

## Acquisition of Japanese Relative Clauses with Resumptive Pronouns by Chinese Learners\*

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### Abstract

This study examined the use of Japanese resumptive pronouns (RPs) by L1 Chinese learners of Japanese to determine whether learners transfer L1 structural properties of RPs to L2 Japanese grammar and whether they acquire the uses of the four different RPs in Japanese. Using a grammaticality judgment task varying: 1) Position (subject/object), 2) Clause (matrix/embedded), and 3) RP type (*gap*, *kare/kanojo*, *jibun*, *jibun-jishin*, or *kare/kanojo-jishin*), the study assessed 34 L2 learners with Chinese L1 and 30 Japanese native speakers. First, the L2 learners showed only matrix and embedded asymmetry for the use of RPs but not subject and object asymmetry, whereas Japanese natives showed both asymmetries. Second, the L2 learners were unable to distinguish among Japanese RPs, whereas Japanese natives could. The finding of the asymmetries observed in subjects and objects holds interesting implications for future research.

### Key words

Resumptive pronouns, relative clauses, Chinese learners of Japanese, second language acquisition

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## 1. Introduction

This study examined the use of Japanese resumptive pronouns (RPs) by L1 Chinese Japanese learners. Consider a typical example of the Chinese RC in (1).

- (1) [RC nanren mai le  $e_i$ ] de [NP shu]<sub>i</sub> ( $e$  = gap)  
 man buy PAST DE book  
 ‘the man who bought a book’ (Chen 2019:159, slightly modified)

The object position in the Chinese RC is the gap, represented as  $e$ , and it corresponds to the external head NP. This characteristic is also found in the Japanese RC given in (2) below.

- (2) [RC John ga kinoo  $e_i$  mita] [NP shasin]<sub>i</sub> ( $e$  = gap)  
 John NOM yesterday saw picture  
 ‘the/a picture that John saw yesterday’ (Fukui and Nakano 2000:230, slightly modified)

However, in both languages, pronouns are used instead of gaps, generally called RPs. RPs are pronouns that occur in relative clauses where a gap would otherwise occur (McCloskey 2006).

- (3) Zhangsan<sub>i</sub> renwei [[RC ai  $ziji_{j/i}$  de qizi de] [NP Lisi]<sub>j</sub>] hen congming].  
 Zhangsan thinks love self DE wife DE Lisi very smart.  
 ‘Zhangsan thinks that the Lisi who loves his own wife is smart.’  
 (del Gobbo 2005:300, slightly modified)

In (3), *ziji* ‘self’ is used as the RP. Chen (2019) argues that different structures are derived depending on whether an RP is used in Chinese, but not in Japanese. Additionally, while there is only one candidate RP, *ziji*, in Chinese, there are four different types of RPs in Japanese. Consider the examples of Japanese RPs shown in (4) and (5).

- (4) [RC  $sore_i$  o kiku to daremo ga shiawaseni naru] [NP hanashi]<sub>i</sub>  
 it ACC hear when everyone NOM happy become story  
 ‘the story that everyone becomes happy when they hear it’  
 (Tonoike 2019:283, slightly modified)

- (5) [RC watakushi ga  $kare_i$  no namae o wasuretesimatta] [NP okyaku-san]  
 I NOM he GEN name ACC forgot guest  
 ‘a guest whose name I have forgotten’ (Kuno 1973:237, slightly modifying)

While there are similarities shown in (1) and (2), there are structural differences between Chinese and Japanese RCs in terms of head properties. As will be discussed in detail in Section 2, the structure of the head status in Chinese RCs differs depending on the use of RPs, while this difference does not appear in Japanese RCs. Another cross-linguistic difference is the number of RPs. As mentioned above, *ziji* is used as an RP in Chinese; however, there are four RPs in Japanese. This paper focuses on the following two points: (i) the issue of the transfer of L1 Chinese to L2 Japanese and (ii) the mapping issues in the use of RPs. The purpose of this study is to observe a cross-linguistic difference in the use of RPs between L1 Chinese and L2 Japanese, and to identify the barriers in acquiring Japanese RPs.

