1. Introduction

This study investigates L2 acquisition of bound variable interpretations of Japanese demonstrative pronouns (so-series DPs) by adult L1 English speakers. It is known that overt pronouns cannot take a bound variable interpretation in null subject languages (the Overt Pronoun Constraint in Montalbetti, 1984). For example, Spanish overt pronouns cannot be bound by quantified antecedents where null and overt alternation occurs. Similarly, Japanese overt pronouns (e.g. kare ‘he’) cannot take a bound variable interpretation, irrespective of the availability of null/overt alternations. However, if Japanese pronominal expressions are closely observed, the Overt Pronoun Constraint is not necessarily accurate. Japanese so-series DPs, including sono ‘(of) that’, indeed have a bound variable interpretation, as in (1) (Hoji, 1991; Noguchi, 1997; Kurafuji, 1998).

(1) Dono titiyo-sa-mo kare-no/sa/sono-no/zibun-no/pro/i/j/itibansita-no musume-o kawaigaru
   Every father-Par he-Gen/that/self-Gen/pro            youngest-Gen daughter-Acc  love/take care of
   ‘Every father, loves his*thati/j/thati/j/self*pro youngest daughter.’

In Japanese language classrooms, sono is introduced as a medial demonstrative, an equivalent to that in English, and the bound variable use of sono is not taught. The English demonstrative that generally does not allow a bound variable interpretation, with some exceptions. Therefore, it is interesting to investigate whether L1 English speakers of L2 Japanese can acquire this property. Nevertheless, to the best of my knowledge, no attempts has been done on acquisition of the bound variable interpretation of sono. The present study will report an experiment which suggests that L1 English speakers of L2 Japanese initially disallow the bound variable interpretation of sono, through transferring their L1; nevertheless, they allow it as they are further exposed to the L2, supporting the Full Transfer/Full Access Hypothesis (Schwartz & Sprouse, 1994; 1996).

2. Interpretations of demonstrative pronouns

2.1. Japanese demonstrative pronouns

Japanese has three series of demonstratives, which begins with ko-, so- and a-, as in (2). Their use depends on the degree of proximity between the speaker and the hearer. Ko- is used to refer to an object or a person that is close to the speaker (i.e. proximal, e.g. kore ‘this one’, koitu ‘this guy’). So- is used when the object or the person is close to the listener rather than the speaker (i.e. medial, e.g. sore ‘that one’, soitu ‘that guy’). A- is used when the object or the person is far from both the speaker and the listener (i.e. distal, e.g. are ‘that one there’, aitu ‘that guy there’) (Kuno, 1973; Shibatani, 1990; Noguchi 1997). Thus, Japanese makes a three-way distinction among demonstratives for spatial deixis.

* Tokiko Okuma, McGill University/University of Shizuoka, tokuma@u-shizuoka-ken.ac.jp. I would like to thank Lydia White for her guidance and support throughout this project. I also thank the audience at GALANA 6.

Demonstratives (Kuno, 1973)

- ko-series (proximal)
  - kore ‘this one’
  - koitru ‘this guy’
  - kono ‘of this’
  - koko ‘here’
  - kotira ‘this way’
  - koo ‘in this way’

- so-series (medial)
  - sore ‘that one’
  - soitu ‘that guy’
  - sono ‘(of) that’
  - soko ‘there’
  - sotira ‘that way’
  - soo ‘in that way’

- a-series (distal)
  - are ‘that one there’
  - aitu ‘that guy there’
  - ano ‘(of) that over there’
  - asoko ‘over there’
  - atira ‘that way over there’
  - aa ‘in that way’

Among these demonstratives, only so-series DPs can act as variables bound by quantified antecedents (Hoji, 1991, 1995; Nishigauchi, 1990; Noguchi, 1997). The data in (3a) adapted from Noguchi (1997) present examples in which so-series DPs work as variables bound by non-human quantificational antecedents. Sono ‘that’ can be construed as a variable in (3a), while kono ‘this’ and ano ‘that’ cannot in (3b). The data in (4) present examples in which the interpretation of so-series and a following noun covaries with a human quantificational antecedent. Similarly to (3), sono and the following noun can be construed as a variable in (4a), while kono and ano cannot in (4b).

