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# Pair-list readings in Korean–Japanese, Chinese–Japanese and English–Japanese interlanguage

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In English and Chinese, questions with a *wh*-object and a universally quantified subject (e.g. *What did everyone buy?*) allow an individual answer (*Everyone bought apples.*) and a pair-list answer (*Sam bought apples, Jo bought bananas, Sally bought ...*). By contrast, the pair-list answer is reportedly unavailable in Japanese and Korean. This article documents an experimental investigation of the interpretation of such questions in non-native Japanese by learners whose first languages (L1s) are Korean, Chinese or English. The results show that, regardless of L1, only a minority of advanced second language (L2) Japanese learners demonstrate knowledge of the absence of pair-list readings in Japanese. In English–Japanese and Chinese–Japanese interlanguage, L1 transfer readily accounts for this finding: the L1 grammar, which allows pair-list readings, may obstruct acquisition of the more restrictive Japanese grammar. But in Korean–Japanese interlanguage, L1 transfer predicts rejection of pair-list answers. However, in a Korean version of the experimental task, a native Korean control group robustly accepts pair-list readings, *contra* expectations. A proposal to account for this finding is put forward, under which the Korean–Japanese interlanguage data become compatible with an L1-transfer-based model of L2 acquisition. Moreover, the native-like rejection of pair-list readings by some advanced learners of all three L1 backgrounds is argued to imply that UG constraints operate at the L2 syntax–semantics interface.

**Keywords:** L2 Japanese, pair-list readings, *wh*-questions, quantifier interpretation, L2 poverty of the stimulus, syntax – semantics interface, Korean, Chinese

## I Introduction

In Japanese, the interpretation of questions with a *wh*-object and a universally quantified subject (henceforth ‘*Wh*-object/QP-subject questions’), such as (1a) and its scrambled counterpart (1b), is more restrictive than in English (2).<sup>1</sup>

- 1) a. ??Daremo-ga nani-o katta no?  
       everyone-Nom what-Acc bought Q  
       ‘What did everyone buy?’  
    b. Nani-o daremo-ga katta no?  
       what-Acc everyone-Nom bought Q  
       ‘What did everyone buy?’
- 2) What did everyone buy?

English allows both an individual interpretation, ‘What did each person buy in common?’, and a pair-list interpretation, ‘For each person, what did that person buy?’, yielding answers such as (3a) and (3b), respectively:

- 3) a. Individual answer: (Each person bought) a book.  
    b. Pair-list answer: Kate bought a book and a pen, Tom bought a book and a newspaper, Anna bought a book and some postcards ...

In Japanese, on the other hand, the pair-list answer is reported to be unavailable (Hoji, 1985; Yoshida, 1995; Saito, 1999).

Given this interpretation difference, an interesting learnability problem arises for non-native (L2) learners of Japanese whose first language (L1) permits pair-list readings, like English. Namely, can such learners acquire the more restrictive interpretive possibilities of

<sup>1</sup> The canonical SOV question form in (1a) is frequently reported to be only marginally acceptable when the subject is a universal quantifier like *daremo* ‘everyone’ (e.g. Hoji, 1985; Yoshida, 1995; Tomioka, 2007). Saito (1999) points out that the scrambled question (1b) and the non-scrambled question (1a) have the same interpretation. Since the experimental part of the present study requires test participants to make judgements about this type of question, it was decided to use the reportedly more acceptable scrambled OSV question form (1b) throughout the study. Henceforth, only the scrambled question form is referred to. For exploration of the source of the difference in acceptability between the non-scrambled and scrambled forms see Hoji (1985) and Tomioka (2007).

Japanese *Wh*-object/QP-subject questions? White (1989) pointed out with respect to L2 syntactic knowledge that, if the interlanguage grammar is influenced by the L1, then fossilization may occur when the target language grammar represents a subset of the possibilities available in the L1: the L2 learner may never be able to retreat from the superset L1-based knowledge. A similar problem may be predicted with respect to L2 knowledge at the syntax–semantics interface, as represented by the L2 acquisition of the interpretation of *Wh*-object/QP-subject questions in Japanese. This is because, as detailed further in Section III, the Japanese input logically cannot contain direct evidence about the absence of pair-list readings. Consequently, the possibility of pair-list readings may be retained in the interlanguage.