This paper is organized as follows. Sections 2 and 3 discuss the structural issues of the head status of RPs and the mapping issues of RPs. In Section 4, the procedure and materials of this experimental study are described, and Section 5 shows the results of the experiment. Based on these findings, Section 6 discusses issues regarding the structural differences between Chinese and Japanese and the variety of Japanese RPs. Finally, Section 7 provides concluding remarks.

## 2. Structural issues of the head status of relative clauses

This section provides an overview of RC structures. The status of the head NP in the RC has been analyzed in two ways: the head-base-generation analysis (HBG)<sup>1</sup> and head-raising analysis (HR). HBG is a set of pro-binding and operator movement analyses that assumes that the head NP is base-generated. In contrast, HR assumes that the head NP, which is external to the RC, is raised from within the RC.

The Chinese RC is distinguished in two ways: HBG with RPs and HR without RPs (Aoun and Li 2003; Chen 2019). Based on the observation that there is no subject/object or matrix/embedded asymmetry in the use of Chinese RPs, Chen compared the differences in subject and object position and in simple RCs and embedded RCs for Chinese NPs, especially for Cantonese RPs. Chen's experiment asked 32 participants, Chinese native speakers, to judge the acceptability of Chinese sentences on a seven-point Likert scale. The results showed no subject/object and matrix/embedded asymmetries in the use of RP.

Chen (2019) assumed that the structure of Japanese RCs is HBG for RCs with and without RPs, which is a set of pro-binding and operator movement analyses.<sup>2</sup> To determine which hypothesis is more accurate, Chen focused on the anaphor *jibun* within the head NP and conducted an experimental study with *jibun* and *jibun-jishin* regarding the degree of morphological complexity. His prediction was that if the anaphors can be bound by the RC subject, then the head NP must be raised from within the RC, and reconstruction of the head NP should be possible. One of the materials used in his experiment is, for example, “Daisy ga Mickey ga *e* aratta *jibun* no booshi o yogoshita (‘Daisy stained self’s hat that Mickey washed’).” In this sentence, the hat belongs to *Daisy*, not *Mickey*, so *jibun* is co-indexed with the matrix subject. In other words, the anaphor does not take the RC subject as its antecedent. This result is also seen for the complex anaphor *jibun-jishin*. Chen concluded that a subject-oriented anaphor cannot take the RC subject as its antecedent, regardless of its morphological complexity. This means that the head NP of Japanese RCs does not reconstruct into the RC at LF, which in turn supports HBG.

## 3. Mapping issues of RPs

As observed in Section 2, there is a structural difference in the head status of RCs in Chinese and Japanese. The learning task of Chinese learners of Japanese is to adapt to the new structure of Japanese RCs. In acquiring Japanese RCs, it is necessary to map the L1 gap/RP to that of L2 in acquiring Japanese RCs. Moreover, according to Chen (2019), there is a difference in the number of RPs between Chinese and Japanese. The only candidate is *ziji* in Chinese, whereas four different types of RPs are available in Japanese (*jibun*, *jibun-jishin*, *kare/kanojo*, and *kare/kanojo-jishin*).

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<sup>1</sup> The property of the empty category differs according to the specific analyses. While it is a null pronoun in the pro-binding analysis, it is a null operator in the operator movement analysis. In the case of the pro-binding analysis, there is no movement assumed.

<sup>2</sup> The structural analysis of Japanese RCs proceeds in three ways: pro-binding (Fukui and Takano 2000), operator movement (Ishii 1991), and head raising (Hoshi 2004). Chen (2019) did not conclusively decide on a specific analysis of HBG.

There is a one-to-many mapping relationship between Chinese and Japanese RPs. The mapping-related question is how Chinese learners of Japanese learn so many Japanese RPs. Chen (2019) attempted to relate *ziji* with *jibun/jibun-jishin* in analyzing the question. This paper includes pronouns such as *kare/kanojo* and *kare/kanojo-jishin*, which were not investigated in Chen.

