisation with telic unaccusatives than with less telic ones and unergatives. He conducted a grammaticality judgement task including unergatives and unaccusatives with JLEs. As a result, he reported that they were more likely to accept overpassivisation with highly telic unaccusatives than less telic ones and unergatives. He concluded that the ASH can universally function in L2 acquisition as well as L1 acquisition, and overpassivisation occurs due to the restriction of the ASH.

Hirakawa (2006) also examined whether the degree of telicity of unaccusatives would affect overpassivisation by JLEs. In her study, she speculated that, if the error of overpassivisation reflects the auxiliary selection of perfective aspects and past tenses, this error will not be observed in present tenses. Thus, she conducted a grammaticality judgement task to examine this point. The results indicated that there was no difference in the rate of overpassivisation between telic and atelic unaccusatives and also no difference between past/perfective tenses and present tenses. Therefore, her results did not support Yusa's (2003) argument that the telicity of unaccusatives had an influence on overpassivisation of unaccusatives.

Kondo (2019) also conducted a grammaticality judgement task with JLEs to investigate the influence of telicity on overpassivisation. She pointed out some experimental problems of Hirakawa (2006), one of which was that Hirakawa used only three verbs for each type and Kondo believed that they were not enough. Thus, Kondo (2019) used unaccusatives and unergatives categorized in more detail. Concretely, she divided unaccusatives into three groups: 'change of location,' 'change of state,' and 'existence of state' based on the ASH. She also divided unergatives into three groups: 'uncontrolled process,' 'controlled process; motional,' and 'controlled process; no-motional.' She used five verbs for each group. From the experiment, she got two findings. First, JLEs tended to accept overpassivisation with unaccusatives more frequently than unergatives, and this result supported Zobl's (1989) hypothesis. Second, there was no difference of test scores between telic and atelic unaccusatives. Therefore, her results did not support Yusa's (2003) argument, so she concluded that the degree of telicity was not influential on overpassivisation of unaccusatives.

These three studies examined the overpassivisation with a different approach from the NP Movement Marker Hypothesis, but now, some new factors that can affect overpassivisation of unaccusatives have been suggested. For example, Shirahata et al. (2020) claim that animacy of subjects can affect the overpassivisation of unaccusatives, while Ju (2000) considers that conceptualizable agents can cause overpassivisation. We will discuss these two studies in the next sections.

Animacy of Subjects

Shirahata et al. (2020) attempted to verify whether the animacy of subjects would cause overpassivisation of unaccusatives. They speculated that overpassivisation will occur more frequently when the subject is an immovable inanimate than when it is an animate. The reason is that, as a property of human languages, when the subject is an animate, we naturally feel that the subject actively does the action whatever semantic role it has. For instance, as in (10a), a person who runs in the park is undoubtedly Ken, and he actively does the action with his will. Likewise, as in (10b), a person who arrived at Shizuoka Station is Hanako. Even though a semantic role of the subject (Hanako) is not an agent but a theme in this case, we can imagine the situation where Hanako moved from somewhere and did the action (for example, she left Tokyo Station and reached Shizuoka Station) rather than she was made to do it by someone. By contrast, when the subject is an immovable inanimate such as a letter or a book, we feel that the subject would be passively involved in the event. As in (10c), since the subject a letter does not move actively by itself, we imagine that a letter is delivered by someone. Thus, Shirahata et al. (2020) supposed that

this property of human languages can cause JLEs to assume that the sentence would be passive when the subject is an immovable inanimate.

- (10) a. Ken runs in the park.
 - b. Hanako arrived at Shizuoka Station.
 - c. A letter arrived at Mary's house.

Note that the word "immovable" is important in their argument. Shirahata et al. (2020) mentioned that inanimate nouns are divided into two, movable inanimate and immovable inanimate. Movable inanimate is a noun that has the potential to move such as *a car*, *a train*, and *a storm*. By contrast, immovable inanimate is one that cannot move such as *a letter* and *a book*. In their previous experiments, they had observed that overpassivisation errors more often occurred when the subject was an immovable inanimate than when it was a movable inanimate and animates (Kondo, et al., 2015a, 2015b).

