

The Effect of L1 and L2 on Acquiring the Scope of Disjunction and Negation in L3 Japanese

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1. Introduction

In the field of bilingualism research, various studies have examined the influence of learners' mother tongue (or first language, i.e., L1) on their second language (L2), particularly since the 1960s (White 2003). However, the influence of the mother tongue on third language acquisition (L3) has not yet been fully studied (Slabakova 2023).

This study investigates the role of L1 and L2 in third language (L3) acquisition by examining the interpretation of Japanese disjunction (*ka* 'or') with negation. The interpretation of disjunctions in negative sentences exhibits cross-linguistic variation. For example, English and Korean yield conjunctive interpretations, whereas Japanese and Mandarin yield disjunctive interpretations. Previous studies have suggested that the interpretation of negated disjunction in the L1 transfers to the L2. Nevertheless, to the best of the author's knowledge, few studies have examined L3 interpretations of negated disjunctions. The present study aims to clarify the roles of L1 and L2 in L3 interpretation of Japanese negated disjunction by comparing L1-Mandarin/L2-English/L3-Japanese learners with L1-Korean/L2-English/L3-Japanese learners. The experimental results suggest that (i) the effect of L1 may disappear at relatively early stages of L3 development, and (ii) knowledge of L2 may encourage rather than discourage L3 interpretations of negated disjunctions.

The remainder of this paper is organized as follows: Section 2 presents how the interpretation of negated disjunction differs across languages. Section 3 reviews previous studies on the L2 acquisition of negated disjunctions in English and Japanese, and Section 4 presents the hypotheses of the present study. Section 5 describes the methodology, and Section 6 reports the results of comparisons between L3-Japanese learners and native Japanese speakers. Section 7 discusses the roles of L1 and L2 in the L3 acquisition of Japanese negated disjunctions. Section 8 concludes that transfer from L1 to L3 is expected to disappear relatively early and that the knowledge of L2 English appears to have a positive effect on L3 Japanese interpretation.

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2. Linguistic property

Disjunctions (e.g., “or” in English and “ka” in Japanese) in negative sentences are interpreted differently, across languages (Szabolcsi 2002, Goro & Akiba 2004a, 2004b, Crain 2012). In English, for example, the negated disjunction sentence in (1a) is paraphrased as in (1b), in which the two negated sentences are combined using the conjunction word “and.”¹ This interpretation is referred to as the conjunctive (neither) reading. The Korean negated disjunction sentence in (2a) also yields the conjunctive (neither) reading, as in English (Lee & Schwartz 2024, Lee in press).

(1) English

- a. Mary did not eat the apple or the banana.
- b. Mary did not eat the apple AND Mary did not eat the banana.
(Conjunctive (neither) reading)

(2) Korean

- a. Ama sasum-un tangkun-ina kamca-lul an tam-ul-keya.
Maybe deer-Top carrot-or potato-Acc NEG take-FUT-SE
‘Maybe the deer will not take carrots or potatoes.’
(Conjunctive (neither) reading)

Unlike English and Korean, negated disjunctions in Japanese and Mandarin yield a disjunctive (not both) reading. For example, the Japanese sentence in (3a) is paraphrased as in (3b), in which the two negated sentences are integrated with the disjunction word “or.” Similarly, the Mandarin negated disjunction sentence in (4a) yields a disjunctive (not both) reading (Crain, 2012).

(3) Japanese

- a. *Mary-wa ringo ka banana-o tabe-naka-tta.*
Mary-TOP apple or banana-ACC eat-NEG-PAST
‘Mary did not eat the apple or the banana.’ (lit.)
- b. Mary did not eat the apple OR Mary did not eat the banana.
(Disjunctive (not both) reading)

(4) Mandarin

- a. *(Wo cai) Taide meiyong dian yidalimianshi huozhe shousi.*
(I guess) Ted not order pasta or sushi
‘It’s either pasta or sushi that Ted did not order.’
(Disjunctive (not both) reading)

As indicated in (1)–(4), languages can be divided into two groups: those with a conjunctive interpretation of negated disjunctions (e.g., English and Korean)

¹ The conjunctive interpretation is preferred; however, disjunctive interpretation is also possible in English (Sano et al., 2024).

and those with a disjunctive interpretation of negated disjunctions (e.g., Japanese and Mandarin). This interpretive difference is attributable to scope interaction between negation and disjunction. In both Japanese and Mandarin, disjunction takes scope over negation (OR > NOT), yielding a disjunctive interpretation. By contrast, in English and Korean, disjunction takes scope under negation (NOT > OR), yielding a conjunctive interpretation (Goro & Akiba 2004a, 2004b, Goro 2007, Crain 2012).