Chen assumes that the difference between *jibun* and *jibun-jishin* lies only in a morphological complexity. On the other hand, he also argues that these are similar in that both *jibun-jishin* and *kare/kanojo-jishin* have the same morpheme *-jishin*. However, there are some notable syntactic differences between the properties of *jibun-jishin* and *kare/kanojo-jishin*. For example, *jibun-jishin* can take QP *daremo* ‘everyone’ as its antecedent, while *kare/kanojo-jishin* cannot. Here, (6) and (7) are examples of *daremo*:

- (6) Daremoga *jibun/jibun-jishin* o hihanshita.  
 everyone NOM self/self-self ACC criticized  
 ‘Everyone criticized self/self-self.’
- (7) \*Daremo ga *kare-jishin/kanojo-jishin* o hihanshita.  
 everyone NOM himself/herself ACC criticized  
 ‘Everyone criticized him/herself.’

(Aikawa 2002:178)

#### 4. Experimental study

Based on previous observations, a central question in this study is whether Chinese learners of Japanese transfer L1 RP structural properties to L2 grammar. We established two research questions: RQ1) Are the subject/object and matrix/embedded asymmetries observed for the use of Japanese RPs?; and RQ2) do Chinese learners of Japanese map the four different Japanese RPs onto the Chinese RP?

In the experiment, a grammaticality judgment task scored on a five-point Likert scale was conducted with 34 Chinese participants (30 from China, 2 from Taiwan, and 2 from Inner Mongolia) and 30 native Japanese controls. The average age of the Chinese participants was 24.7 (Max = 40, Min = 20), and all of them scored N1 and N2 on the Japanese Language Proficiency Test. It is assumed that N1/N2 of JLPT corresponds to B1/B2 of CEFR, which is generally recognized as an intermediate level. There were 16 participants who had been abroad in Japan and 16 who had never been abroad anywhere. Their average length of time learning Japanese was 4.85 years (Max = 20, Min = 1). All recruitment and explanation of the experiment were provided online. One between-factor was set as Nationality (Chinese/Japanese controls), and three within-factors were established for the material: (i) Position (subject/object), (ii) Clause (matrix/embedded), and (iii) RP type, including gap (*gap*, *kare/kanojo*, *jibun*, *jibun-jishin*, or *kare/kanojo-jishin*). Three tokens were prepared for each condition, and participants were asked to respond to a total of 100 sentences, that is, 60 stimulus sentences and 40 filler sentences. All tests were conducted online, and the data were collected using Microsoft Forms. Examples of the materials are given here for subject/matrix and object/embedded conditions (See Appendix for further examples of the material).

(8) condition: subject/matrix

(*e*, *kare/kanojo*, *jibun*, *jibun-jishin*, *kare/kanojo-jishin* *ga*) *ten-in*  
 he/she myself myself-self himself/herself NOM cashier  
 o osotta han-nin ga soko ni iru.  
 ACC attacked criminal NOM there LOC is  
 ‘The criminal that (*e*, he/she, myself, myself-self, himself/herself) attacked the cashier is there.’

(9) condition: object/embedded

Catherine *ga* (*e*, *kare/kanojo*, *jibun*, *jibun-jishin*, *kare/kanojo-jishin*  
 Catherine NOM he/she myself myself-self himself/herself  
 o) *shidoushita to shuukanshi ga sawaideita*  
 ACC mentored that newspaper NOM was making a fuss about  
*dansei ga soko ni iru.*  
 man NOM there LOC is.  
 ‘The man whom the newspaper was making a fuss about that Catherine mentored (*e*, he/she, myself, myself-self, himself/herself) is there.’