Shirahata et al. (2020) pointed out that previous studies which examined the influence of the telicity of unaccusatives on overpassivisation (e.g., Hirakawa, 2006; Kondo, 2019; Yusa, 2003) conducted the experiment without adequately considering the influence of the animacy of subjects. Thus, they argued that the issue of telicity should be investigated in an experiment after distinguishing animate and immovable inanimate subjects.

On the basis of the assumption mentioned above, Shirahata et al. (2020) set up the following two hypotheses and conducted an experiment to examine them.

- (11) Hypotheses by Shirahata et al. (2020)
 - a. In the course of L2 acquisition, since JLEs use the learning strategy, "when the subject is an animate, the sentence is active, while when it is an immovable inanimate, the sentence is passive," overpassivisation is more likely to happen in the sentence whose subject is an immobile inanimate than in the sentence whose subject is an animate or a movable inanimate.
 - b. All L2 learners follow the ASH. Thus, JLEs as well as other L2 learners will overpassivise telic unaccusatives more frequently than atelic ones.

Shirahata et al.'s (2020) participants were 98 Japanese university students who learned English as a part of their general education subjects at their university. Their English proficiency level was lower intermediate (The TOEIC score range is from 380 to 420, which is equivalent to the CEFR A2).

Five unaccusatives, arrive, fall, disappear, appear, and belong were selected from the three categories of the ASH as in (12). Type 1 was verbs expressing 'change of place' such as arrive and fall, and the degree of telicity is high. The verbs of Type 2 were appear and disappear, which express 'change of state,' and the degree of telicity is lower than Type 1. Type 3 is 'existence of state' such as belong and the degree of telicity is the lowest of the three.

(12) Type 1 change of place: arrive and fall

Type 2 change of state: appear and disappear

Type 3 existence of state: belong

Each of the five verbs was used for two sentences: one whose subject was an animate and the other whose subject was an immovable inanimate as in (13a-b). The participants were asked to read contexts written in Japanese and select which form, active or passive, they thought was grammatical for the target unaccusatives.

(13) a. inanimate subject

The magician is staring at a big ball in the glass box. Then, (written in Japanese)

The big ball (disappeared/was disappeared) from the box.

b. animate subject

Ken loves baseball and practices it every day.

Ken (belongs/is belonged) to the baseball club at school. (Shirahata et al., 2020, p. 48)

As a result, the average score of animate subjects was 4.19 of 5, and that of immovable inanimate subjects was 2.47. A statistically significant difference between animate and immovable inanimate was observed. There was also interaction between animacy and verbs. For all the five verbs, the rate of overpassivisation with immovable inanimate subjects was significantly higher than that of animate subjects. Therefore, the results supported Hypothesis 1, and JLEs were more likely to overpassivise unaccusatives when the subject was an immovable inanimate than when the subject was an animate.

As for verb types, when the subject was an animate, the correct percentage of *fall* was significantly lower than that of *arrive* and *belong*. But, except for that, no difference was found among the other verbs. This result contradicted Hypothesis 2 because if Hypothesis 2 was correct, the correct percentage of Type 1 should have been lower than that of Type 2, and the percentage of Type 2

ought to have been lower than that of Type 3. On the other hand, when the subject was an immovable inanimate, the correct percentages of *arrive* and *fall* were significantly lower than those of *disappear*, *appear*, and *belong*. The percentage of *disappear* was also significantly lower than those of *appear* and *belong*. These results, to a large part, conformed to the prediction of Hypothesis 2. Thus, Hypothesis 2 was partially supported and partially rejected. That is, only when the subject was an immovable inanimate, the degree of verb telicity affected the overpassivisation of unaccusatives.

Shirahata et al. (2020) concluded that the animacy of subjects has a strong influence on the overpassivisation of unaccusatives. But only when the subject is an immovable inanimate, the verb telicity can affect the overpassivisation. Thus, they claimed that the verb telicity has a weaker influence on the overpassivisation of unaccusatives than the animacy of the subject.

Conceptualizable Agents

Ju (2000) also challenged Zobl's (1989) hypothesis, the NP Movement Marker Hypothesis. She tackled overpassivisation of unaccusatives by Chinese learners of English with a different approach from the other studies. She assumed that the rate of overpassivisation would vary depending on the quality of the contexts previously provided. Considering this issue, she predicted that an agent in the discourse can be influential on the overpassivisation of unaccusatives.