In addition to negated disjunctions, negated conjunctions show interpretive variation among languages. For example, the English sentence in (5a) is paraphrased as in (5b) to yield a disjunctive (not both) interpretation (NOT > AND). Conversely, the Japanese sentence in (6a) is paraphrased as in (6b), yielding a conjunctive (neither) interpretation (AND > NOT). Similarly, the sentences in (7a) and (7b) illustrate Mandarin negated conjunctions that yield a conjunctive (neither) reading.

(5) English

- a. Mary did not eat both the apple and the banana.
- b. Mary did not eat the apple OR Mary did not eat the banana.
(Disjunctive (not both) reading)

(6) Japanese

- a. *Mary-wa ringo to/mo banana-o/mo tabe-naka-tta.*
Mary-TOP apple and/also banana-ACC/also eat-NEG-PAST
'Mary did not eat the apple and the banana.' (lit.)
- b. Mary did not eat the apple AND Mary did not eat the banana.
(Conjunctive (neither) reading)

(7) Mandarin

- a. *Taide meiyou dian yidalimianshi he shousi.*
Ted not order pasta and sushi
'As for both pasta and sushi, Ted did not order them.'
- b. *Taide yidalimianshi he shousi dou meiyou dian.*
Ted pasta and sushi both not order
'As for both pasta and sushi, Ted did not order them.' (Crain, 2012)
(Conjunctive (neither) interpretation)

3. Previous L2 studies on negated disjunctions

3.1. L2 English studies

Grüter et al. (2010) suggested that L1 interpretations of negated disjunctions are transferred to L2. They compared two proficiency-matched L2 learner groups, namely, L1-Japanese/L2-English learners and L1-English/L2-Japanese learners, using a truth-value judgement task. The results showed that the L1-Japanese/L2-English learners were less accurate than the L1-English/L2-Japanese learners in interpreting L2 negated disjunctions. Grüter et al. attributed this greater difficulty in L2 English acquisition to the transfer of semantic properties from L1 Japanese. In fact, L1-Japanese/L2-English learners initially assumed that the L1

interpretation was possible in their L2 interpretation. However, their L1 interpretation (i.e., disjunctive reading) forms a superset of the target L2 interpretation (i.e., conjunctive reading), and they receive little negative evidence to narrow the superset. Conversely, L1-English/L2-Japanese learners were able to acquire the correct L2 interpretation relatively easily because they could obtain positive evidence to broaden their interpretation from L1 (subset) to L2 (superset). Thus, Grüter et al.'s study suggests that L1 transfer delays the acquisition of the target interpretation of English negated disjunction by L1-Japanese/L2-English learners.

It should be noted that L1-Japanese/L2-English learners can acquire the target interpretation of English negated disjunction. Yusa and Schwartz (2022) found that advanced L1-Japanese/L2-English learners who had lived in English-speaking countries for an average of five years (range 0~19 years), were able to correctly interpret disjunctions not only in simple negative sentences but also in pseudo-cleft sentences with negation. Combining the results of Grüter et al. with those of Yusa and Shwartz, we can conclude that L1-Japanese/L2-English learners may initially experience difficulty interpreting English negated disjunctions due to L1 transfer but are ultimately able to acquire the correct L2 interpretation.

3.2. L2 Japanese studies

Okuma (in press) reported an experimental study suggesting L1 transfer in the interpretation of Japanese negated disjunctions by L1-English/L2-Japanese learners and L1-Mandarin/L2-Japanese learners. As seen in Section 2, negated disjunctions have a disjunctive reading in Japanese and Mandarin but a conjunctive reading in English. Therefore, L1-Mandarin/L2-Japanese learners were predicted to outperform L1-English/L2-Japanese learners in interpreting Japanese negated disjunctions. She conducted a truth-value judgment task adapted from Grüter et al. and found that the results supported this prediction. She also found that both L2 groups were less target-like in judging negated disjunctions than negated conjunctions, suggesting that cognitive difficulty in processing the combination of negation and disjunction may delay acquisition.