## 5. Results

Analysis of variance (ANOVA) was conducted to analyze the data. The main effects of both Position and Clause were significant ( $F(1, 62) = 19.788$ ,  $***p < .000$ ;  $F(1, 62) = 26.698$ ,  $***p < .000$ , respectively). The interaction between Nationality and Position was not significant, but that between Nationality and Clause was ( $F(1,62) = 0.660$ ,  $p = .420$ ;  $F(1,62) = 17.110$ ,  $***p < .000$ , respectively). The comparison showed that a significant difference was not observed for Position for Chinese learners. The result of the interactions and subsequent comparison is shown in Figure 1.

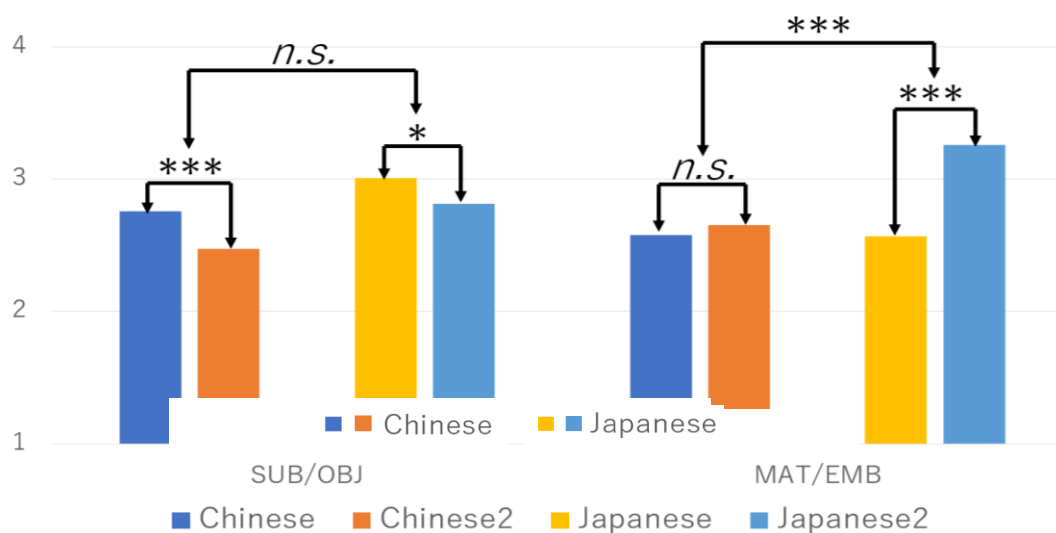


Figure 1: Results of interactions and subsequent comparisons

Table 1. Statistical results for resumptive pronouns

		<i>gap</i>	<i>kare/kanojo</i>	<i>jibun</i>	<i>jibun-jishin</i>	<i>kare/kanojo-jishin</i>
<b>Chinese Learners</b>	<i>M</i>	3.617	2.435	2.454	2.355	2.210
	<i>SD</i>	1.039	1.000	1.107	1.025	1.013
<b>Native Controls</b>	<i>M</i>	4.177	2.847	2.654	2.357	2.518
	<i>SD</i>	0.902	1.045	1.305	1.027	1.042

