Cross-linguistic Influence in the Use of Referring Expressions in School-Age Japanese-English Bilinguals

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1. Background
1.1. Cross-linguistic influence in simultaneous bilingual development

It has been well established in the field of simultaneous bilingual development that the two languages develop in a separate manner (e.g., De Houwer, 1990; Genesee, 1989) but that cross-language interaction occurs under certain linguistic conditions (Hulk & Müller, 2000; Müller & Hulk, 2001). One of the major hypotheses repeatedly tested among children of a variety of language pairs is that structures at the syntax-pragmatics interface with partial overlap in the two languages are susceptible to cross-language effects and that the language that has multiple options to express a grammatical concept (thus exhibiting ambiguity in the input) tends to be affected by the language with a single option to express the same concept, resulting in excessive use of the shared structure (Hulk & Müller, 2000; Müller & Hulk, 2001). Interface structures—structures in which discourse-pragmatics are involved in selecting forms—have been the center of attention in studies on cross-linguistic influence, and researchers have examined the selection of argument forms (overt or null) among pre-school-age bilinguals acquiring null and non-null argument language pairs as a typical case of syntax and pragmatics interface with partially overlapping structures to test the hypothesis (e.g., Paradis & Navarro, 2003; Serratrice, Sorace & Paoli, 2004; Mishina-Mori, Matsuoka & Sugioka, 2015; Yip & Matthews, 2007). In most cases, these studies report supportive evidence for the hypothesis, together with the finding that the influence is unidirectional from the unambiguous to the ambiguous structure.

The studies cited above investigated bilingual children at the earliest stages of language development, and thus cross-linguistic influence has been generally assumed to be a developmental feature limited to young children’s speech, presumably due to reduced input in both languages. In particular, Hulk & Müller...
However, more recent studies that examined referential choice patterns among school-age children suggest that interaction at the interface structure can persist at later stages of development, where at least the syntactic features are assumed to be fully acquired (e.g., Argyri & Sorace, 2007; Serratrice, 2007b; Sorace, Serratrice, Filiaci & Baldo, 2009). These studies report differences in the acceptability of pragmatically unnecessary overt subjects/objects used in null-argument languages among bilingual children in contrast to their monolingual peers, pointing to the fact that bilingual children’s discourse-pragmatic knowledge differs from that of monolingual children. Some researchers suggest that if interdependence occurs in children who are considered to have completed the initial stages of language development, then cross-linguistic influence may not be a feature limited to developing children’s speech due to reduced input in both languages. Rather, it could be the result of bilingual language use in general, and caused by processing limitations, that is, “inefficient (incremental) access to knowledge, inefficient coordination of information, and/or inefficient allocation of resources (Sorace & Serratrice, 2009: 198)”. However, the evidence is limited to studies on children’s acceptability judgements, and investigations on the actual language use of bilinguals are necessary. Studies on school-age children’s natural production data has been scarce, the few exceptions being Chen & Lei (2012) and Serratrice (2007a). Both studies report prominent use of overt subjects/objects in the null argument language in Chinese-English and Italian-English bilingual children compared with monolingual peers when performing elicited narratives in both languages.

In the current study, we attempt to confirm their observations by analyzing the referring expressions in the subject position in the narratives of simultaneous bilingual children acquiring Japanese and English—a language pair rarely studied in the field. Since Japanese is a null argument language, this creates a typical interface structure with superficial overlap.

1.2. Referring expressions in narratives

The relationship between information structure and the choice of referring expressions in a discourse has been well documented (Chafe, 1994; Du Bois, 1987). The most basic classification of information status is whether the referent is introduced to the discourse for the first time (new information) or has been mentioned already (given information). A universal tendency suggested by an accumulation of studies is that new information is typically expressed by lexical forms, whereas given information is referred to by reduced forms—either pronominal forms or null forms, depending on the syntax of the language (e.g., Allen, 2000; Baker & Greenfield, 1988; Clancy, 1997).
Further studies have suggested a finer classification of information status. Chafe (1994) proposed a three-way division of information status: Given (active), accessible (semi-active; a referent previously introduced, replaced by a new referent but remaining in the speaker/hearer’s consciousness and thus half-active) and new (inactive), which seems to better capture different levels of information status in a stretch of discourse. Chafe states that given information tends to be in non-lexical forms (or reduced forms), whereas new and accessible information tends to be in lexical forms. The above studies suggest that speakers need to assess the degree of activeness of a referent in the hearer’s mind, or consider the other’s viewpoint and choose the appropriate language-specific referential form for successful communication. In the following section, we discuss the structural differences between Japanese and English, together with the language-specific referring expressions to mark different information statuses in each language.

