The Effects of the Prior Language Knowledge in Japanese Acquisition as a Foreign Language:
A case of the Japanese noun modifier “no”

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Abstract
Second/foreign language learners inevitably make errors. One recognized type of error is the developmental error, which all learners are considered to produce in the process of their language development. Another type of error is thought to be due to language transfer (LT) in which one’s prior language (L1) knowledge influences or interferes with the second language (L2) acquisition. When it interferes, it is called negative transfer (-LT). This phenomenon has been studied in the context of Japanese language acquisition. This paper focuses on the acquisition of “の” (no), a Japanese noun modifier, by Chinese, Korean and English L1 learners. Following Okuno (2005), these learners were tested in their acquisition of “no” in both instantaneous production and production without time restrictions. Given that the Chinese language contains a corresponding noun modifier “的” (de), the results showed a significant -LT in the Chinese L1 group. This and other results are discussed in the light of language transfer and developmental errors.

Keywords: Japanese language; Error; Negative Language Transfer; Developmental Error; Japanese Noun Modifier “no”

1. Introduction
Second/foreign language learners inevitably make errors. One recognized type of error is the developmental error, which all learners are considered to produce in the process of their language development. Another type of error is thought to be due to negative language transfer (-LT) in which one’s prior language (L1) knowledge interferes with the second language (L2) acquisition. This is called negative transfer (-LT). These phenomena have been studied in the context of Japanese language acquisition. In particular, -LT has been found in the use of the Japanese noun modifier “no” (の). This study aims to investigate “no” that is erroneously produced by L2 learners of Japanese with Chinese, Korean and English L1. It seeks to confirm whether the error is of a developmental nature or due to -LT.

In Japanese, nouns, true-adjectives, noun-adjectives and verbs can all modify a noun. However, “no” is only required in the case of a noun modifying a noun, as in “にゃんこ no iro” (the colour of the car). Misuses of “no” in L2 acquisition process have been observed as its overuse in the true-adjective phrase (“*chisai no inu wa kawodesu” (Small dogs are cute1)), and the verb phrase (“*neteiru no neko wa buu-chan desu” (The cat which is sleeping is Buu-chan)); as its misplacement in the noun-adjective phrase (“*sono kirei no hito wa sensei-chan.” (The beautiful person is the teacher)); and as its underuse in noun phrases (“*kuruma iro wa akadesu.” (The colour of the car is red)).

2. Literature Review and Research Questions
The misuses of “no” have been observed for decades (for example, Nagano, 1960; Clancy, 1985; Sakoda, 1999; Okuno, 2005; and Koyama, 2006). However, there are still debates as to what causes the error, i.e. whether the underlying process is due to developmental nature or the effects of prior language knowledge.

2.1 Developmental Error

1 The translation is given to show the rough meaning of the erroneous sentence. To reflect the error, one might translate the sentence into “Small’s dogs are cute.”
Early studies investigated the misuse of “no” produced by children acquiring Japanese as their first language (Nagano, 1960; Bloom, 1970; Brown, 1973; and Clancy, 1985). Other studies extended this investigation onto L2 learners acquiring Japanese. Amongst these, Shirahata (1993a, 1993b, 1994) conducted a series of studies observing this error in a Korean L1 child, a Malaysian L1 adult and a Thai L1 adult learners of Japanese. With no exception, misuse of “no” was observed in all cases. It has been concluded that despite the language background and whether Japanese is acquired as a first or second language, the error is present during the language acquisition, thus the misuse of “no” was concluded to be a developmental error in these studies.

2.2 Language Transfer

Insights of the error as a language transfer (LT) derived from two main publications, Sakoda (1999) and Okuno (2005). Extending on Shirahata’s series of studies, Sakoda (1999) investigated Chinese, Korean and English L1 learners of Japanese with various proficiency levels, beginner, intermediate and advanced by counting the number of errors made in their conversations with a Japanese interviewer. The results indicated evidence of a developmental error, whereby all participants demonstrated the misuse, however, only at the intermediate Japanese proficiency level. At the advanced, most participants showed decline in the number of errors produced, except the Chinese advanced participants who revealed little improvements. Sakoda believed that the cause for this exception is due to the conflicting rules of usage of “de” (的), the Chinese equivalent of “no”, as shown in Table 1.