Investigation of L2 learnability problems at the interpretive interface is a relatively new area of inquiry (White, 2003). However, evidence from a number of studies indicates that L2 learners can acquire native-like interpretative knowledge even under severe poverty of the stimulus. In particular, the findings of Unsworth (2005) about the interpretation of scrambled indefinites in English–Dutch interlanguage, and of Dekydtspotter *et al.* (1999; 2001) about word-order-induced interpretation effects with quantifiers in English–French interlanguage, show that advanced L2 learners are able to acquire subtle interpretive effects, even when there is no direct evidence to motivate such acquisition.<sup>2</sup> Such results are argued to provide evidence that L2 acquisition is constrained by the same internal mechanisms of Universal Grammar (UG) as L1 acquisition, since neither external sources nor L1 knowledge can account for the success of the advanced learners.

The present study adds to the small body of research in this area by investigating an L2 learnability problem at the interpretive interface in adult Korean–Japanese, Chinese–Japanese and English–Japanese interlanguage. The study aims to shed light on the roles of L1 transfer and UG in L2 acquisition at the syntax–semantics interface.

<sup>2</sup> In addition, Miyamoto and Yamane (1996) investigate *Wh*-object/QP-subject question interpretation by Japanese-speaking learners of English, and find that the learners correctly allow pair-list readings in English. However, there is no L2 poverty-of-the-stimulus problem in this case, since direct evidence of pair-list answers to *Wh*-object/QP-subject questions is potentially available in the English input.

The key finding is that some advanced learners of Japanese demonstrate knowledge of the lack of pair-list readings in Japanese *Wh*-object/QP-subject questions, despite their L1 grammars allowing pair-list readings, and despite the lack of any direct external evidence from which such knowledge could be induced.

The following section outlines two accounts of cross-linguistic difference in *Wh*-object/QP-subject question interpretation. Section III details the L2 acquisition problem for the three L1 groups and states the experimental predictions. The experimental procedure and results are reported in Sections IV and V, respectively. Discussion of the results, and their implications for the theory of *Wh*-object/QP-subject question interpretation as well as for L2 acquisition theory, is presented in Sections VI–VIII.

## II *Wh*-object/QP-subject question interpretation in Japanese, Korean, Chinese and English

As observed in Section I, English allows both individual and pair-list answers to *Wh*-object/QP-subject questions, while in Japanese, pair-list answers are not possible (regardless of whether or not there is object scrambling). Korean is reported also to lack pair-list readings (Ahn, 1990; Beck and Kim, 1997), whereas Chinese patterns with English and allows both individual and pair-list readings (Aoun and Li, 1993). This is exemplified for all four languages in (4). However, the pattern for Korean will be revised later, based on experimental data.<sup>3</sup>

<sup>3</sup> The Korean *Wh*-object/QP-subject questions investigated here are in the scrambled OSV form, since, as in Japanese, the non-scrambled form is reported to be of questionable acceptability (Beck and Kim, 1997; Tomioka, 2007). Note that, in addition to being a *wh*-question, the Korean question in (4b) can be interpreted as a yes/no question, if the verb and question particle are stressed (e.g. Suh, 1989) (stress is indicated by capitalization):

- |    |                               |          |        |     |
|----|-------------------------------|----------|--------|-----|
| i) | Mwues-ul                      | nwukwuna | SASS   | NI. |
|    | what-Acc                      | everyone | bought | Q   |
|    | 'Did everyone buy something?' |          |        |     |

Section IV details precautions to ensure that the yes/no-question interpretation is ruled out in the experimental part of this study.

4)

					Individual answer	Pair-list answer
a. Japanese:	Nani-o	daremo-ga	katta	no?	✓	✗
	what-Acc	everyone-Nom	bought	Q		
b. Korean:	Mwues-ul	nwukwuna-ka	sass	ni?	✓	✗
	what-Acc	everyone-Nom	bought	Q		
c. Chinese:	Meigeren	dou maile	shenme?		✓	✓
	everyone	all	bought	what		
d. English:	What did everyone buy?				✓	✓

Two proposed explanations of these facts – Aoun and Li’s (1993) syntactic analysis and Saito’s (1999) semantic analysis – are outlined briefly, below.

*1 Aoun and Li, 1993*

Aoun and Li propose that interactions between *wh*-words and quantifiers are governed by a universal scope principle, as follows:<sup>4</sup>

- 5) Scope Principle (Aoun and Li, 1993: 88): An operator A may have scope over an operator B iff A c-commands B or an A'-element co-indexed with B.