1.3. Referring expressions in Japanese and English

Japanese is an SOV language with postpositional structure, where grammatical relations are indicated by post-positional particles: Subjects are marked by *ga*, objects by *wo*, and topic by *wa*, leading to great flexibility in word order. Both subjects and objects can be dropped as long as the referent is recoverable from the discourse. Thus, in principle, pronouns or syntactic replacement of noun phrases do not exist in the language (Shibatani, 1990), although there are a number of different ways to replace noun phrases, for example, English translation of third-person pronoun (*kare* ‘he’, *kanojo* ‘she’), or by the use of deictic pronouns before nouns (e.g., *sono hito* ‘that person’). First and second person pronouns do exist, but they are close to lexical items, and choice is determined by sociolinguistic conditions (Shibatani, 1990). Thus, reduced forms in Japanese are in principle null forms, and pronouns are infrequent.

When introducing a referent in a narrative discourse (or marking new information), the noun phrase is followed by subject marker *ga*. In a re-introduction context, where the referent appears after being replaced by another referent (marking accessible information), either a noun phrase followed by *ga/wa*, pronouns or null forms can be used. Null forms are the norm when maintaining a referent (marking given information) (Minami, 2011).

In contrast, English is an SVO language with prepositional structure, and word order is the key to indicate grammatical relationship. Reduced forms are largely pronouns, and null arguments are ungrammatical in principle and restricted to a number of specific conditions (see Orfetelli & Hyams, 2012).

Referent introduction is in most cases marked by the indefinite article *a* before the noun phrase. Re-introduction after replacement is typically indicated by the definite article *the* preceding the noun phrase or by the use of pronouns, and referent maintenance is marked by the use of pronouns. Referring expressions in
different discourse contexts in narratives in the two languages are summarized in Table 1 (Chafe, 1994; DuBois, 1987; Minami, 2011).

Table 1. Japanese and English referring expressions in different discourse functions

<table>
<thead>
<tr>
<th>Discourse context</th>
<th>Introduction</th>
<th>Re-introduction</th>
<th>Maintenance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information status</td>
<td>New (inactive)</td>
<td>Accessible (semi-active)</td>
<td>Given (active)</td>
</tr>
<tr>
<td>Japanese</td>
<td>NP-ga</td>
<td>NP-ga/wa</td>
<td>Null</td>
</tr>
<tr>
<td>English</td>
<td>a NP</td>
<td>the NP</td>
<td>Pronoun</td>
</tr>
</tbody>
</table>

2. Research questions

The following research questions will be addressed in this study:

1) Is there indication of cross-linguistic influence in the use of referring expressions among school-age Japanese/English simultaneous bilinguals?
2) Does the ambiguity hypothesis rightly predict the directionality of transfer in these children?

Drawing from both the interface hypothesis and the ambiguity hypothesis (Hulk & Müller, 2000), we predict that 1) there will be an influence from English to Japanese, that is, bilinguals will use more noun phrases and pronouns (overt forms) in their Japanese narratives compared with the monolingual Japanese speakers; and 2) there will be no influence from Japanese to English, that is, there will be little or no use of null forms in the English narratives of bilingual speakers.

3. Method
3.1. Participants

Seven 8- to 12-year-old simultaneous bilinguals, six boys and one girl, participated in this study. All the children had been exposed to Japanese and English prior to the age of three, in either a one parent-one language or one parent-two language environment at home. Schooling was in Japanese for all children, except for one child who went to a bilingual school. For most of the children, Japanese was the socially dominant language---they were exposed to Japanese in the community, studied in Japanese and used mainly Japanese to communicate with their friends. Their use of English was limited to the communication with their English-speaking parents, although some of them took extra English lessons to increase exposure.
Eight Japanese monolingual children of the same age range, four boys and four girls, were also recruited and participated in the same study. Data from eight English monolingual children, also consisting of four boys and four girls, were from Pearson (2009) in the CHILDES database (MacWhinney, 2000).

3.2. Data collection and transcription

Narratives were elicited from the bilingual children using the wordless picture book *Frog, Where are you?* (Mayer 1969) in Japanese and English, separately. The children were first told to go through the whole book quietly and then tell the story to a bilingual researcher while looking at the pictures, first in English and then in Japanese. Both stories were video- and audio-recorded. The Japanese monolingual children went through the same procedure, except that they told the story in Japanese only.

The data were transcribed by a bilingual researcher using CHAT conventions for English (MacWhinney, 2000) and JCHAT conventions for Japanese (Oshima-Takane et al., 1998). Coding and quantitative analysis were conducted using CLAN (MacWhinney, 2000).