Table 1. Examples of the equivalent of the noun modifier “no” for different languages.

<table>
<thead>
<tr>
<th>Language</th>
<th>Noun modified Phrase</th>
<th>True-Adjective Phrase</th>
<th>Noun-Adjective Phrase</th>
<th>Verbal phrase</th>
</tr>
</thead>
<tbody>
<tr>
<td>Japanese</td>
<td>車の色</td>
<td>小さな犬</td>
<td>きれいな人</td>
<td>Neteieru neko</td>
</tr>
<tr>
<td></td>
<td>kuruma no iro</td>
<td>Chiisai inu</td>
<td>kirei na hito</td>
<td></td>
</tr>
<tr>
<td>Chinese</td>
<td>車的颜色</td>
<td>很小的狗</td>
<td>美丽的人</td>
<td>Zai shui de mao</td>
</tr>
<tr>
<td></td>
<td>Che de yanse</td>
<td>Hen xiao de gou</td>
<td>Meili de ren</td>
<td></td>
</tr>
<tr>
<td>Korean</td>
<td>자동차의색</td>
<td>작은 개</td>
<td>예쁜 사람</td>
<td>Ja-go-in-neun go-yang-i</td>
</tr>
<tr>
<td></td>
<td>Ja-dong-cha (ui)</td>
<td>Ja-geun gae</td>
<td>Ye-ppeun sa-ram</td>
<td></td>
</tr>
<tr>
<td>English</td>
<td>colour of the car</td>
<td>A small dog</td>
<td>A beautiful person</td>
<td>The cat which is sleeping OR the sleeping cat</td>
</tr>
</tbody>
</table>

As demonstrated, the Chinese “de” can be used in cases of noun, adjective and verb precedences whilst the “no” in Japanese is used only in the case of noun precedence. For this reason, it has been claimed that there is a delay in the Chinese L1 learners completing the acquisition of the rules of usage of “no”.

However, Sakoda’s results were limited for the following reasons: the results were coded in binary (yes or no misuse) and thus the quantitative information was discarded; the cross-sectional study cannot track the change over time; and the qualitative nature of the research made it impossible to assess the significance of the data.

Inspired by Sakoda, Okuno (2005) conducted a longitudinal study as well as a cross-sectional empirical study to explore the underlying cause more thoroughly. The qualitative longitudinal study employed the Oral Proficiency Interviews (OPI), i.e. interviews held with professionally trained and qualified OPI assessors. The interviews were recorded and transcribed to determine the Japanese language proficiency and to count the number of misuse. Subjects were eleven Chinese, six English, one French, one Spanish, three German and seven Korean L1 learners on exchange in Japan. OPI was held before (pre-course) and after (post-course) university courses at two local universities in Japan. Subjects were then ranked across the proficiency levels (beginner, intermediate or advanced).
The results showed the following:

1. Beginners at pre-course (five Chinese and two English L1 learners) demonstrated little use of “no”. After achieving intermediate proficiency at post-course the misuse was observed in five of these seven students regardless of their L1.

2. Pre-course intermediate subjects (six Chinese, four English, one French, one Spanish and three German) also demonstrated the misuse. However, when they reached the advanced proficiency at post-course, more Chinese L1 learners demonstrated the misuse.

Similar to Korean and English, French, Spanish and German use the Japanese “no”-equivalent only after nouns and in the Spanish and French case, also after verbs. The results confirmed Sakoda’s results and tracked the changes over time in the misuse. Furthermore, it indicated -LT for the Chinese L1 participants at the advanced proficiency.