For English *Wh*-object/QP-subject questions such as (6a), the LF representation in (6b) is proposed to account for both individual and pair-list readings:

- 6) a. What did everyone buy?  
 b. [<sub>CP</sub> what<sub>j</sub> [<sub>C</sub>, did [<sub>IP</sub> everyone<sub>i</sub> [<sub>IP</sub> x<sub>i</sub> [<sub>VP</sub> t<sub>j</sub> [<sub>VP</sub> buy x<sub>j</sub>]]]]]]

In (6b), *what* originates as the argument of *buy*, and undergoes *wh*-movement to CP, leaving an intermediate trace adjoined to VP (following Chomsky, 1986). The subject QP *everyone* in Spec,IP undergoes Quantifier Raising (following May, 1977; 1985) to adjoin to IP. The Scope Principle (5) allows for the individual interpretation by virtue of *what* in CP c-commanding *everyone* in IP, and the pair-list interpretation

<sup>4</sup> Aoun and Li’s (1993) account of *Wh*-object/QP-subject question interpretation is part of a comprehensive investigation of a variety of quantifier interactions in English, Chinese and Japanese, set within the Government and Binding/Barriers frameworks of syntax (Chomsky, 1981; 1986). The brief outline here presents only those elements that are relevant to the concerns at hand, and does not do justice to the depth and argumentation of the account as a whole.

by *everyone* c-commanding the intermediate trace of *what*, adjoined to VP. The same account applies to Chinese, except that *wh*-movement occurs covertly at LF. The LF representation of the Chinese question in (4c) is given in (7):

- 7)  $[_{CP} \text{ shenme}_j [_{IP} \text{ meigeren}_i [_{VP} x_i [_{VP} \text{ dou} \text{ maile } x_j]]]]]$   
       what                    everyone                    all            buy

The crucial difference between English/Chinese and Japanese, with respect to *Wh*-object/QP-subject questions, is that Japanese is a ‘question-marker language’: questions require the use of a question marker, such as *no*.<sup>5</sup> Consequently, Aoun and Li argue, *wh*-words do not undergo (covert) *wh*-movement to Spec,CP. Instead, they undergo covert movement at LF to adjoin to IP, in order to be governed by, and thereby licensed by, the question marker. This covert movement, unlike *wh*-movement, does not leave an intermediate trace adjoined to VP. Thus, the LF representation for the Japanese question (8a) is as shown in (8b) (based on Aoun and Li, 1993: 196). (Note that, in this account, subjects in Japanese remain in VP and do not undergo subject-raising to IP.)

- 8) a. Nani-o        daremo-ga        katta        no?  
       what-Acc    everyone-Nom    bought    Q  
       ‘What did everyone buy?’  
    b.  $[_{CP} [_{IP} \text{ nani-o}_j [_{VP} x_j [_{VP} \text{ daremo-ga}_i [_{VP} x_i [_{V'} \text{ t}_j \text{ katta}]]]]]]]$   $no$

In (8b), *nani* ‘what’ undergoes scrambling from V’ to Spec,IP, then it raises to adjoin to IP, as described above. The subject *daremo* ‘everyone’ undergoes Quantifier Raising to adjoin to VP. The individual interpretation of the question arises because *nani* adjoined to IP takes scope over *daremo* adjoined to VP. However, the pair-list reading is ruled out in accordance with the Scope Principle: there is no A’-element co-indexed with *nani* under the c-command of *daremo* (the trace of *nani* in V’ does not count because it is in an A-position, not an A’-position).

Since Korean is also a question-marker language and Korean *Wh*-object/QP-subject questions appear to have the same structure as

<sup>5</sup> In colloquial Japanese, questions can be marked by intonation only (i.e. without a question marker). In this case, the intonation is assumed to indicate a covert question marker.