Regarding L3 acquisition of Japanese negated disjunctions, a previous pilot study by Okuma (2024) attempted to clarify whether L1s (Mandarin and Korean) are transferred to L3 interpretations of Japanese negated disjunctions and reported an interim result suggesting little L1 effect on L3. However, this result is far from conclusive because of the small sample size. The present study extends Okuma's (2024) study investigating whether L1 affects L3 interpretations of Japanese negated disjunctions among 18 L1-Mandarin/L3-Japanese learners and seven L1-Korean/L3-Japanese learners (with English as L2 in both cases). This study also differs from Okuma (2024) in that it investigates the effect of L2 (English) proficiency on L3 (Japanese) interpretations.

4. Research questions and predictions

This study aims to clarify whether knowledge of negated disjunctions in L1 and L2 affects L3 acquisition, extending previous L2 studies showing that knowledge of negated disjunctions in L1 is transferred to L2. This study compared two L3 groups, namely, L1-Mandarin/L2-English/L3-Japanese learners and L1-Korean/L2-English/L3-Japanese learners. As explained in Section 2, negated disjunction is interpreted conjunctively in English and Korean, and disjunctively in Japanese and Mandarin. Therefore, the following two hypotheses were formulated:

- (i) If L1 has little influence on L3, both L3 groups are expected to interpret Japanese negated disjunction sentences in the same manner. Conversely, if L1 has a significant influence on L3, L1-Mandarin learners are expected to interpret L3 Japanese negated disjunction sentences more accurately than L1-Korean learners.
- (ii) If L2 has a significant influence on L3, L3 learners are expected to become less accurate in interpreting L3-Japanese negated disjunction sentences as their L2 English proficiency improves.

To the best of the author's knowledge, little research on L3 acquisition has been conducted on Japanese negated disjunctions. The next section describes the experimental methods used to test these predictions.

5. Experiment

5.1. Participants

Eighteen L1-Mandarin²/L2-English/L3-Japanese learners and seven L1-Korean/L2-English/L3-Japanese learners participated in the experiment. They were international students from China, Taiwan, and Korea, studying at Japanese universities. They took a written Japanese proficiency test consisting of 33 fill-in-the-blank questions to assess their knowledge of grammar and vocabulary. Based on the test results, 18 L1-Mandarin learners were divided into two proficiency groups: advanced ($n = 11$) and intermediate ($n = 7$). All L1-Korean learners were judged to be advanced ($n = 7$) on the same test, as shown in Table 1.

L3 learners also answered a questionnaire about their history of learning languages and frequency of use. All spoke English as their L2, and their English proficiency was judged based on the English proficiency test scores that they self-reported on the questionnaire. The English proficiency tests included Test of English as a Foreign Language (TOEFL), International English Language Testing System (IELTS), and Test of English for International Communication (TOEIC)

² This includes cases where a person used the Chinese dialect of his or her parents' birthplace in addition to Mandarin at home.

Listening & Reading Test³. These tests were taken at different times by each participant, with the earliest administered two years before participating in the experiment. The L1-Mandarin learners obtained 66% (range 35–93%) on average, indicating that they had intermediate to advanced proficiency in English. Similarly, L1-Korean learners obtained 64% (range 40–87%), indicating that, like the L1-Mandarin learners, they had intermediate to advanced proficiency in English.

Twenty-seven L1-Japanese/L2-English speakers participated in the experiment and served as controls. They were university students born and raised in Japan. They had never stayed outside Japan for more than a month at the time of testing, although they had taken English classes at university. They answered a questionnaire about their language-learning history similar to that administered to L3 learners. Table 1 summarizes the participants' information.