To provide empirical evidence for the insights gained by the longitudinal study, Okuno conducted a cross-sectional study. An OPI was first carried out to confirm the advanced Japanese language proficiency level of the thirty university students or graduates with Chinese, Korean and English L1 (ten per group). Negative LT (-LT) was examined using the Instantaneous Response Judgement Test (IRJT) created by Okuno. IRJT is a listening test that comprises of manipulated sentences that include both the misuse and the correct use of “no”. It aims to assess the subject’s language knowledge at the subliminal level by restricting the response time (RT) and increasing the cognitive load through the necessity of simultaneously processing auditory and visual information to complete the judgement of the sentences’ grammaticality.

In addition to assessing the subliminal knowledge, the conscious knowledge was also assessed using the written version of the IRJT, namely the Self-Paced Written Test (WT), whereby the auditory component and the time restriction of the IRJT were removed. WT aims to verify that subjects have acquired all relevant language knowledge and all abilities necessary to identify and correct the misuse of “no” on paper.

The Chinese L1 learners demonstrated a significant difficulty in recognising the misuse in the verbal phrase category of the IRJT compared to their Korean counterparts. This was despite the same level of correctly acquired conscious language knowledge of the grammar that was reflected in the WT results. No difference was found amongst the performance of the Chinese and English L1 group. These results provide some empirical evidence for –LT for the Chinese L1 group.

However, there are a few limitations to this study. Firstly, empirical evidence from one study is insufficient to suggest -LT, not the developmental processes, as the main cause of the misuse. Furthermore, -LT should be assessed in consideration of the following: 1) intra-group homogeneity, 2) inter-group heterogeneity and 3) similarities between the native language [or and prior language] and interlanguage performance (Ellis, 2008, p. 352). Okuno’s study did not reveal inter-group heterogeneity between the Chinese and English groups, and did not find -LT in the adjectival phrase despite that Chinese also utilises “de” following an adjective, (See Table 1). Lastly, Okuno and Sakoda’s studies were conducted in Japan on subjects who had lived in Japan for at least six months at the time of participation and have no other prior language knowledge apart from their mother-tongue and Japanese.

2.3 Research Questions

Thus, the current study firstly aims to investigate the misuse of “no” by Chinese, Korean and English L1 learners of Japanese to determine whether -LT underlies the misuse by replicating Okuno’s study using a sample outside of Japan. The major difference between this study and the original is that the participants in this study are studying at an Australian university using English. This means Chinese and Korean L1 learners in the new study are also functionally fluent in English. This provides an advantage of using English as the common language of research in conducting experiments. The second aim is to assess whether the misuse by Chinese L1 advanced learners of Japanese is prominent in all four categories. Lastly, the results from the current study will then be contrasted to the original. Based on the above aims, the research questions of interest are as follows:
1. Does the advanced Chinese L1 group perform statistically significantly poorer in recognising the misuse of “no” in all four categories, as compared to the advanced Korean L1 and English L1 groups?

2. If poorer performances are observed, are there any patterns in how errors occur?

3. If poorer performances are observed, are they due to the participants having not acquired and/or cannot apply the relevant grammar knowledge of “no”?

4. Are these results different from the results of Okuno (2005)?

3. Methodology

3.1 Design

This study employs a 3 x 4 design. The independent variables are the subjects’ L1 (i.e. Chinese, Korean, or English) and the four categories of misuse of “no”, i.e. the omission of “no” after nouns (noun modified phrase), the additional “no” after true-adjectives (true-adjective phrase), the additional “no” after verbs (verbal phrase) and misplacement of “no” for “na” in noun-adjective phrases. The dependent variables are the number of correct use and the number of misuse of “no” correctly judged in the IRJT and WT.

3.2 Participants

Twenty-three current students and graduates of two universities in Metropolitan Sydney who were enrolled in or have completed advanced level of Japanese courses, that are equivalent to Level 2 or above of the Japanese Language Proficiency Test (JLPT), were recruited to participate in this study. The level of proficiency was confirmed by the Simple Performance-Oriented Test (SPOT) (Ford-Niwa, Kobayashi & Yamamoto, 1996). The participants were nine Chinese L1 learners, five Korean L1 learners, and nine English L1 learners of Japanese.