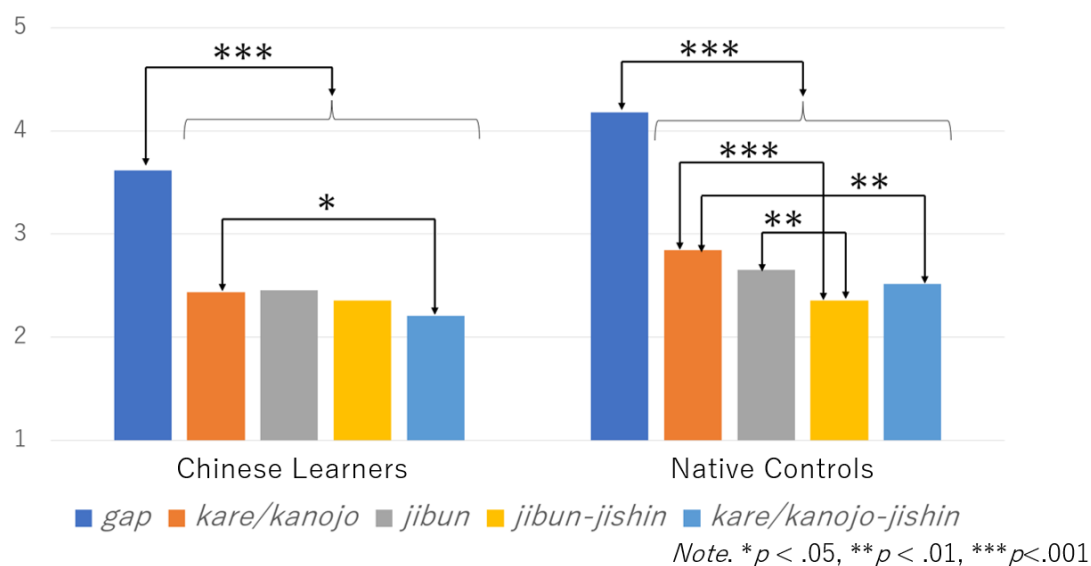


Figure 2: Average grammaticality judgment scores of resumptive pronouns

Second, the crucial point of this experiment is the variation in RPs. The statistical results of the RPs are illustrated in Table 1 and Figure 2 given above. Both Chinese learners and Japanese control groups showed significance for RPs ( $F(4,33) = 65.008$ , \*\*\* $p < .000$ ;  $F(4,29) = 86.375$ , \*\*\* $p < .000$ , respectively). However, native controls had a difference in almost every combination among the four RPs and gap, but Chinese learners did not, except that for *kare/kanojo* and *kare/kanojo-jishin* as shown in Figure 1. These observations indicate that Chinese learners of Japanese do not show a significant difference among RPs like native controls do, and Chinese learners have difficulty choosing appropriate Japanese RPs.

## 6. Discussion

This section discusses three points based on the experimental results. First, Chinese learners of Japanese showed matrix/embedded asymmetry, but not subject/object asymmetry. Previous studies have shown that asymmetry is not observed in the use of Chinese RPs (Chen 2019). In contrast, native Japanese controls showed both types of asymmetry. If L1 transfer occurs in L2 Japanese based on the structural property of RPs, the question arises as to why Chinese learners acquire new knowledge of the clausal property of L2 Japanese RPs. General issues in Second Language Acquisition, such as UG access, interface, and mapping, will be a relevant research topic to answer this question. So far, this study has neither set any specific positions as to how they

acquire new knowledge of the clausal property of L2, nor examined learners' acquisition of the binding properties of L2 Japanese. The asymmetry of Chinese learners of Japanese is, we speculate, due to the fact that they might have applied Chinese *ziji* to all Japanese RPs, regardless of their respective pronominal properties. It might be possible that L1 knowledge has been applied directly to Japanese; however, further examination of the acquisition process is necessary. Moreover, we need to revisit the structural differences in head status between Chinese and Japanese. In Section 2, these observations suggest that Chinese learners of Japanese will acquire HBG with RPs more easily than HBG without RPs in Japanese RCs. The results of this experiment then might stem from this structural difference in languages.

Second, in Figure 1, while native controls showed a significant contrast in almost every combination among the four RPs and gap, Chinese learners did not show a clear difference among the four types of RPs.<sup>3</sup> This means that Chinese learners overuse *ziji* for Japanese RPs. We speculate that Chinese learners map four types of Japanese RPs onto one Chinese counterpart, *ziji*. However, there is a significance between *kare/kanojo* and *kare/kanojo-jishin* as given in Figure 2 above. As to this finding, we suggest that Chinese learners were able to distinguish pronouns and reflexives in L2 because pronouns and reflexives are also present in their L1. Thus, it might be possible to argue that their L1 knowledge influenced the results. However, this study did not conduct any validation on this score, so this is an issue for the future.