Japanese *Wh*-object/QP-subject questions, pair-list readings should presumably be ruled out in the same way as in Japanese.<sup>6</sup>

## 2 Saito, 1999

Saito (1999) accounts for the absence of pair-list readings in Japanese *Wh*-object/QP-subject questions in terms of the particular semantics of the universal quantifier *daremo* ‘everyone’. *Daremo* belongs to the cross-linguistically occurring class of quantifiers that are made up of a *wh*-word and a quantificational particle (*dare* ‘who’ and *mo*, a conjunction, in the case of *daremo*). This differentiates Japanese *daremo* from English *everyone* (since *everyone* is made up of the determiner *every* and the person counter *one*, and not a *wh*-word with a quantificational particle). Saito adopts Kawashima’s (1994) claim that Japanese quantifiers that include the conjunctive particle *-mo* (henceforth ‘*-mo* quantifiers’), act as ‘domain-wideners’: they serve to widen a previously-given contextually narrow domain. This is exemplified in (9) (based on Kawashima, 1994: 131), in which Speaker B understands *gakusei* ‘the students’ to be a set of students excluding John, and Speaker A uses *daremo* ‘everyone’ to widen this narrowed domain so that *gakusei* includes John:

- 9) A: Kinoo      gakusei-wa sono hoteru ni tomatta.  
       yesterday student-Top that hotel at stayed  
       ‘Yesterday the students stayed at that hotel.’  
 B: Demo John (= a member of the students under discussion)-wa  
       but John-Top  
       tomodati-no ie      ni tomaru to itta.  
       friend-Gen house at stay Comp said  
       ‘But John (who is member of the students under discussion) said that he would  
       stay at his friend’s house.’  
 A: Iya, daremo-ga      sono hoteru ni tomatta.  
       no everyone-Nom that hotel at stayed  
       ‘No, everyone stayed at that hotel.’

Considering a question like (10), Saito accounts for the individual reading as follows (Saito, 1999: 612–13).

<sup>6</sup> Aoun and Li (2003) offers a revised account of pair-list readings in *Wh*-object/QP-subject questions, set within Minimalism (Chomsky, 1995). In this account, they appeal to Chierchia’s (1992) proposal that a functional dependency underlies pair-list readings (this proposal is briefly outlined in the following sub-section), and they argue that cross-linguistic differences are the result of differences in the morphology of *wh*-phrases. However, this analysis does not discuss Japanese or Korean, and it is not clear how it could account for the reported absence of pair-list readings in these languages.

- 10) Dare-o daremo-ga sonkeisiteiru no?  
 who-Acc everyone-Nom respect Q  
 ‘Whom does everyone respect?’

Suppose that the narrow domain,  $D$ , given by the context is {Tom, Mary}, and this is widened by *daremo* to {Tom, Mary, John}. Then, the individual reading of (10) in effect asks (Saito, 1999: 612):

- 11) For which  $x$ , ‘[every  $y$ :  $y \in D$ ]  $y$  respects  $x$ ’ continues to hold when  $D$  is widened from {Tom, Mary} to {Tom, Mary, John}?

In other words, which of the people admired by Tom and Mary is also admired by John? Thus, if Tom admires Descartes and Beethoven, Mary admires Descartes and Mozart and John admires Descartes, then the question can be answered with ‘Descartes’.

However, when a pair-list reading is attempted for the question in (10), Saito argues that the widening function of *daremo* leads to uninterpretability. His account follows Chierchia’s (1992) proposal whereby the pair-list reading in *Wh*-object/QP-subject questions involves a function that, applied to the question in (10), maps each person in the set of ‘everyone’ to a person whom she/he respects, as indicated in (12):

- 12) [for which  $f$ ]  $daremo_x$  respects  $f(x)$

In other words,  $f(x)$  in (12) is a trace that is bound by both the *wh*-object and the QP-subject. Saito describes the effect of *daremo* on this interpretation as follows (Saito, 1999: 613). Suppose that the narrow domain given by the context is {Tom, Mary}, and that Tom respects Descartes and Beethoven, and Mary respects Descartes. First, the domain-widening feature of *daremo* interacts with the interpretation in (12) such that (12) must have a presupposition that there is more than one function that satisfies ‘ $x$  respects  $f(x)$ ’ for this domain. This presupposition is met by the following two functions:

- 13) a. {<Tom, Descartes>, <Mary, Descartes>}  
 b. {<Tom, Beethoven>, <Mary, Descartes>}

The question then asks which of these functions continues to hold when the domain is widened. Suppose that the domain is widened to include John who respects Babe Ruth. If <John, Babe Ruth> is added to each of the functions in (13a – b), then the answer to the question is ‘both

functions'. If, on the other hand, John did not respect anyone, then the answer to the question would be 'neither function'. These are the only possible answers to the very specific question evoked due to the domain-widening property of *daremo*. Thus, Saito claims, a pair-list answer is not possible for Japanese *Wh*-object/QP-subject questions.