This prediction is based on her following assumption. According to her, an agentless passive like (14a) and an unaccusative as in (14b) are similar because they both have nonagentive subjects. But the difference is that agents are omitted in an agentless passive, whereas agents inherently do not exist for unaccusatives.

- (14) a. A window broke.
 - b. A window was broken.

However, even for unaccusatives, an agent-like DP can be pragmatically expressed in the discourse. For instance, as in (15a-b), the same sentence (*The ship sank slowly*) is used. In the preceding sentence of (15a), the DP 'a fighter jet' causes the ship to sink. On the other hand, in (15b), the cause that the ship sank is in the ship itself, not because of other external factors.

- (15) a. A fighter jet shot at the ship. The ship sank slowly.
 - b. The rusty ship started breaking up. The ship sank slowly.

(Ju, 2000, p. 92)

Ju (2000) called this externally conceivable agent "conceptualizable agent." She also called a context with a conceptualizable agent like (15a) "externally caused event," and a context without such an agent like (15b) "internally caused event." She wondered whether the availability of conceptualizable agents in the discourse would have any effect on the overpassivisation of unaccusatives.

Based on the argument above, Ju (2000) set up the following hypothesis.

(16) Hypothesis by Ju (2000)

L2 learners of English are more likely to passivise unaccusatives when there is an externally caused event than when there is no such an event.¹

Participants were 35 Chinese learners of English. They were graduate students at a university in America and their TOEFL score was in the range of 550–575, which is equivalent to the CEFR B1. She used five unaccusatives, appear, die, disappear, emerge, and vanish in a force-choice task. The participants were asked to read contexts and select a more grammatical form, active or passive, for the target accusative. All of the verbs were used for two types of contexts; External causation like (17a) and Internal causation like (17b). In sentences of external causation, there was a conceptualizable agent in the preceding sentence, while the sentences of internal causation did not have such an agent. In all the sentences, inanimate subjects were used.

(17) a. External causation

The magician did a trick with a coin. The coin (vanished/was vanished) instantly.

b. Internal causationA coin fell into the mud.The coin (vanished/was vanished) instantly.

(Ju, 2000, p. 96)

As a result, it was found that the rate of overpassivisation errors in the external causation type was significantly higher than that of the internal causation type. This supported her hypothesis mentioned in (16). From the result, Ju (2000) concluded that cognitive factors played a key role in the acquisition of unaccusatives, and overpassivisation was more likely to occur when a conceptualizable agent was available in the discourse than when there was not such an agent.

¹ Although she also examined the difference between unaccusatives with transitive counterparts and those without, it is not related to our study, so we omit these details.

Some Deficiencies of Shirahata et al. (2020) and Ju (2000)

Shirahata et al. (2020) and Ju (2000) investigated the phenomena of overpassivisation of unaccusatives that cannot be explained by the NP Movement Marker Hypothesis. However, it seems that there were some deficiencies in these studies. First of all, one problem of the Shirahata et al. (2020) study is that, although they examined the influence of the animacy of the subjects and that of the degree of verb telicity, they did not eliminate the influence of conceptualizable agents in the discourse, suggested by Ju (2000). In their experiment, they unsystematically used both sentences with a conceptualizable agent in the discourse and those without such an agent. For example, see sentences (18a–b). These are sentences used in their experiment. There is the possibility that the DP 'the magician' in the discourse of (18a) can be considered as an agent of an unaccusative disappear. On the other hand, there is no external agent that causes the event in (18b).

(18) a. The magician is staring at a big ball in the glass box. Then, (written in Japanese)

The big ball (disappeared/was disappeared) from the box.

b. Late last night, on my way home from the station, I was startled. This was because,

A big white object (appeared/was appeared) in front of me. (Shirahata et al., 2020, p. 48)

In fact, the average score of (18a) was 0.47 and that of (18b) was 0.62. There was a significant difference of correct percentages between (18a) and (18b), although these two verbs, *appear* and *disappear*, are categorized into the same group of the ASH 'change of state.' They were expected to show no difference according to Shirahata et al's (2020) speculation. Thus, since not only the animacy of subjects and the degree of telicity of unaccusatives but also conceptualizable agents had a potential to affect the overpassivisation, their experiment should have been conducted by eliminating the factor of conceptualizable agents in the discourse.