(3) a. Dono kaisha-mo [sonoij shain-ga itibanda to] omotteiru.
   which company-Par its/that employee-Nom is best that think
   ‘Every company thinks that its/employee/thatj employee is the best.’

   b. Dono kaisha-mo [kono *i/j shain-ga /ano*i/j shain-ga itibanda to] omotteiru.
   which company-Par this employee-Nom/that employee-Nom is best that think
   ‘Every company thinks that this*i/j employee/that*i/j employee is the best.’

(4) a. Dono otokonohito-mo sono hito*j-no kodomo-ni prezento-o age-ta.
   which man-Par that person-Gen child-Dat present-Acc give-Pst
   ‘Every man gave a present to his/that person’sj child.’

   b. Dono otokonohito-mo kono hito*i/j-no/ano hito*i/j-no kodomo-ni prezento-o age-ta.
   which man-Par this person-Gen/that person-Gen child-Dat present-Acc give-Pst
   ‘Every man gave a present to this person’s*i/j/that person’s*j child.’

Note that the antecedents of so-series in (3)-(4) consist of a quantifier (i.e. every) and a following noun (i.e. company and man). These antecedents are discourse-linked (Pesetsky, 1987), implying the existence of a set of entities expressed by the noun in the discourse (i.e. a familiar set of companies/men). They differ from wh-phrases (e.g. who), which do not have such implications. So-series DPs can also take wh-phrases as their antecedents, as shown in (5).

(5) a. Nanij-ga soreij-o/arei-j-o tyuumon-sita hito-no uti-ni todoi-ta-no?
   what-Nom that-Acc/that-Acc order-did person-Gen house-to arrive-Pst-Q
   ‘What arrived at the house of the person who had ordered iti/thatj/that*i/j?’

   b. Nani-mo soreij-o/arei-j-o tyuumon-sita hito-no uti-ni todoka-naka-tta
   what-Par that-Acc/that-Acc order-did person-Gen house-to arrive-Neg-Pst
   ‘Nothing arrived at the house of the person who had ordered iti/thatj/that*i/j
   (Hoji, 1991)

Thus, so-series DPs, which are usually used as deictic expressions, meaning ‘that’, can also be used as bound variables, meaning ‘it(s)/that’, when they have quantified antecedents.

So-series DPs are also used as E-type pronouns, as in (6) (Kurafuji, 1998). In these examples, so-series DPs are not syntactically bound but their interpretations covary with antecedents.
2.2. English pronouns

As we have seen in 2.1, so-series DPs in Japanese can have a bound variable reading, whereas the deictic expressions in English cannot. English employs a two-way distinction of demonstratives: *this* (proximal) and *that* (distal), which generally does not take the bound variable interpretations, as shown in (7).\(^1\) The Japanese medial demonstrative *sono* can be translated as *that* in English; nevertheless, *that* usually does not permit a bound variable interpretation, as in (7a) and (7c). In order to be bound by a quantified antecedent, a pronoun, *it*, should be used in English, as in (7b) and (7d).

(7) English

a. Every company\(i\) thinks that that company\(i/j\) is the best.*

b. Every company\(i\) thinks that it\(i\) is the best.*

c. Every company\(i\) cares about that company’s\(i/j\) efficient employees.*

d. Every company\(i\) cares about its\(i\) efficient employees.

Thus, Japanese demonstratives can be used as bound variables relatively easily, while English equivalents cannot. It should be noted that Japanese is not the only language which allows the bound variable use of demonstratives. In Korean, the medial demonstrative *ku* ‘that’ is used as a bound variable, as in (8) (Kang, 1988; Hoji, 1990), just like *sono* in Japanese.