Table 1. Participants' background information

Note. M, K and J represent Mandarin, Korean and Japanese, respectively

Group	Age (years old)	L3 (Japanese)				L2 (English)		
		Score (%)	Onset (years)	Education (years)	Residence in J (years)	Score (%)	Onset (years)	Education (years)
L1 M (adv)	23 (20-26)	90 (88-97)	17 (5-19)	2.9 (0.3-6)	2.0 (0.3-5.3)	65 (40-93)	8.3 (6-12)	12 (9-16)
L1 M (int)	23 (19-37)	69 (33-85)	18 (12-23)	2.7 (0.8-10)	1.7 (0.1-3.3)	69 (35-88)	6.8 (3-9)	14 (9-17)
L1 K (adv)	22 (20-24)	90 (67-100)	16 (13-20)	4.6 (1.5-9)	1.2 (0.1-4.2)	64 (40-87)	10.7 (5-13)	10.1 (9-12)
Native J	19 (18-20)	-	-	-	-	61 (51-79)	8.7 (5-13)	7.7 (7-10)

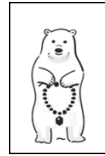
5.2. Materials

The task was the prediction mode truth-value judgment task (Crain et al., 2002) adapted from Grüter et al. (2010), with minor modifications. The participants read a short story about an eating contest in which animals received prizes for eating vegetables: a crown for eating both the carrot and pepper, a necklace for eating only one of them, and a balloon for eating no vegetables. The story did not contain any information about which vegetables each animal ate during the contest. After the contest, the three characters (Kitty, Pikachu, and Doraemon) predicted what the animals had eaten, producing negated disjunction and conjunction sentences. Participants were presented with sentences and pictures of animals along with their respective prizes, as in Example (8). They were asked to judge whether the sentence matched the meaning of the contest and

³ TOEIC Listening & Reading Test is widely used at Japanese universities and companies to measure English proficiency, with a maximum score of 990 points.

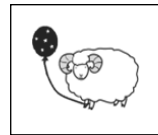
the picture by choosing one of the three options, *tadasii* 'true,' *matigai* 'false,' or *wakaranai* 'I don't know.'

- (8) *Kuma-wa keeki-o tabe-ta ga ninjin-ka piiman-o*
 bear-TOP cake-ACC eat-PAST but carrot-OR pepper-ACC
tabe-naka-tta.
 eat-NEG-PAST
 'The bear ate the cake, it was either the carrot or the pepper
 that he didn't eat.'



Picture for (8)

- (9) *Hitsuji-wa keeki-o tabe-ta ga ninjin-ka piiman-o*
 sheep-TOP cake-ACC eat-PAST but carrot-OR pepper-ACC
tabe-naka-tta.
 eat-NEG-PAST
 'The sheep ate the cake, but it was either the carrot or the
 pepper that he didn't eat.'



Picture for (9)

Four conditions (Dis-T, Dis-F, Con-T, and Con-F) were created as shown in Table 2. The first two conditions (Dis-T and Dis-F) are critical for testing negated disjunction sentences. In Dis-T, the pictures show an animal with a necklace, as in (8). This picture ensured that the disjunctive (not both) reading was true and the conjunctive (neither) reading was false. By contrast, in Dis-F, the pictures show an animal with a balloon, as in (9). This picture ensured that the conjunctive (neither) reading was true and the disjunctive (not both) reading was false. The remaining two conditions (Con-T and Con-F) were used to test negated conjunction sentences. In Con-T, the pictures showed an animal with a balloon to ensure that the conjunctive (neither) reading was true, as in Dis-F. In Con-F, the pictures showed an animal with a necklace to ensure that the disjunctive (not both) reading was true, as in Dis-T. Each condition consisted of four stimuli, and the total number of stimuli was 16. To reduce response bias, 44 distractors were created, and 60 stimuli were randomized and presented to the participants. Sixty stimuli were designed to elicit even numbers of true and false responses from native Japanese speakers.

Table 2. Conditions

Note. J, M, E and K represent Japanese, Mandarin, English and Korean, respectively

Condition	Logical connective	Truth value		Picture	Sentence
		in J/M	in E/K		
Dis-T	Disjunction <i>ka</i> 'or'	True	False	One vegetable eaten (Disjunctive (not both) reading)	[<i>Doubutsu</i>]- <i>wa keeki-o tabe-ta ga ninjin-ka piiman-o tabenakatta.</i>
Dis-F	Disjunction <i>ka</i> 'or'	False	True	No vegetable eaten (Conjunctive (neither) reading)	'The animal ate the cake, but he did not eat the carrot OR did not eat the pepper.'
Con-T	Conjunction <i>to</i> 'and'	True	False	No vegetable eaten (Conjunctive (neither) reading)	[<i>Doubutsu</i>]- <i>wa keeki-o tabe-ta ga ninjin-to piiman-o tabenakatta.</i>
Con-F	Conjunction <i>to</i> 'and'	False	True	One vegetable eaten (Disjunctive (not both) reading)	'The animal ate the cake, but he did not eat the carrot AND did not eat the pepper'