3.3 Instruments

Three testing instruments and a questionnaire were employed. SPOT is a simple listening test that requires participants to fill in the missing hiragana character, one of the basic Japanese syllabic scripts, as indicated by the “( )” as shown in Example 1.

Example 1. たなか さん はもう す ごく来る（   ）ずです。

Lit. “Tanaka Mr [particle] very soon come (should) is”

SPOT comprises of 10 practice and 60 test questions. All kanji (Chinese characters) are accompanied by hiragana as above.

Okuno’s Instantaneous Response Judgement Test (IRJT) was used as the second listening test. IRJT assesses the subjects’ subliminal Japanese language knowledge or the better learnt knowledge by demanding instantaneous responses to auditory cues in the restricted time-frame.

IRJT consists of two sections each with 40 questions totalling to 80 questions. Twenty-nine questions were manipulated to consist of the “no” misuse and 32 questions of the correct use. The 29 manipulated questions and the 32 correct use questions were further divided into the four categories of true-adjective, noun-adjective, verb and noun modified phrases, as shown in Table 2.
Table 2. The number of questions per category in the IRJT.

<table>
<thead>
<tr>
<th>Categories</th>
<th>True-adjective phrase</th>
<th>Noun-adjective phrase</th>
<th>Verbal phrase</th>
<th>Noun modified phrase</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Misuse of “no”</td>
<td>8</td>
<td>5</td>
<td>11</td>
<td>5</td>
<td>29</td>
</tr>
<tr>
<td>Correct-use of “no”</td>
<td>7</td>
<td>5</td>
<td>10</td>
<td>10</td>
<td>32</td>
</tr>
</tbody>
</table>

Below are examples of the above eight categories: the misuse of “no” in the true-adjective (Example 2), noun-adjective (Example 3), verbs (Example 4) and noun modified phrase (Example 5), and the correct use of “no” in the true-adjective (Example 6), noun-adjective (Example 7), verbs (Example 8) and noun modified phrase (Example 9).

Example 2. 彼の方が、正しいような気がしてきた。

Kare no hō ga, tadashi no yō na ki ga shitekita.

Answer: ✗ (Remove “no”)

Example 3. 冷静の行動をみて、安心しました。

Reisei no kōdō o mite, anshin shimashita.

Answer: ✗ (Replace “no” with “na”)

Example 4. 今来ている人は彼女ではありません。

Ima kiteiru no hito wa kanojo dewa arimasen.

Answer: ✗ (Remove “no”)

Example 5. 日本にきて、外国人友達をたくさんつくりました。

Nihon ni kite, gaikokujin tomodachi o takusan tsukurimashita.

Answer: ✗ (Insert “no”)

Example 6. 外国で、新しい仕事をみつけようと思います。

Gaikoku de, atarashii shigoto o mitsukeyō to omoimasu.

Answer: ○ (Correct as is)

Example 7. 中国では、これは正月の特別な食べ物です。

Chūgoku de wa, kore wa shōgatsu no tokubetsu na tabemono desu.

Answer: ○ (Correct as is)

Example 8. 駅のホームで電車を待っている人が大勢います。

Eki no hōmu de densha o matteiru hito ga ōzei imasu.
Answer: ○ (Correct as is)

Example 9. この本は、母のために買いました
Kono hon wa, haha no tame ni kaimashita.
Answer: ○ (Correct as is)

In IRJT, the target section requiring judgement is not printed on the test page, as shown in Example 10, to increase the dependence on subliminal knowledge. The Romanization is not provided in the test.

Example 10. 彼の方が、________________気がしてきた。( )

Participants were instructed to mark grammatically incorrect sentences with “×” and correct sentences with “○” in the bracket, as they listened to the cues. One point was given per correct answer.