As for Ju (2000), the problem is attributed to the ambiguous definition of conceptualizable agents in her experiment. For instance, see sentence (19), which was used in her experiment.

(19) The police were searching for a jewelry box thrown into the river. The box (emerged/was emerged) suddenly.

(Ju, 2000, p. 110)

She used the sentence as an internally caused event, in which an agent should not exist in the discourse. But we are wondering if the participants thought that the DP 'the police' in the discourse was the agent of the event. Thus, we believe that no potential agent must show up in the test questions for internally caused events.

In addition, Ju (2000) did not take the degree of verb telicity into account. She used five unaccusatives, but in the data analysis she did not subcategorize them according to the ASH. Since Yusa (2003) and Shirahata (2020) suggested that there is a possibility that telicity of unaccusatives can affect the overpassivisation errors, an experiment should be conducted with the verbs subcategorized by the ASH and the factor of telicity should be eliminated.

Moreover, the findings of Shirahata et al. (2020) and Ju (2000) have raised an important question: which is the most influential factor causing overpassivisation, the animacy of subject, the degree of telicity, or the existence of conceptualizable agents in the discourse? So far, there have been no studies that have compared these three factors. Thus, this study will correct these experimental deficiencies and investigate this question.

In order to examine the research questions, we will conduct two experiments. One is to compare the influence of the animacy of subject with that of existence of conceptualizable agents (Study 1). The other is to investigate the influence of conceptualizable agents and the degree of verb telicity (Study 2). In the next two sections, we will show the outline and the results of the two experiments.

Study 1

Participants of Study 1

Participants were 103 Japanese university students who were learning English as a general education subject. The score range on the Oxford Quick Placement Test is from 28 to 39, which are categorized into the CEFR A2 and B1.

Procedure

The participants of Study 1 were asked to read two sentences for each question. The first one set up a context written in Japanese, and the second one was written in English and included a target unaccusative. Then, they were asked to select a more grammatical form, active or passive, for the unaccusative.

There were four types of sentences as in (20). In Type 1 and Type 2, an immovable inanimate was used for the subject like 'his textbook' and 'many historical buildings' as in (20a-b). In the discourse of Type 1, there was a conceptualizable agent such as 'Taro,' but there was not in Type 2. In Type 3 and Type 4, the subject was an animate, for example, 'Mr. Suzuki' and 'Ken' as in (20c-d). A conceptualizable agent like 'his doctor' in (20c) was available in Type 3, but not in Type 4.

(20) a. Type 1: [-animate] and [+conceptualizable agent]

Ken didn't bring his textbook to his house from school last. Friday. So,

(written in Japanese)

His textbook (remained/was remained) in the classroom for the weekend.

b. Type 2: [-animate] and [-conceptualizable agent] Japan lost a lot of historical buildings due to WWII. But fortunately,

Many historical buildings in Kyoto (survived/were survived).

c. Type 3: [+animate] and [+conceptualizable agent] Mr. Suzuki suffered from a heavy disease. So, his doctor operated on him.

As a result,

Mr. Suzuki (survived/was survived) for a long time.

d. Type 4: [+animate] and [-conceptualizable agent] Ken's family had a trip, but he was about to have an entrance examination for a university. So,

Ken (stayed/was stayed) in his house.

As we have mentioned before, the deficiency of Ju (2000) is that there were potential agents even in the proceeding sentences of internally caused events. So as to avoid the deficiency, in this study we tried to ensure that the proceeding sentences in Type 2 and Type 4 did not include a person that had the potential to affect events of the target sentences.

Since Study 1 will examine the animacy of subjects and the existence of conceptualizable agents, we have to eliminate the influence of telicity of unaccusatives in the experiment. Thus, we have used three verbs, *stay*, *remain*, and *survive*, of the same category 'continuation of a pre-existing state' in the ASH (see (9)). These three verbs were used in every type. Since we had 12 target sentences with 12 fillers, there were 24 sentences in total.