(8) Bound variable use of the Korean demonstrative *ku* ‘that’

a. Chelsu-ka nuku\(_i\)-eke [ku\(_i\)-ka mengcheni-la-ko] malhae-ss-ni?
   Chelsu-Nom who-Dat he-Nom fool-is-that say-Pst-Q
   ‘To whom did Chelsu say that he is a fool?’

   Chelsu-Top everyone-Dat Yenghi-Nom he-Acc hit-will-that say-Pst-Dec
   ‘Chelsu said to everyone, that Yenghi would hit him.’

---

\(^1\) In some exceptional cases, *that* in English allows a bound variable interpretation, as in (a) and (b). *That boy/senator* can be construed as a variable while *this boy/senator* cannot.

a. Every boy\(_i\) dates a girl who adores that boy\(_i/this boy\(_i\).* (Noguchi, 1997: 63)

b. Mary talked to no senator\(_i\) before that senator\(_i/this senator\(_i\) was lobbied. (Elbourne, 2005: 162)
To summarize, Japanese demonstratives differ from their English counterparts in terms of binding by quantified antecedents. Since not only so-series DPs in Japanese but also ku ‘that’ in Korean have bound variable interpretations, demonstratives can be divided into two groups: so-series DPs and ku allow the bound variable interpretation while English demonstratives do not.

3. Research questions and predictions

As we saw in section 2, Japanese and English differ with respect to interpretation of demonstratives. Japanese demonstrative pronouns (i.e. so-series DPs) can take quantified antecedents whereas English counterparts do not. The bound variable interpretation of Japanese demonstrative pronouns is not taught in Japanese language classrooms. Therefore, it is interesting to investigate whether L1 English speakers of L2 Japanese can acquire the bound variable interpretation of Japanese demonstrative pronouns. However, most previous studies on acquisition of Japanese overt pronouns (e.g. Kanno, 1997; Marsden, 1998) focus on interpretation of overt pronouns (i.e. kare ‘he’ and kanozyo ‘she’). To the best of my knowledge, no attempts has been done on demonstrative pronouns. Through investigating interpretation of Japanese demonstrative pronouns, the present study tests the applicability of the Full Transfer/Full Access Hypothesis (FT/FA) (Schwartz & Sprouse, 1994; 1996). The FT/FA suggests that the initial state for L2 acquisition is the end state L1 grammar, and all abstract L1 properties can be transferred into the interlanguage grammar. If the FT/FA is applicable to the domain of demonstrative pronouns, two predictions can be made. First, L1 English speakers of L2 Japanese should initially disallow the bound variable interpretation of Japanese demonstrative pronouns, treating them as English counterparts. Instead, the L2ers should allow disjoint interpretations of Japanese demonstrative pronouns. Second, the L2ers should allow the correct interpretation as they have naturalistic input and accordingly, their proficiency improves. These predictions will be tested in section 4.

4. The experiment

4.1. Participants

The participants were 30 L1 English speakers of L2 Japanese and 15 native Japanese speakers as the control group. The L1 English speakers were originally from the USA (n=11), Canada (n=9), the UK (n=6), Australia (n=2), the Philippines (n=1), and Malaysia (n=1). They started studying Japanese at the age of 19 on average (range 11-26 years old) and had lived in Japan for an average of 2.5 years (range 0.1-11 years). 9 of them were taking Japanese language classes in a university or a language school at the time of testing. The L1 English speakers were divided into two proficiency groups, the advanced group (the EA group) and the intermediate group (the EI group), by a Japanese language proficiency test adapted from Umeda (2008), as shown in Table 1. The native Japanese participants were adults (mean age 28, range 22-36 years old) living in Montreal and Toronto who had not been outside of Japan for more than 2.5 years at the time of testing (mean 0.8, range 0.1-2.5 years). Japanese speakers who had lived in countries other than Japan for more than 2.5 years were excluded to avoid possible L1 attrition.