3.3. Linguistic profiles of the children

To grasp the relative level of the two languages among the bilingual children, the total number of clauses per each story was counted, following Lanza (2001) who suggests that the number of clauses may reflect the language preference of bilingual children. As Figure 1 indicates, three children (Dai, Shin, Rina) used roughly the same number of clauses per each story in English and Japanese, three (Haruto, Ayumu, Chikara) used more Japanese than English clauses, and one child (Satoshi) used more English than Japanese clauses. Thus, overall, the children had either a balanced or slightly stronger preference for Japanese, which is consistent with the linguistic environment the children are surrounded by.

![Figure 1: The number of clauses per story in Japanese and English](image-url)
3.4. Analysis

To analyze the use of referring expressions, linguistic devices used by children to introduce, re-introduce, and maintain the topic were compared with those of their monolingual peers to detect any cross-language effects. All the utterances with verbs were coded for 1) the referential functions (introduction, re-introduction, maintenance) and 2) the referential forms (noun phrase, pronoun, null). Below are examples of different referential functions taken from one of the children’s narrative.

Chikara (bilingual, 9 years old)
(1) a. One day a little boy and a dog were looking in a jar.       [introduction]
    b. What's in a jar was a frog.   [introduction]
    c. After that the boy was tired. [re-introduction]
    d. So he went to sleep in his bed. [maintenance]

Both (1) a. (a little boy, a dog) and (1) b. (a frog) are coded as referent introduction, as each of the characters appeared in the narrative for the first time, thus (-given), (-topic shift). On the other hand, the boy in (1) c. is coded as referent re-introduction. It has already been introduced to the discourse (+given), but there was a topic shift from the previous utterance (+topic shift). He in (1) d. is coded as referent maintenance. Referents are coded as maintenance if they have already been introduced (+given) and appear without topic shift from the previous referent.

Referents in subject positions were classified into three referential forms: Lexical noun phrase, pronouns, and null forms. Below are examples.

Lexical NP
(2) a. The boy looked for the frog
    b. otokonoko wa kaeru wo sagashimashita.
       boy   TOP1 frog   OBJ search-PAST

Pronoun
(3) a. He looked for the frog.
    b. kare wa kaeru wo sagashimashita.
       he    TOP frog OBJ search-PAST

Null
(4) a. Ø looked for the frog.
    b. Ø kaeru wo sagashimashita
       frog   OBJ search-PAST

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1 TOP=topic, OBJ=object marker, PAST=past marker
4. Results

Figures 2 and 3 display the ratio of lexical NP, pronoun and null forms used in the referent introduction context in bilingual and monolingual children’s Japanese narratives and English narratives, respectively. As is clear from these two figures, when introducing referents, the vast majority of the subjects were in lexical NPs in the Japanese narratives, both in monolingual and bilingual children (96.7%, 94.8%). A chi-squared analysis shows that there is no significant difference between the two ($\chi^2=0.1575$, $p=0.6914$, n.s.). A similar tendency was observed in the English narratives: Both monolingual and bilingual children used lexical NPs most of the time (93.9%, 95%), with no statistically significant difference between the two ($\chi^2=0.0393$, $p=0.8429$, n.s.). Thus, the results are consistent with the prediction that lexical NPs are used to introduce a referent for the first time in discourse in both languages.

![Figure 2](image1)

**Figure 2**: The ratio of noun phrase, pronouns and null forms among all the referring expressions when introducing a referent in the Japanese narratives

![Figure 3](image2)

**Figure 3**: The ratio of noun phrase, pronouns and null forms among all the referring expressions when introducing a referent in the English narratives

Figure 4 shows the ratio of different referring expressions when re-introducing a referent after being replaced by another referent in monolingual and bilingual Japanese narratives. The figure indicates that bilingual children used far more lexical NPs than their monolingual peers (77.1%, 62.1%) ($\chi^2=5.8941$, $p=0.0151$, $p<0.05$), and used fewer null forms compared with the Japanese speakers (22%, 37.9%) ($\chi^2=6.6381$, $p=0.0099$, $p<0.05$), both with statistical significance. This could be interpreted as an influence from the English referential system.

Figure 5 displays the ratio of the three forms for the English narratives. The data show that both bilinguals and monolinguals used very few null forms. If there were any influence from Japanese, bilingual children would have used more
null forms, but that was not the case. Thus, our results indicate that there is no influence from Japanese to English. However, we do see a difference between the two groups in the use of pronouns: Bilingual children used far more pronouns than monolingual children (30.9%, 18.5%) ($\chi^2=5.5058$, $p=0.0189$, $p<0.05$). We speculate that bilingual children are yet to acquire the discourse-pragmatic rule of English, as this tendency is parallel to younger English-speaking children (Hickmann et al., 1996; Hickmann, 2003).