Moreover, to exactly investigate the JLEs' grammatical knowledge of unaccusatives, the methodology of Study 1 must be based on the premise that the participants know the meanings of the target unaccusatives. Therefore, we conducted a vocabulary test, where they were asked to select a suitable translation of the target unaccusative into Japanese from five choices. Then, we eliminated participants from the analysis who selected wrong choices of the target unaccusatives.

Three of the participants selected incorrect choices of the target unaccusatives in the vocabulary test. So, we removed them and finally analyzed 100 participants.

Hypotheses of Study 1

With the study, we will examine the following three hypotheses.

(21) a. Hypothesis 1:

As Shirahata et al. (2020) suggested, JLEs are more likely to overpassivise unaccusatives when the subject is an immovable inanimate than when it is an animate.

b. Hypothesis 2:

As Ju (2000) claimed, JLEs are more likely to overpassivise unaccusatives when there is a conceptualizable agent in the discourse than when there is not such an agent.

c. Hypothesis 3:

In a sentence in which the subject is an immovable inanimate and there is a conceptualizable agent in the discourse, JLEs are most likely to overpassivise unaccusatives than in a sentence in which the subject is an inanimate without a conceptualizable agent or in a sentence in which the subject is an animate with a conceptualizable agent.

If Hypothesis 1 is correct, we predict that the correct percentage of Type 1 will be lower than that of Type 3. Also, the correct percentage of Type 2 will be lower than that of Type 4. Based on Hypothesis 2, it is expected that the correct percentage of Type 1 will be lower than that of Type 2, and the correct percentage of Type 3 will be lower than that of Type 4. From Hypothesis 3, we assume that the correct percentage of Type 1 will be lower than those of Type 2 and Type 3, and that of Type 4 will be the highest.

Results and Discussion of Study 1

We show the percentages of correct responses (the number of correct answers divided by the number of all sentences, 300 (three verbs \times 100 participants)) of the four types in Table 1 and Figure 1. The correct percentage of Type 1 was the lowest of the four types at 38.7% (116/300). The correct percentage of Type 2 was 73.7% (221/300), and that of Type 3 was 92.0% (276/300). The percentage of Type 4 was the highest of the four types at 97.0% (291/300), so participants were almost completely able to choose correct answers in Type 3 and Type 4.

Repeated measures ANOVAs revealed significant effects of sentence types (F (3, 297) = 122.370, p < .001). Multiple comparisons showed that the correct percentage of Type 1 was significantly lower than that of Type 3. Also, the correct percentage of Type 2 was significantly lower than that of Type 4. This result is consistent with Hypothesis 1, and JLEs are more likely to overpassivise unaccusatives when the subject is an immovable inanimate than when the subject is an animate.

In addition, there was a significant difference between the correct percentage of Type 1 and that of Type 2. However, there was no significant difference between the correct percentage of Type 3 and that of Type 4, since participants can choose correct answers at a quite high rate in both types. This finding partially supported and falsified Hypothesis 2. That is, only when the subject is an immovable inanimate, the existence of conceptualizable agents can affect the overpassivisation of unaccusatives. But, from the results that the percentages of both Type 3 and Type 4 are relatively high, agents in the discourse were not influential when the subject is an animate. Therefore, even if conceptualizable agents exist in the discourse, JLEs are less likely to overpassivise unaccusatives unless the subject is an immovable inanimate.

Moreover, the correct percentage of Type 1 was significantly lower than that of Type 2 and that of Type 3. Thus, Hypothesis 3 has been supported. When the two factors, the animacy of subjects and the existence of conceptualizable

agents, are available, the overpassivisation of unaccusatives happens more frequently than when either of the two factors is involved.

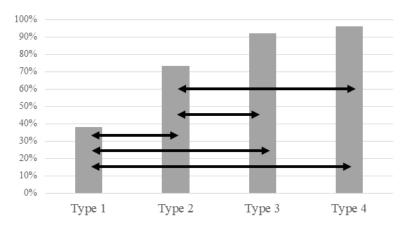
Table 1

Correct Percentage of the Four Types in Experiment 1

Sentence Type	Mean	SD
Type 1	38.7%	1.120
Type 2	73.7%	0.700
Type 3	92.0%	0.531
Type 4	97.0%	0.377

Figure 1

Correct Percentage of the Four Types in Experiment 1



While the animacy of subject affected the overpassivisation of unaccusatives regardless of whether a conceptualizable agent exists or not, the existence of conceptualizable agents can be influential only when the subject is an immovable inanimate. This finding suggests that the animacy of subjects is a stronger factor causing the overpassivisation than the existence of conceptualizable agents.