<table>
<thead>
<tr>
<th>group</th>
<th>Proficiency test (%)</th>
<th>Length of staying in Japan (years)</th>
<th>Use of Japanese (hours per week)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>mean</td>
<td>range</td>
<td>mean</td>
</tr>
<tr>
<td>EA (n=15)</td>
<td>80</td>
<td>71-91</td>
<td>2.3</td>
</tr>
<tr>
<td>EI (n=15)</td>
<td>52</td>
<td>37-66</td>
<td>2.6</td>
</tr>
</tbody>
</table>
4.2. Tasks

Two tasks were employed to examine whether L2ers allowed so-series DPs to be bound by quantified antecedents. The first one was a multiple choice task (MCT), in which participants were presented with Japanese sentences, followed by questions, as in (9). The sentences contained a quantified antecedent (‘every father’, ‘every man’ or ‘every mother’) as the subject and an animate object (e.g. ‘child’). The object was modified by four types of referential expressions, namely, a so-series DP (sono ‘that’ or sono hito ‘that person’), a demonstrative ano ‘that’, pro, or zibun ‘self’. The participants indicated whether these referential expressions can take the quantified antecedents by responding to the question, ‘Whose youngest daughter does every father love/take care of?’. The participants were instructed to choose options (a) ‘His own child’ (i.e. the bound variable interpretation), (b) ‘another person’s child’ (i.e. the disjoint interpretation), or (c) ‘I don’t know.’ The participants were encouraged to choose both (a) and (b) when they thought either interpretation was possible. Native Japanese participants were expected to choose both (a) and (b) (i.e. the bound variable and disjoint interpretations) for the sono, pro and zibun, while they were expected to choose only (b) for ano (i.e. the disjoint interpretation). The test sentences consisted of three tokens of the four referential expressions and the total number of the test sentences was 12. This was a part of a larger-scale study which contained 54 test sentences in total. They were randomized and presented to the participants.

(9) Dono otoosan-moi sono*i/j/ano*i/j/pro*i/j/zibuni/*j-no itibansita-no ko-o kawaigarimasu
Every father-Par sono/that/pro/self-Gen youngest-Gen child-Acc love/take care of
‘Every father loves/takes care of sono*i/j/that*i/j/pro*i/j/self*i/j’s youngest child.’

Q. Dono otoosan mo dareno itibansitano koo kawaigaru nodeshooka?
‘Whose youngest child does every father love/take care of?’
A. (a) Otoosanzisinno ko ‘His own child’
(b) Betunohitono ko ‘Another person’s child’
(c) Wakaranai ‘I don’t know’

Figure 1. The bound context

The second task was a truth value judgement task (TVJ) in which participants judged whether the given Japanese sentence matched the context illustrated in a picture by choosing ‘true,’ ‘false,’ or ‘I don’t know.’ An example of the sentence and the context is given in (10). The test sentences in the TVJ were exactly the same as the MCT. In (10), the picture illustrates a situation in which a father is taking care of his youngest child in his house. If participants choose ‘true’ for the test sentence, they assume a bound interpretation. Alternatively, if they choose ‘false,’ they assume a disjoint interpretation. For the test sentence in (10), native Japanese speakers are expected to choose ‘false’ when it includes ano. They are expected to choose ‘true’ when it includes sono, pro or zibun. This was a part of a larger-scale experiment, in which a total of 134 test sentences—69 true and 65 false—were randomized and presented to the participants.

(10) Dono otoosan-mo, sono*i/j/ano*i/j/pro*i/j/zibuni/*j-no itibansita-no ko-o kawaigarimasu
Every father-Par sono/that/pro/self-Gen youngest-Gen child-Acc love ‘Every father, loves/takes care of sono*i/j/that*i/j/pro*i/j/self*i/j’s youngest child.’
The two tasks employed exactly the same test sentences. Therefore, about a half of the participants first took the MCT and the remaining half first took the TVJ to avoid possible task effects. All participants completed a questionnaire on their linguistic background between the two tasks. The L2ers also took a Japanese language proficiency test between the two tasks.