Saito's account differentiates between Japanese and English *Wh*-object/QP-subject question interpretation by virtue of the different semantics of Japanese *daremo* 'everyone' compared with English *everyone*. Considering Chinese and Korean, Chinese *meigeren* 'everyone' – like English *everyone* – is not a 'wh+particle' quantifier: it is made up of *mei* 'every', combined with a classifier *-ge* and a noun *ren* 'person'. Thus, Saito's account presumably predicts that pair-list readings are available in Chinese *Wh*-object/QP-subject questions, as in English. Korean *nwukwuna* 'everyone', on the other hand, belongs to the same quantifier class as Japanese *daremo*: it comprises a *wh*-word, *nwukwu* 'who', and a particle *na*. However, Korean *na* is a disjunction, not a conjunction. Therefore, it is not clear whether Saito's account predicts that pair-list readings are available or unavailable in Korean.

### III The L2 acquisition problem

To investigate the roles of L1 transfer and UG in L2 acquisition at the interpretive interface, the present study asks whether learners of Japanese allow a pair-list interpretation of Japanese *Wh*-object/QP-subject questions. This research question holds regardless of what theoretical analysis (such as Aoun and Li, 1993; Saito, 1999) may account for cross-linguistic variation in this area. The investigation is conducted within the framework of Schwartz and Sprouse's (1994; 1996) Full Transfer/Full Access model of L2 acquisition. According to this model, the L1 grammar transfers in its entirety to the interlanguage at the initial state of L2 acquisition. This L1-based interlanguage grammar undergoes restructuring whenever it is unable to represent the target language input, and the restructuring is constrained by the full range of mechanisms within UG.

If 'Full Transfer' is correct, there should be no acquisition problem for Korean-speaking learners with respect to the interpretation of Japanese *Wh*-object/QP-subject questions. Since Korean, like Japanese, is reported to lack pair-list readings, Full Transfer predicts that this

knowledge should transfer to the Korean–Japanese interlanguage grammar at the outset of L2 acquisition, such that, even at the lowest levels of proficiency (i.e. at the earliest stages of L2 acquisition), Korean-speaking learners of Japanese demonstrate native-like rejection of pair-list answers to Japanese *Wh*-object/QP-subject questions. Lower-proficiency English-speaking and Chinese-speaking learners of Japanese, on the other hand, are predicted to allow pair-list readings, because their L1s – and thus, by L1 transfer, the initial-state English–Japanese and Chinese–Japanese interlanguage grammars – allow pair-list readings as well as individual readings. Thus, the predictions regarding L1 transfer are as follows.<sup>7</sup>

- 14) Prediction 1a: Due to L1 transfer, lower (and higher) proficiency Korean-speaking learners will reject non-target-like pair-list interpretations of Japanese *Wh*-object/QP-subject questions.
- 15) Prediction 1b: Due to L1 transfer, lower proficiency English-speaking learners and Chinese-speaking learners will allow non-target-like pair-list interpretations of Japanese *Wh*-object/QP-subject questions.

As noted in Section I, if the interlanguage grammar allows a broader set of possibilities than the target language grammar, it is questionable whether the more restrictive target language grammar may ever be acquired. Thus, if Chinese–Japanese and English–Japanese interlanguages allow pair-list readings as well as individual readings for *Wh*-object/QP-subject questions, it may be impossible to retreat from this overgeneralization. This is because, even though learners do not encounter pair-list answers to *Wh*-object/QP-subject questions in the target language input, failure to encounter this interpretation does not logically preclude its existence. Moreover, Japanese language classes do not provide information about the interpretation of *Wh*-object/QP-subject questions. In short, there is a poverty-of-the-stimulus problem: there is no direct evidence from which English-speaking and

<sup>7</sup> The study compares ‘lower proficiency’ and ‘higher proficiency’ learners, assuming that lower proficiency learners are closer to the initial state of L2 acquisition than higher proficiency learners. Investigation of beginners is not possible, since they would not have enough L2 knowledge to participate in a test. This means that, if the results show that even intermediate learners have native-like knowledge, this does not rule out L1 transfer. Instead, it could mean that the interlanguage by intermediate level had already undergone restructuring. Section VI provides details of how proficiency levels were determined.