As we explained in the procedure, we chose the three unaccusatives from the same category of the ASH 'continuation of a pre-existing state,' so the degree of telicity of the verbs would not have influenced the overpassivisation according to the ASH. Now in the next section of Study 2, we will compare the influence of the existence of conceptualizable agents with that of the telicity of unaccusatives to examine which is a stronger factor causing overpassivisation.

Study 2

Participants of Study 2

Participants of Study 2 were 122 Japanese university students who learned English as a general education subject. They were different participants from those of Study 1. The score range on the Oxford Quick Placement Test is from 28 to 45, most of which are categorized into the CEFR A2 and B1.

We also conducted a vocabulary test like Study 1 to remove participants who did not know the meanings of the target unaccusatives. Twenty-one of the participants selected incorrect choices of the target unaccusatives in the vocabulary test, so we removed them from the analysis and finally analyzed 101 participants.

Procedure

Similar to Study 1, the participants were asked to read two sentences for each question. The first one set up a context written in Japanese. The second one was written in English and included a target unaccusative. Then, JLEs were asked to select a more grammatical verb form, active or passive, for the unaccusative.

We had four unaccusatives, *arrive*, *come*, *stay*, and *remain*, and they were divided into two categories based on the ASH. See (9), *arrive* and *come* were used as verbs belonging to 'change of place' in the ASH, and their degree of telicity is high. *Stay* and *remain* belong to 'continuation of a pre-existing state,' and the degree of telicity of these verbs is lower than that of *arrive* and *come*.

There were four types of sentences as in (22). In Type 5 and Type 6, the two telic unaccusatives, *arrive* and *come* were used. In the preceding sentences of Type 5, there was a conceptualizable agent like 'postman' as in (22a). But there was not in Type 6 like (22b). On the other hand, Type 7 and Type 8 used two atelic unaccusatives, *stay* and *remain*. There was a conceptualizable agent in Type 7 like 'Taro' as in (22c) while there was not in Type 8 like (22d). In order to avoid the influence of the animacy of subjects, we used immovable inanimate subjects in all the sentences of the four types. Since there were eight target sentences with 13 fillers, we conducted Study 2 with 21 sentences in total.

(22) a. Type 5 [+agent] and [+telicity]: *arrive* and *come*I heard the sound of a postman's bike. Apparently, (written in Japanese)

A letter (came/was come) to my house.

b. Type 6 [-agent] and [+telicity]: *arrive* and *come* The river near my house was flooded with the storm, and my house was inundated with water. What was worse,

The water (came/was come) up to the second floor of my house.

c. Type 7 [+agent] and [-telicity]: *stay* and *remain* Taro didn't bring his textbook to his house from school last Friday. So,

His textbook (remained/was remained) in the classroom for the week-end.

d. Type 8 [-agent] and [-telicity]: *stay* and *remain*A lot of plants in the region were extinct due to air pollution. But,

Only the trees called 'Meliaceae' (remained/were remained) in the region.

Hypotheses of Study 2

We will conduct Study 2 to test the following three hypotheses.

(23) a. Hypothesis 4:

JLEs are more likely to overpassivise unaccusatives when there is a conceptualizable agent in the discourse than when there is not such an agent.

b. Hypothesis 5:

JLEs are more likely to overpassivise telic unaccusatives than atelic ones.

c. Hypothesis 6:

When the two factors are available, that is, when there is a conceptualizable agent with a telic unaccusative, JLEs are more likely to overpassivise than when one of the factors is involved, that is, when there is a conceptualizable agent with an atelic unaccusative or when there is not such an agent with a telic unaccusative. If Hypothesis 4 is correct, we predict that the correct percentage of Type 5 will be lower than that of Type 6. Also, the correct percentage of Type 7 should be lower than that of Type 8. According to Hypothesis 5, it is assumed that the correct percentage of Type 5 will be lower than that of Type 7, and the percentage of Type 6 will be lower than that of Type 8. Based on Hypothesis 6, we can expect that the correct percentage of Type 5 will be lower than those of Type 6 and Type 7, and that of Type 8 will be the highest.