The last testing instrument is the written version of the IRJT, the Self-Paced Written Test (WT). The participants were given the 80 questions on paper without any audio cues and relying only on visual cues to increase the use of conscious language knowledge for grammar judgements. The questions were presented without missing parts as shown below.

Example 11. 彼の方が、正しいのような気がしてきた。( )

Again, the participants were to mark “×” or “○” accordingly. A correction was also required for questions marked as incorrect. One point was given for correct answers per question with the appropriate corrections.

The questionnaire was created to gather subjects’ language background, their history of Japanese language studies and their frequency and level of use of their acquired languages.

3.4 Procedures
Firstly, participants read and signed the UNSW ethics consent form and were subsequently assigned the SPOT test. SPOT takes approximately 6 minutes.

IRJT was then assigned after a short break. This test takes approximately 15 minutes. At the completion of the IRJT, the WT was assigned when the participants were ready. WT is a self-paced test, thus participants took between 10 minutes to one hour to complete the test. All instructions for test instruments were provided both in Japanese and English on the paper and explained verbally in either language according to the participants’ preference along with explanations of the examples when applicable. Lastly, the questionnaire was completed at the conclusion of WT.

4. Results
Statistical package SPSS 20 was used to analyse obtained data. Multiple t-tests were applied as the method of analysis due to the small sample size in conjunction with a one-way ANOVA F-test to control for error rates. Only the verbal category misuse recognition score in the IRJT ($F(1,20) = 7.28, p < .005$) had controlled error rates of $p < .05$.

As indicated by Figure 1, the Chinese L1 learners performed statistically significantly worse than Korean, English and Japanese L1 speakers in the verb category recognition of the IRJT. There were no differences between other categories of the misuse.

Figure 1. The mean scores of correctly recognized misuse of “no” per category for the four L1 groups in the IRJT
Within group comparisons were also made on the performance of the verb category by the Chinese L1 learners in the misuse and correct use recognition in the IRJT and the misuse and correct use recognition in the WT as shown in Table 3.

Table 3. The statistical differences between the “no” use recognitions in the verb category by Chinese L1 learners

<table>
<thead>
<tr>
<th>Recognition Type</th>
<th>Misuse Recognition</th>
<th>Correct Use Recognition</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Test Instrument</td>
<td>IRJT</td>
</tr>
<tr>
<td>Misuse Recognition</td>
<td>IRJT</td>
<td></td>
</tr>
<tr>
<td></td>
<td>WT</td>
<td>*3.29</td>
</tr>
<tr>
<td>Correct Use Recognition</td>
<td>IRJT</td>
<td>*2.76</td>
</tr>
<tr>
<td></td>
<td>WT</td>
<td>*3.37</td>
</tr>
</tbody>
</table>

* = significant at $p < .001$
Scores calculated by subtracting the scores of the two results

The Chinese L1 learners’ performance on the verbal phrase misuse recognition in the IRJT is significantly worse than their correct use recognition in the same test instrument, and both misuse and correct use recognition in the WT.

5. Discussion

Inspired by Okuno’s studies, the current study sought to confirm whether the misuse of “no” was due to the effects of -LT by investigating the Chinese, Korean and English L1 learners of Japanese in Australia. Furthermore, if -LT was found, it aimed to verify whether it was only found in a certain category.

Addressing the first two research questions, the significantly poorer performance of the Chinese L1 learners relative to their Korean and English counterparts, as well as their significantly poorer performance in the misuse recognition only in the IRJT demonstrates -LT at work. In addition, this effect is only specific to the verbal category misuse recognition.

As shown in Table 1, Chinese language demands the “no” equivalent, “de”, in all four grammatical categories. However, this study found the effects only in the case of the verb precedence which was also found in the previous study. This may be explained by the non-compulsory nature of “de” in the Chinese adjectival phrases. While on one hand, adjectival
phrases, such as “美丽的人” (Mei li de ren) “a beautiful person” or “很小的狗” (Hen xiao de gou) “a very small dog” necessitate the use of “de”, others do not, e.g. “小狗” (Xiao gou) “A small dog”. In comparison to the adjectival phrase, a “de” is compulsory in verbal phrases. For this reason, the knowledge of the compulsory “de” may have impacted on the Chinese L1 learners, and caused them to use “no” more in the case of the verbal phrase than in the case of adjectival phrase.