Chinese-speaking learners of Japanese could induce that Japanese *Wh*-object/QP-subject questions lack a pair-list reading.

Full Transfer/Full Access allows for L2 poverty-of-the-stimulus problems to be overcome, because the full range of UG options is hypothesized to be available. Thus, any instantiation of UG that is possible in L1 acquisition should also be possible in L2 acquisition, provided that L1 knowledge does not obscure whatever (indirect) evidence should trigger adoption of the more restrictive target (Schwartz and Sprouse, 1994). The second prediction, then, is as follows:

- 16) Prediction 2: Due to UG ‘access’, higher proficiency English-speaking learners and Chinese-speaking learners will reject non-target-like pair-list interpretations of Japanese *Wh*-object/QP-subject questions.

These predictions, and their implications for L2 acquisition theory, are independent of any theoretical accounts of the presence/absence of pair-list readings: learners will display knowledge of the absence of pair-list readings in Japanese, or they will not, regardless of how cross-linguistic variation in *Wh*-object/QP-subject question interpretation is accounted for. The following section describes how the predictions were investigated experimentally.

## IV Experiment design

### 1 Participants

The L2 participants comprised six groups of Japanese learners, defined in terms of:

- their L1: Korean (‘KJ’), Chinese (‘CJ’), or English (‘EJ’);<sup>8</sup> and
- their L2 Japanese proficiency: intermediate (‘int’) or advanced (‘adv’).

L2 proficiency level was determined by means of a 42-blank random cloze test. An exact-word scoring method was used, and participants with a score of 12 or higher were assigned to the ‘advanced’ groups, on

<sup>8</sup> The CJ participants included 13 Mandarin speakers, 3 Cantonese speakers and 1 Taiwanese speaker. The Cantonese and Taiwanese speakers were retained in the study on the basis of discussion with native Cantonese- and Taiwanese-speaking linguists indicating that *Wh*-object/QP-subject questions allow pair-list readings in these dialects, as in Mandarin Chinese (personal communication, Yuet Wah Lam, July 2002; Nonie Chang, June 2004).

the grounds that 12 was the lowest score obtained by a member of the native Japanese control group for the cloze test. (This control group comprised 30 Japanese high school and university students in Japan, with a mean age of 20; range: 18–31.) Details of the resulting six learner groups are presented in Table 1.<sup>9</sup> A one-way ANOVA performed on the proficiency test scores shows that the overall effect of group is significant ( $F(5,83) = 39.22, p < .001$ ). *Post hoc* Tamhane's tests confirm that:

- within each L1 group, the intermediate group's cloze test scores differed significantly from the advanced group's scores ( $p \leq .01$ ); and
- there were no significant differences between the scores of the three intermediate groups ( $p = 1$ ) or the three advanced groups ( $p \geq .2$ ).

In addition to the L2 groups, four control groups participated in the study: 18 native Japanese speakers ('JJ') completed the Japanese version of the experimental task, 26 native Korean speakers ('KK') completed a Korean version, 14 native Chinese speakers ('CC') completed a Chinese version, and 21 native English speakers ('EE') completed an English version. All the control participants were

**Table 1** L2 participants

Group	<i>n</i>	Mean age (range)	Mean years living in Japan (range)	Mean cloze test scores (SD) (range)
EJ int	22	21 (19–30)	0;8 (0;0–1;6)	7.18 (2.11) (3–11)
EJ adv	12	22 (21–23)	1;2 (1;0–2;2)	14.25 (1.96) (12–18)
CJ int	7	25 (21–34)	1;6 (0;9–3;9)	6.86 (3.72) (3–11)
CJ adv	10	26 (21–33)	2;11 (0;9–4;9)	14.70 (2.58) (12–20)
KJ int	23	28 (22–51)	0;6 (0;0–3;6)	6.78 (2.7) (1–11)
KJ adv	15	24 (21–31)	1;4 (0;0–2;9)	18.00 (4.93) (12–29)

*Notes:* EJ: Students of Japanese at UK universities, resident in UK at time of testing; CJ: Students at Japanese universities, resident in Japan at time of testing; KJ: Students at universities in Japan or Korea; KJ int: 3 in Japan at time of testing, 20 in Korea; KJ adv: 10 in Japan; 5 in Korea

<sup>9</sup> Some of the scores in the intermediate groups are very low (1 out of 42 in the KJ int group). However, such low scores do not necessarily indicate failure to understand the text, because the exact-word scoring method is very strict: even answers that are syntactically and semantically appropriate are marked wrong if they do not match the word from the original text. Therefore, no participants were excluded on the basis of their cloze test scores. Some were excluded on the basis of their responses to distractor items in the experimental task, as reported in Section V.

university students. The Japanese speakers (mean age = 23) were resident in Japan at the time of testing, the Korean speakers (mean age = 22) in Korea, and the Chinese speakers (mean age = 32) and English speakers (mean age = 19) in the UK.