![Figure 4](image1.png)

**Figure 4:** The ratio of noun phrase, pronouns and null forms among all the referring expressions when re-introducing a referent in the Japanese narratives

![Figure 5](image2.png)

**Figure 5:** The ratio of noun phrase, pronouns and null forms among all the referring expressions when re-introducing a referent in the English narratives

Figures 6 and 7 display the ratio of the different referring expressions in the referent maintenance context in the Japanese and English narratives, respectively. In the Japanese data, there appears to be some difference between the two groups: Bilingual children used more lexical NPs than their monolingual peers (40.2%, 31.8%), although statistically not significant ($\chi^2=1.6974$, $p=0.1926$, n.s.). We thus do not see a clear English influence on Japanese.

As for the English data, we see no major difference between the bilingual and the monolingual children (39%, 35.7%) ($\chi^2=0.2519$, $p=0.6157$, n.s.), indicating that there is no influence from Japanese causing the use of null subjects in the bilingual narratives.

To summarize the findings, the results were overall consistent with our predictions. In the Japanese narratives, bilingual children used more noun phrases than the monolingual children in re-introduction contexts. This may be interpreted as an influence from English referential choice patterns. On the other hand, bilingual children’s referring expressions were comparable to those of monolinguals in the English narratives, thus finding no indication of influence...
from Japanese. Thus, we find a uni-directional influence from English to Japanese, despite the children’s overall preference in Japanese.

![Figure 6](image1.png)

**Figure 6**: The ratio of noun phrase, pronouns and null forms among all the referring expressions when maintaining a referent in the Japanese narratives

![Figure 7](image2.png)

**Figure 7**: The ratio of noun phrase, pronouns and null forms among all the referring expressions when maintaining a referent in the English narratives

### 5. Discussion

The current study reveals that cross-linguistic influence occurs in the use of referring expressions in bilingual school-age children. The current data thus adds supportive evidence for the interface hypothesis in children at a more advanced stage of dual language development. In particular, together with Serratrice (2007) and Chen & Lei (2012), we add evidence to the accumulating studies, most of which are experimental studies using semi-natural oral production data. In these narrative studies, participants do not monitor themselves in their performance nor is their attention directed to the particular grammatical item in question, meaning that the results reflect the actual process in natural real-time interactions. Thus, our data complement the experimental studies in supporting the interface and ambiguity hypotheses.

Our results were also consistent with the ambiguity hypothesis, showing influence from the language with unambiguous structure (English) to the language with ambiguity (Japanese). Considering the fact that children’s socially dominant language is not English, our results may contribute to the view that language-internal factors largely determine the directionality of influence, and language-external factors, such as language dominance (or preference), do not play a major role.

The current results, together with many of the previous findings, suggest that interaction between the two languages at the interface structure is a feature of both
younger and older bilinguals; that is, bilingual-monolingual differences in the use of interface structures continue to be observed at later stages of language development. At the earliest stages, prolonged syntactic violations in interface structures, such as ungrammatical object drops, had been observed (Müller & Hulk, 2001; Yip & Matthews, 2007), which have been interpreted as underdeveloped grammars influenced by the co-existence of a seemingly similar grammatical structure in the other language. Researchers studying young bilinguals assumed that such violations caused by cross-language effects would eventually be unlearned. Indeed, there are few studies that report syntactic violations in the production and comprehension of referential choice in older bilinguals. However, differences in the choice of referents in terms of pragmatics continue to be observed in school-age children.

There are two ways to interpret such finding. One is that the acquisition of discourse-pragmatic competence/knowledge is a lengthy process, which continues through school-age. For example, English monolingual children do not use indefinite articles appropriately to introduce a referent for the first time in narratives until they turn 9 or 10 (Hickmann et al., 1996; Hickmann, 2003). Other studies also report that younger children tend to overuse pronouns when it is necessary to specify the referent with a noun phrase (Hendriks, Koster, & Hoeks, 2014). Thus, children acquiring two sets of pragmatic rules with reduced input may show slower development in each language, thus vulnerable to CLI at later stages of development.

Another interpretation would be that bilinguals exposed to two languages from the early stages of development, regardless of age, face the challenge of constantly processing two different sets of rules of form-function mapping. In particular, the use of appropriate referring expressions---selection of forms according to the cognitive status of each referent in the interlocutor’s mind while observing the language-specific rules of each language---can be a demanding task for any bilingual individual. In other words, CLI may be a manifestation of partial conversion of the two systems to save the processing load of handling different rules, or a persisting difficulty unique to syntax-pragmatic interface structures. Further investigation is necessary to specify the exact causes of CLI in older bilingual children.

References