Addressing the third research question, although the evidence so far suggests the effects of LT, there are alternative explanations for the observed results. Firstly, as demonstrated in Sakoda (1999), the misuse appears as a developmental error for learners at the intermediate proficiency and declines as learners advance. However, conflicting features between the native language (or prior languages) and the target language may potentially hinder the progress of development (Yamakoka, 1997). Thus, these affected learners, Chinese L1 learners in this case, may not have reached the level of acquisition at the advanced level. If this is the case, then the effects of prior language knowledge may not only directly influence the language production, but also the developmental process. In other words, it may be worthwhile to consider developmental error with LT rather than as separate matters.

Secondly, as the nature of the IRJT (listening test) and the WT (written test) vary, the two require different cognitive processes to complete. The sufficient thinking time that is provided in the WT allows for reference to the conscious knowledge, whilst the lack of time in IRJT demands for automated knowledge or automation, the rapid and attention-free processes achieved after numerous practices. Thus, the poorer performance of the Chinese L1 learners found only in the IRJT may suggest that the acquired grammar knowledge of “no” has simply not been automated yet and require some level of conscious thinking.

Thirdly, as demonstrated by a neuro-imaging study (Jeong, 2007), the cognitive load in Japanese auditory sentence comprehension posed onto Chinese learners of Japanese, are higher relative to their Korean counterparts. The reason was suggested to be due to the language distance of the Lp and the TL. As Korean and Japanese are more similar, Korean L1 learners can rely on their L1 more and thus require less brain activation in their comprehension in comparison to the Chinese L1 speakers. Higher cognitive load has been suggested to affect the accuracy of speech recognition on the phonemic level (Mattys & Widget, 2011) In short, the Chinese L1 learners may have been disadvantaged due to the potentially higher cognitive load posed on them as they completed the tests. Thus, the current study might not have provided concrete evidence and further investigations may be necessary to confirm the underlying cause of the error.

In summary, addressing the fourth research question, this study found that the Chinese L1 learners’ performance in the verbal phrase category misuse recognition verifies Okuno’s original study, but as the English L1 learners also performed significantly better it may not suggest +LT in the Korean L1 learners. As there were no differences in the relative performances of Chinese to Korean L1 participants, the English L2 may not have posed any potential effects on their recognition of “no”. This may be due to that English does not have one term that is semantically equivalent to “no”, or the Chinese and Korean L1 participants may have seen their mother-tongue as a closer language to Japanese than English, thus more likely to associate their L1 and Japanese and to “transfer” their L1 knowledge. However, more research is required to clarify this reasoning.

6. Concluding Remark

As this study is one of the initial attempts to empirically assess the misuse of “no”, it has a few limitations. Firstly, the small sample size is insufficient for a high level quantitative analysis and to make reliable inferences. Secondly, this study did not investigate the effect of the learners having third or fourth languages. This may have potentially affected the results. Thirdly, the IRJT as the main instrument used to assess -LT is problematic. IRJT does not allow for the pinpointing of the ungrammaticality, i.e. simply marking the sentence as incorrect disregards the information of “where” the participants believe the incorrect grammar lies. Lastly and most importantly, a
difficulty in recognising the misuse (speech recognition) does not indicate the production of the error by the participants (speech production).

Thus, further studies should consider the above issues in planning their experiments. Future researches may take into consideration the limitations of the IRJT and employ additional components to overcome it, such as asking participants to provide verbal responses for why the sentences were judged as grammatically incorrect between test questions. An alternative may be presenting the sentences on screen with the “no” particle requiring determination of grammaticality underlined and measuring the reaction time (RT) needed per judgement. The RT then could be compared across the independent variables. It may also be necessary to collect conversational data to confirm the misuse production by participants.

References