Results and Discussion of Study 2

Table 2 and Figure 2 indicate the percentages of correct responses of the four types. The correct percentage of Type 5 was 73.8% (149/202) and that of Type 6 was 89.6% (181/202). The correct percentage of Type 7 was the lowest of the four types at 51.5% (104/202) and that of Type 8 was 82.7% (167/202).

Repeated measures ANOVAs revealed significant effects of sentence types (F (3, 297) = 122.370, p < .001). Multiple comparisons showed that the correct percentage of Type 5 was significantly lower than that of Type 6. The correct percentage of Type 7 was also significantly lower than that of Type 8. This result supports Hypothesis 4, and JLEs are more likely to overpassivise unaccusatives when there is a conceptualizable agent in the discourse than when there is no agent.

On the other hand, the correct percentage of Type 5 was significantly higher than that of Type 7, and there was no significant difference between the percentage of Type 6 and that of Type 8. This is the opposite result from the prediction of Hypothesis 5. At the same time, from the result that the correct percentage of Type 5 was not the lowest of the four, Hypothesis 6 was rejected. Thus, these findings show that the degree of verb telicity has little influence on the overpassivisation of unaccusatives.

 Table 2

 Correct Percentage of the Four Types in Experiment 2

Sentence Type	Mean	SD
Type 5	73.8%	0.654
Type 6	89.6%	0.452
Type 7	51.5%	0.789
Type 8	82.7%	0.570

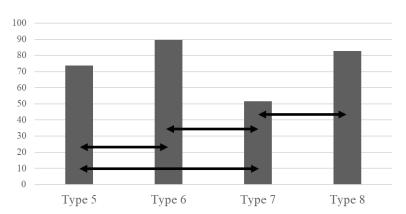


Figure 2

Correct Percentage of the Four Types in Experiment 2

The result that the existence of conceptualizable agents had influence on overpassivisation of unaccusatives was consistent with the results of Study 1 and Ju (2000). In Study 1, we found that the existence of conceptualizable agents is a weaker factor than the animacy of subjects. But, Study 2 has revealed that, as long as the subject is an immovable inanimate, a conceptualizable agent can affect overpassivisation regardless of the degree of verb telicity.

Shirahata et al. (2020) argued that the degree of telicity becomes influential only when the subject is an immovable inanimate. However, the result of Study 2 indicates that telicity does not affect overpassivisation even though the subject is an immovable inanimate. Then, a new question arises; why was the influence of telicity observed in Shirahata et al. (2020), while it was not in the present study? We assume that the cause will be in the sentences of the two verbs, *disappear* and *arrive*, whose correct percentages were especially lower than those of *appear* and *belong*, in Shirahata et al. (2020). See the two sentences used in their experiment.

(24)

a. disappear:

A magician stared at a big ball in the glass box. Then, The big ball (disappeared/was disappeared) from the box.

b. arrive:

Taro opened the post box of his house and found a letter from America. The letter from America (arrived/was arrived) at Taro's house.

(Shirahata et al., 2020, p. 48)

As a problem of their experiment which we mentioned before, they did not take conceptualizable agents into account. Thus, as in (24a), the DP 'a magician' can be recognized as an agent and affect overpassivisation. In fact, according to Shirahata et al. (2020), the average score of *disappear* (0.47) was significantly lower than that of appear (0.62) although they were categorized into the same group 'change of state' of the ASH. If the degree of telicity affects overpassivisation of unaccusatives, the rate of the errors of the two verbs will not differ.

We believe that the same thing can account for the low average score of *arrive* (0.33). Though there was not an explicit agent in the discourse of *arrive* as in (24b), we can imagine an agent implicitly. More specifically, the incident 'the letter arrived' always involves some agents; there should be a person who wrote the letter and one like a postman who brought the letter to the post box. Thus, even if JLEs do not recognize an explicit agent, they are likely to overpassivise unaccusatives in a context where they can imagine an implicit agent like (24b). Therefore, given the results of our Study 2, we assume that the overpassivisation of unaccusatives in Shirahata et al.'s (2020) study can simply be affected by such an agent, not by the verb telicity.