Third, *jibun* and *jibun-jishin* show significance in Figure 1. Native controls distinguish between *jibun* and *jibun-jishin*, contrary to the results of Chen's experiment. This means that the difference between *jibun* and *jibun-jishin* is not just one of morphological complexity. A possible reason why this experiment and Chen's experiment yielded different results is that Chen used genitive RPs in all of his materials, while this experiment used subject and object RPs. Although it is not certain that genitive RPs do not distinguish morphological complexity, it is possible that this difference lies in the experimental design between this experiment and Chen's experiment.

## 7. Concluding remarks

This study established one central question and two research questions. For RQ1, in Japanese RCs, the subject/object and matrix/embedded asymmetries both showed significance in the use of Japanese RPs. These results are contrary to those of the Chinese studies. For RQ2, Chinese learners of Japanese mapped the four different Japanese RPs to the Chinese RP. Chinese learners of Japanese were not able to distinguish the differences among the RPs of Japanese. As a central question, Chinese learners of Japanese partially transfer their L1 RP structural properties to L2 grammar, such that Chinese learners of Japanese transfer the L1 positional structure to L2, but not the L1 clausal structure, which means that they learn new knowledge of the clausal property of L2 Japanese RPs.

The finding of matrix/embedded asymmetries holds interesting implications for future research, suggesting, for example, employing transferability and learnability issues of clausal properties and a bidirectional study to predict acquisitional difficulty more accurately. Transfer and mapping factors, in addition to structural factors such as head status based on HBG/HR

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<sup>3</sup> In a personal communication, Jun Wang introduced me to a paper related to some cases of pronouns as RPs in Chinese (Yang 2016). I would like to express my deepest gratitude to her. In focusing on the mapping between Japanese and Chinese RPs, this paper will follow Chen (2019) and proceed with the argument based on the assumption that Chinese RPs are *ziji*. In addition, as, according to Dillon et al. (2016), *pronoun + ziji* exists in Chinese (e.g., *wo-ziji*, I-self; *ta-ziji*, he-self), it may be possible to learn the distinction if the Japanese HBG without RP structure is mastered correctly.

analyses, are highly relevant to the issues of RP use in L2 acquisition. Moreover, we need to examine how to acquire another language like English, which has syntactic properties different from RCs. English RPs have a syntactically different structure than either Japanese or Chinese RPs, and furthermore, there is much debate about the use of RPs and their functional role. Looock (2007) and Loss and Wicklund (2020) argue that English RPs are often used in non-restrictive relative clauses, as well as to ameliorate island violations in restrictive relative clauses.

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## Appendix

### Materials in this study

Conditions	Examples
Subject/matrix	店員を襲った犯人がそこにいる 彼が店員を襲った犯人がそこにいる 自分が店員を襲った犯人がそこにいる 自分自身が店員を襲った犯人がそこにいる 彼自身が店員を襲った犯人がそこにいる
Object/matrix	私がかつて愛した女性がそこにいる 私が彼女をかつて愛した女性がそこにいる 私が自分をかつて愛した女性がそこにいる 私が自分自身をかつて愛した女性がそこにいる 私が彼女自身をかつて愛した女性がそこにいる
Subject/embedded	可愛がっていた犬が死んでしまったこどもがそこにいる 彼女が可愛がっていた犬が死んでしまったこどもがそこにいる 自分が可愛がっていた犬が死んでしまったこどもがそこにいる 自分自身が可愛がっていた犬が死んでしまったこどもがそこにいる 彼女自身が可愛がっていた犬が死んでしまったこどもがそこにいる
Object/embedded	キャサリンが指導したと週刊誌が騒いでいた男性がそこにいる キャサリンが彼を指導したと週刊誌が騒いでいた男性がそこにいる キャサリンが自分を指導したと週刊誌が騒いでいた男性がそこにいる キャサリンが自分自身を指導したと週刊誌が騒いでいた男性がそこにいる キャサリンが彼自身を指導したと週刊誌が騒いでいた男性がそこにいる