6. Results

6.1. Group results

Figure 1 presents the percentage (%) of participants in the four groups (i.e., native Japanese control group, advanced L1-Mandarin/L2-English/L3-Japanese group, advanced L1-Korean/L2-English/L3-Japanese group, and intermediate L1-Mandarin/L2-English/L3-Japanese group) who responded "true" to each condition listed in Table 2. As shown in Figure 1, the two advanced groups showed judgment patterns similar to those of the control group. The control group and the two advanced groups accepted the disjunctive reading of negated disjunction sentences (i.e., the Dis-T condition) 89 to 94% of the time. In contrast, they accepted the conjunctive reading of negated disjunction sentences (i.e., the Dis-F condition) only 16 to 36% of the time. Moreover, the control group and the two advanced L3 groups accepted disjunctive reading more often than the conjunctive reading ($p < .05$). This suggests that the two advanced L3 groups made a distinction between the two readings, similar to the native Japanese control group. By contrast, the intermediate L1-Mandarin/L2-English/L3-Japanese learners failed to make a distinction between the two readings, accepting both readings to a similar extent, namely, 68% and 61% of the time.

In contrast to negated disjunctions, all groups showed a similar tendency in judging negated conjunctions. They accepted the conjunctive reading of negated conjunction sentences over 94% of the time. They accepted the disjunctive reading of negated conjunction sentences only 3 to 19% of the time.

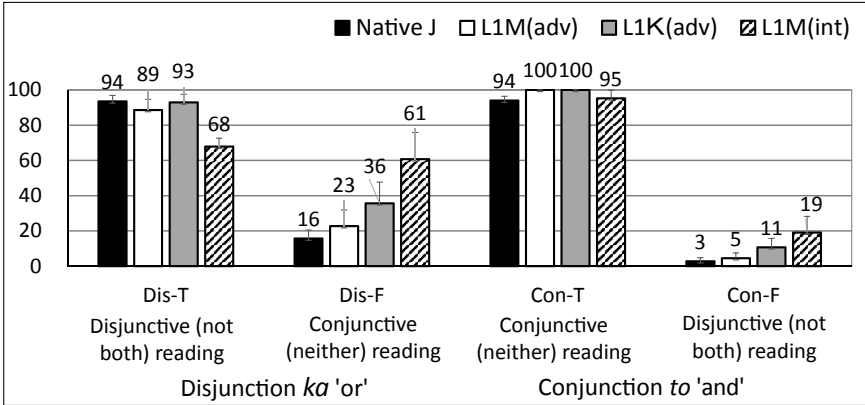


Figure 1. Mean acceptance by condition and group (%)

Note. error bars indicate standard errors of the mean

6.2. Individual results

Figure 2 presents the distribution of individual acceptance of disjunctive and conjunctive readings of negated disjunction sentences. Out of the 27 native Japanese speakers (represented by black circles in Figure 2), 21 (78%) consistently accepted the disjunctive reading at least 75% of the time (i.e., three out of four tokens) and consistently rejected the conjunctive reading at least 75% of the time (i.e., three out of four tokens). The advanced L1-Mandarin/L3-Japanese learners showed a pattern similar to that of native Japanese speakers. Out of the 11 advanced L1-Mandarin/L3-Japanese learners (represented by black squares in Figure 2), eight (73%) showed target-like responses, accepting the disjunctive reading and rejecting the conjunctive reading at least 75% of the time. In contrast, intermediate L1-Mandarin/L3-Japanese learners were less target-like than advanced L1-Mandarin/L3-Japanese learners. In fact, only two out of the seven (29%) intermediate L1-Mandarin/L3-Japanese learners (represented by white squares in Figure 2) accepted the disjunctive reading and rejected the conjunctive reading at least 75% of the time. Regarding the advanced L1-Korean/L3-Japanese learners (represented by white circles in Figure 2), four out of the seven (57%) accepted the disjunctive reading and rejected the conjunctive reading at least 75% of the time.