We have examined the three factors, the animacy of subjects, the existence of conceptualizable agents, and the degree of verb telicity. As another possible factor causing overpassivisation of unaccusatives, a morphological property of L1 has been mentioned in some studies (Montrul, 2000 and 2001; Kondo, 2009). Also, Szcześniak (2020) examined L2 learners' knowledge of unaccusatives from a perspective of association between unaccusatives and subjects. Moreover, since our experiments were conducted only with low-intermediate level learners, it is unclear whether learners' English proficiency affects overpassivisation. In the present research, we removed these factors since it would be too complicated otherwise. Thus, in our future studies, we will examine how strongly these factors mentioned above affect overpassivisation.

Conclusion

We have investigated which factor most strongly affects overpassivisation of unaccusatives: the animacy of subjects, the existence of conceptualizable agents, or the degree of verb telicity. From the results of Study 1, we have found that the animacy of subject can cause overpassivisation, whether conceptualizable agents exist or not. On the other hand, we have also discovered that the existence of conceptualizable agents becomes influential only when the subject is an immovable inanimate. These results suggest that the animacy of subjects is a stronger factor causing overpassivisation than the existence of conceptualiz-

able agents. Study 2 has revealed that the existence of conceptualizable agents can affect overpassivisation of unaccusatives regardless of the degree of verb telicity. However, we have also clarified that telicity of unaccusatives has little influence on overpassivisation of unaccusatives. This result contradicts Yusa (2003) and Shirahata et al. (2022).

Based on these results, we can conclude that the animacy of subjects is the most influential factor of the three, and the existence of conceptualizable agents is the second most influential, but the telicity of unaccusatives does not affect the overpassivisation. In the present study, we removed other factors like a morphological property of L1 Japanese, association between unaccusatives and subjects, and learners' English proficiency since it would be too complicated. But, in our future studies, we will investigate how strongly these factors mentioned above affect overpassivisation.

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Hiromu Okamura, Tomohiko Shirahata

Faktoren für die Überpassivierung von unakkusativischen Verben bei japanischen Englischlernern

Zusammenfassung

Es wurde berichtet, dass Lerner von Englisch als Zweitsprache (L2), einschließlich japanischer Englischlerner (JLE), unakkusativische Verben überpassivieren, obwohl es sich um eine Art intransitiver Verben handelt. Um dieses Phänomen zu erfassen, wurden einige Annahmen vorgeschlagen. Bisher ist jedoch unklar, welche Annahme die Überpassivierung von unakkusativischen Verben am effektivsten zu erklären vermag. In der vorliegenden Arbeit soll daher untersucht werden, welcher der drei Faktoren - Belebtheit der Subjekte, Vorhandensein konzeptualisierbarer Agens bzw. Telizität der Verben – die Überpassivierung von unakkusativischen Verben durch japanische Englischlerner (JLE) am stärksten beeinflusst. Um das Problem zu erforschen, wurden zwei Experimente durchgeführt. Studie 1 wurde mit 100 Universitätsstudenten (JLE) durchgeführt, um den Effekt der Belebtheit von Subjekten mit dem der konzeptualisierbaren Agens zu vergleichen. Als Ergebnis wurde festgestellt, dass die Belebtheit der Subjekte die Überpassivierung von unakkusativischen Verben stärker beeinflusst als das Vorhandensein konzeptualisierbarer Agens. Studie 2 wurde mit 101 Universitätsstudenten (JLE) durchgeführt, um zu untersuchen, welcher der beiden Faktoren - das Vorhandensein konzeptualisierbarer Agens oder der Grad der Telizität - eine stärkere Einwirkung hat. Die Ergebnisse zeigten, dass der erste einen Einfluss auf die Überpassivierung von unakkusativischen Verben hat, der andere jedoch weniger. Aus den beiden Experimenten lässt sich schließen, dass die Belebtheit des Subjekts die stärkste Einwirkung unter den drei Faktoren hat. Die Telizität der Verben hat dagegen kaum Einfluss auf vorkommende Fehler.

Schlüsselwörter: Überpassivierung, unakkusativische Verben, Belebtheit, konzeptualisierbare Agens, Telizität