5. Results
5.1. The multiple choice task (MCT)

Figure 2 presents the responses which allow the bound readings, namely, the total of the bound only and bound and disjoint interpretations of *ano*, *sono*, *zibun* and *pro* in the MCT. Statistical analyses were carried out on the mean scores, not percentages, in the following.

In Japanese, *ano* does not allow a bound variable interpretation whereas *so*-series does. Accordingly, it was predicted that the control group would choose the disjoint-only interpretation of *ano*, but not of *sono*. The results presented in Figure 2 confirm this prediction. The control group chose the bound variable interpretation of *ano* and *sono* 24% and 83% of the time, respectively (*t*(14)=5.24, *p*<.001). In contrast, the controls chose the bound variable interpretation of *zibun* and *pro* 93% and 96% of the time.

It was predicted that L2 groups would show a development in interpreting *sono*. In other words, both lower proficiency L2 groups would not choose the bound variable interpretation of *sono* due to L1 transfer, but this interpretation would change to be accepted as proficiency improved. This prediction was confirmed. The EI group allowed the bound variable interpretation of *sono* significantly less frequently than the controls (EI: 42%, controls: 83%, *p*<.05) though they did not differ from the EA group (EI: 42%, EA: 73%, *p*=.08). Moreover, the EI group did not make a distinction between *ano* and *sono*, choosing the bound variable interpretation of *ano* and *sono* to the same extent (*ano* 40%, *sono* 42%, *t*(14)=0.19, *p*=.86). In contrast, the EA group performed just like the controls in allowing the bound variable interpretation of *sono* (EA: 73%, controls: 83%, *t*(28)=0.78, *p*=.438) and in making a distinction between *ano* and *sono* (EA: *ano* 80%, *so*-series 27%, *t*(14)=5.96, *p*<.001).
5.2. The truth value judgement task (TVJ)

Figure 3 shows the percentages of True responses to the bound interpretations of *ano*, *sono*, *zibun*, and *pro* in the TVJ.

![Figure 3. The TVJ group results (bound variable interpretations, %)](image)

It was predicted the controls would reject *ano* as bound variables but accept *sono* as bound variables. These predictions were supported. Figure 3 shows that the controls accepted the bound interpretation of *ano* only 33% of the time, whereas they accepted the bound interpretation of *sono* 84% of the time. A paired-samples T-test shows that the difference between *ano* and *sono* was significant (*t*(14)=4.57, *p*<.001). The controls also accepted the bound interpretation of *zibun* and *pro* 100% of the time.

The L2 groups were predicted to show a development in interpreting *sono*. In other words, L2ers with lower proficiency were expected not to choose the bound variable interpretation of *sono* due to L1 transfer, while they might accept it as their proficiency improves. This prediction was not confirmed. Both L2 groups accepted the bound variable interpretation of *sono* 76–80% of the time, just like the controls (84%), and a one-way ANOVA found no effect of group. Thus, the L2 groups unexpectedly accepted the bound variable *sono* from early stages and did not show development. This result is puzzling when we recall the MCT results, in which the English groups developed their interpretation as their proficiency improved. The reason for this puzzling result will be discussed in section 6.

The L2 groups showed development with respect to *ano*. The EI group accepted the bound interpretation of *ano* significantly more than the controls (EI 76% vs. the controls 33%, *p*=.014). In contrast, the EA group did not differ from the controls in their acceptance of the bound interpretation of *ano*.

When it comes to the distinction between the bound *ano* and *sono*, both L2 groups accepted the bound interpretation of *sono* more than the bound interpretation of *ano*; nevertheless, the difference was close to significant only for the EA group (*t*(14)=1.98, *p*=.07). The difference was not significant for the EI group (*t*(14)=0.06, *p*=.95). This result suggests that the EI group did not recognize the distinction between *ano* and *sono*.