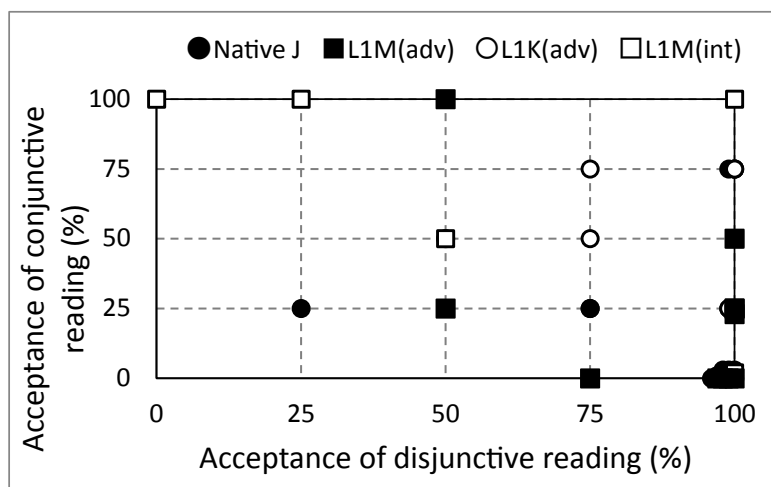


Figure 2. Individual results for negated disjunctions (distribution of acceptance of the two readings)

6.3. Effect of L2 proficiency on L3 interpretation

To clarify the effect of L2 English proficiency on L3 Japanese interpretation, the correlation between the learners' English proficiency and their acceptance of the target disjunctive reading of Japanese negated disjunction sentences was examined. Figure 3 presents the distribution of the L1-Mandarin learners' ($n = 18$) L2 English proficiency test scores and their acceptance of the disjunctive reading of L3 Japanese negated disjunction. A weak correlation ($r = 0.26$) was observed. Figure 4 shows the distribution of the L1-Korean learners' ($n = 7$) English proficiency test scores and their acceptance of the disjunctive reading of L3 Japanese negated disjunction. Little correlation was found between the two variables ($r = 0.15$).

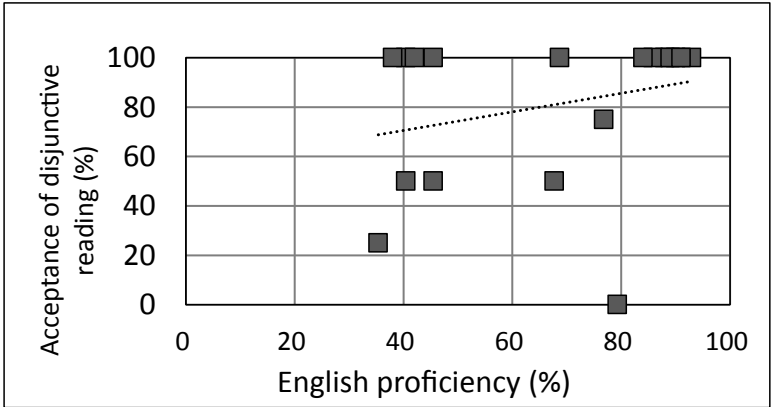


Figure 3. Correlation between acceptance of disjunctive reading of L3 Japanese negated disjunctions and L2 English proficiency (L1-Mandarin/ L2-English/L3-Japanese learners)

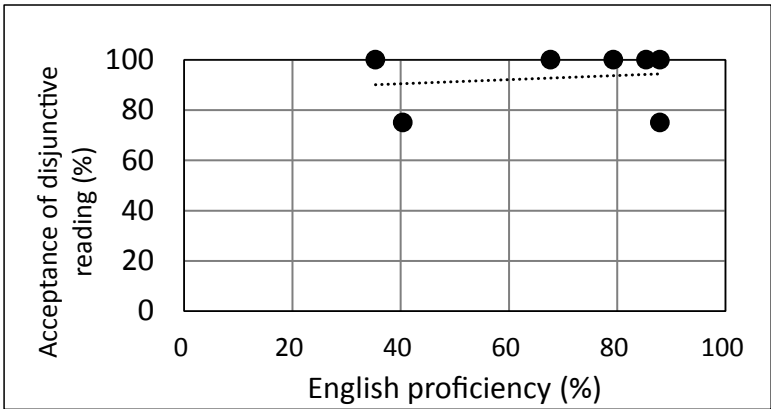


Figure 4. Correlation between acceptance of disjunctive reading of L3 Japanese negated disjunction and L2 English proficiency (L1-Korean/L2-English/L3-Japanese learners)

7. Discussion

7.1. The role of L1

This study investigated whether knowledge of negated disjunctions in the L1 influences L3 interpretation. Since negated disjunction sentences are interpreted conjunctively in English and Korean and disjunctively in Japanese and Mandarin, the following predictions were formulated in Section 4.