The L2 groups did not differ from the controls in their acceptance of the bound interpretation of *zibun* and *pro*. The L2 groups accepted the bound interpretation of *zibun* and *pro* 93–100% of the time, similar to the controls (100%), and no significant difference was found among them.
6. Discussion

6.1. L1 transfer and L2 development

In section 3, it was predicted that L2ers would show a development of knowledge of *sono*. Specifically, we hypothesised that they would initially be insensitive to the bound status of *sono*, transferring from their L1; nevertheless, they would become sensitive as their proficiency improved. This prediction was supported in the MCT. In this task, the EI group did not accept the bound interpretation of *sono* as strongly as the controls. They also did not make a distinction between *sono* and *ano*. In contrast, the EA group was target-like in accepting the bound variable interpretation of *sono* and making a distinction between *sono* and *ano*. Thus, the L1 English groups displayed the expected development of knowledge of *sono* and *ano*. This suggests that although the naturalistic input of *so*-series as a bound variable may not as frequent as their use as demonstratives or as *pro* and *zibun*, L2ers acquire the correct interpretation when they attain advanced proficiency. These results support the FT/FA, which suggest that the initial state of L2 grammar is the end state of L1 grammar and that all L1 properties can be transferred to the L2.

In contrast, in the TVJ, the EI group unexpectedly accepted the bound variable interpretation of *sono* 80% of the time. This result contradicts the MCT results, in which the EI group chose the bound variable interpretation of *sono* only 42% of the time. One possibility is that the pictures in the TVJ task may have failed to provide the truly bound contexts for *sono*. Rather, the L2ers may have interpreted *sono* as a demonstrative to refer to the person in each illustration in the picture. For example, three houses, in which a father takes care of or plays with his youngest child, were illustrated. If we look at each house one-by-one, instead of looking at the three houses at the same time, and if we interpret *sono* deictically, *sono* can refer to each father in each house. As a result, the picture matches the meaning of the given sentence. Thus, the illustration in pictures may have failed to avoid the deictic interpretation of *sono*.

This task effect was also observed in interpreting *ano*. As we have seen in section 5, both L2 groups were likely to allow bound variable interpretations of *ano* more frequently in the TVJ than the CJT. It is puzzling that the intermediate L2ers allowed *ano* to be variable bound 76% of the time in the TVJ since this interpretation is not usually available for its English counterpart, *that*. Suppose that the intermediate L2ers truly allowed the bound variable interpretation of *ano*, it is also hard to explain how the L2ers came to know that *ano* does not allow a bound variable interpretation as their proficiency improved since negative evidence to this effect is not available in naturalistic L2 input. The pictures in the TVJ presumably failed to provide a truly bound variable context and allowed the L2ers to interpret *ano* as a deictic expression, just like the case of *sono*.

6.2. Limitations of the study

Two points should be improved in future study. First, the TVJ should be revised. As we have seen in 6.1, the pictures in the TVJ probably failed to provide the appropriate contexts. Another TVJ, in which the contexts are given by sentences, not pictures, should be employed to test the L2 knowledge more accurately. Second, the number of the test sentences should be increased. The test sentences in the present study contained only three tokens of each referential expression, including *sono*. More tokens need to be included to make the results more reliable.

7. Conclusion

This study investigated the applicability of the FT/FA in the domain of the anaphoric use of demonstrative pronouns, *so*-series. The Japanese and English languages exhibit interpretive differences in demonstratives. In Japanese, the demonstrative pronouns, *so*-series, allow a bound variable interpretation, whereas English demonstratives usually do not. The experimental results suggest that the intermediate L2ers were not sensitive to the bound status of *so*-series as strongly as the controls. These results are compatible with the FT/FA, which suggests that the initial state of L2 grammar is the end state of L1 grammar and that all L1 properties can be transferred to the L2. The results also show that L2ers correctly acquire the bound variable interpretation of *so*-series from naturalistic L2 input.
when they arrive at advanced proficiency levels. This is one of the few studies which investigated the acquisition of interpretive properties of so-series in Japanese. I hope that this study has contributed to clarifying development of L2 grammar, and contributed to the ongoing discussion on the characteristics of demonstratives, including Japanese so-series DPs.

References