(i) If L1 has little influence on L3, both L3 groups are expected to interpret Japanese negated disjunction sentences in the same manner. Conversely, if L1 has

a significant influence on L3, L1-Mandarin learners are expected to interpret L3 Japanese negated disjunction sentences more accurately than L1-Korean learners.

The experimental results reported in Section 6 show that both advanced groups of L3 learners interpreted Japanese negated disjunction sentences in a manner similar to that of native Japanese speakers. Therefore, this study supports the first prediction in (i), suggesting that the influence of L1 on L3 is limited rather than significant. It follows that transfer from L1 to L3, if any, ceases at a relatively early stage of L3 development. In other words, L3 properties are acquirable even when they differ from those of the L1.

7.2. The role of L2

This study also aimed to clarify whether knowledge of the L2 influences the L3 interpretation of negated disjunctions. Regarding the role of L2, the following prediction was formulated in Section 4.

(ii) If L2 has a significant influence on L3, L3 learners would become less accurate in interpreting L3 Japanese negated disjunction sentences as their L2 English proficiency improves.

The experimental results reported in Section 6 suggest a weak, if any, correlation between learners' L2 English proficiency and their acceptance of the target interpretation of negated disjunction in L3. This does not support Prediction (ii). It follows that L2 English does not have a significant influence, and that knowledge of L2 English has a positive rather than a negative effect on L3 interpretation. This result is puzzling because English and Japanese have different interpretations of negated disjunction, and this issue is open to investigation.

7.3. Limitations of the study

This study compared the interpretations of Japanese negated disjunction sentences among three groups (i.e., L1-Mandarin/L2-English/L3-Japanese learners, L1-Korean/L2-English/L3-Japanese learners, and native Japanese speakers) and found that the advanced L3 learners showed similar interpretations as native Japanese speakers, irrespective of their L1s. Based on this result, I conclude that the influence of the L1s on L3 is limited. Moreover, I found that knowledge of L2 English appeared to have an unexpected positive, rather than a negative, effect on L3 interpretation. However, to confirm these results further, future studies should investigate the following two points:

First, it is necessary to increase the number of participants and conduct a more in-depth statistical analysis to determine whether there are significant differences among the groups. The participants in the present study were advanced learners of L3 Japanese taking daily Japanese classes at Japanese universities. To verify the L1 influence, a larger number of learners, especially

L1-Korean/L2-English/L3-Japanese learners who are beginners or intermediates in L3 proficiency, should be tested.

Second, it is crucial to examine L3 learners' interpretations of L2 English negated disjunction. This study relied only on L3 learners' L2 English proficiency test scores to investigate the effect of L2 knowledge on L3 interpretation. Future studies should employ independent tasks to measure learners' interpretations of L2 English negated disjunction. This may help to explain why the present study obtained unexpected results that the knowledge of L2 English has a positive rather than a negative effect on L3 Japanese interpretation.

8. Conclusion

The interpretation of negated disjunctions differs among languages, with English and Korean having conjunctive interpretations, and Japanese and Mandarin having disjunctive interpretations. Previous L2 studies have suggested that the interpretation of negated disjunctions is transferred from L1 to L2. However, to the best of the author's knowledge, few attempts have been made to investigate the roles of L1 and L2 in the L3 interpretation of Japanese negated disjunction. This study compared L1-Mandarin/L2-English/L3-Japanese learners with L1-Korean/L2-English/L3-Japanese learners in their interpretation of Japanese negated disjunctions. The truth-value judgment task revealed two main findings. First, both L3 learner groups with advanced L3 proficiency interpreted Japanese negated disjunction in the same way as native Japanese speakers. This suggests that transfer from L1 to L3, if any, is likely to occur at relatively early stages and to disappear at later stages of development. Second, the results showed only a weak correlation between L3 learners' accuracy and their L2 English proficiency. This suggests that knowledge of L2 English may have a positive rather than a negative effect on L3 Japanese interpretation. To confirm these results further, two points should be considered in future studies. First, a larger number of L3 learners, especially L1-Korean/L2-English/L3-Japanese learners, should be tested to verify the influence of L1. Second, independent tasks should be employed to measure learners' interpretations of L2 English negated disjunction.

References

- Crain, Stephen. 2012. *The Emergence of Meaning*. Cambridge: Cambridge University Press.
- Crain, Stephen, Amanda Gardner, Andrea Gualmini & Beth Rabbín. 2002. Children's command of negation. In Yukio Otsu (Ed.), *Proceedings of the 3rd Tokyo Conference on Psycholinguistics* (pp. 71–95). Tokyo: Hituzi Syobo.
- Goro, Takuya. 2007. *Language-specific constraints on scope interpretation in first language acquisition*. PhD dissertation. University of Maryland, College Park, USA.
- Goro, Takuya & Sachie Akiba. 2004a. The acquisition of disjunction and positive polarity in Japanese. In Vineeta Chand, Ann Kelleher, Angelo J. Rodríguez & Benjamin Schmeiser (Eds.), *Proceedings of the 23rd West Coast Conference on Formal Linguistics* (pp. 251–264). Somerville, MA: Cascadilla Press.

- Goro, Takuya & Sachie Akiba. 2004b. Japanese disjunction and the acquisition of positive polarity. In Yukio Otsu (Ed.), *The Proceedings of the 5th Tokyo Conference on Psycholinguistics* (pp. 137–162). Tokyo: Hituzi Syobo.
- Grüter, Theres, Moti Lieberman & Andrea Gualmini. 2010. Acquiring the scope of disjunction and negation in L2: A bidirectional study of learners of Japanese and English. *Language Acquisition*, 17(3), 127–154.
- Lee, Youngin. In press. How adults interpret disjunction under negation in native and nonnative Korean. In Tania Ionin & Silvina Montrul (Eds.), *New Frontiers and Connections in Second Language Acquisition*. Amsterdam: John Benjamins.
- Lee, Youngin & Bonnie D. Schwartz. 2024. The acquisition of negated disjunction in (native and) nonnative Korean. In Hayat Abdullah Ali AlThagafi & Jupitara Ray (Eds.), *Proceedings of the 48th Annual Boston University Conference on Language Development* (pp. 299–312). Somerville, MA: Cascadilla Press.
- Okuma, Tokiko. 2024. *Daisan gengo toshiten nihongo no sengensetuzokusi no kaishaku no shutoku* [Acquiring the scope of negated disjunction in Japanese as a third language]. *Ritsumenkan Studies in Language and Culture*, vol.36, no.2, 119–134. International Institute of Language and Culture Studies, Ritsumeikan University.
- Okuma, Tokiko. In press. Acquiring the scope of logical connectives and negation in Japanese as a second language. In Tania Ionin & Silvina Montrul (Eds.), *New Frontiers and Connection in Second Language Acquisition*. Amsterdam: John Benjamins.
- Sano, Tetsuya, Akari Ohba, Mayuko Yusa & Kamil Deen. 2024. Reconsidering the semantic subset principle: Japanese children do have wide scope disjunction under negation. In Hayat Abdullah Ali AlThagafi & Jupitara Ray (Eds.), *Proceedings of the 48th Annual Boston University Conference on Language Development* (pp. 441–455). Somerville, MA: Cascadilla Press.
- Slabakova, Roumyana. 2023. *Multilingual Linguistic Representations*. Second Language, 22, 25–49.
- Szabolcsi, Anna. 2002. Hungarian disjunction and positive polarity. In Istvan Kenesei & Peter Siptar (Eds.), *Approaches to Hungarian 8* (pp. 217–241). Budapest: Akadémiai Kiadó.
- White, Lydia (2003). *Second Language Acquisition and Universal Grammar*. Cambridge University Press.
- Yusa, Mayuko & Bonnie D. Schwartz. 2022. L2 reconstruction effects in negated disjunction under pseudoclefts. In Kaoru Horie, Kimi Akita, Yusuke Kubota, David Y. Oshima & Akira Utsugi (Eds.), *Japanese, Korean Linguistics 29* (pp. 291–305). Stanford, CA: CSLI Publications.

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