## 2 Method

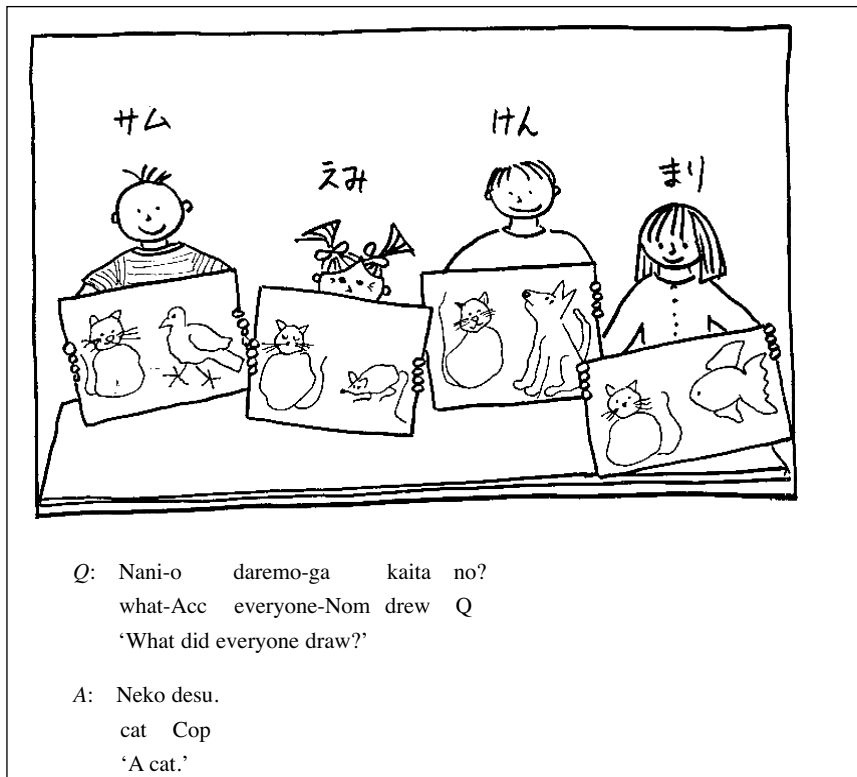
An acceptability judgement task was used to find out about the participants' interpretations of *Wh*-object/QP-subject questions. Considering the Japanese version of the task first, five *Wh*-object/QP-subject questions were created, with the form given in (17):

- 17) Nani-o daremo-ga V.Past no?  
 what-Acc everyone-Nom Q

A picture was drawn to accompany each question, the picture providing a plausible context for either an individual or a pair-list answer. Each question and picture then occurred twice in the test: once with an individual answer and once with a pair-list answer. Examples of the individual and pair-list test types are as in Figures 1 and 2, respectively.<sup>10</sup> The 10 test items (five individual answer tokens and five pair-list answer tokens) were mixed randomly with 10 distractor items. The distractors comprised *wh*-questions (not *Wh*-object/QP-subject questions) and answers that were designed to blend in structurally and lexically with the test items. Like the test items, they were based around five pictures, each occurring twice. As a precaution against the emergence of an answering bias due to the order of the test items, two presentation orders were used for the task, the second being the reverse of the first. Approximately half the participants viewed Order 1, and half viewed Order 2.

The experiment was administered as a paced judgement task. Each picture was projected onto a screen at the front of the test room for 10 seconds. The question and answer were then revealed, below the

<sup>10</sup> In the actual test, the question and answers were presented in Japanese script only, with no transliteration, gloss or translation. The words in Japanese above the children's heads in the pictures are the children's names. The words *kun* and *tyan* in the glosses (Figure 2) are informal male and female titles. These are not translated.



**Figure 1** Individual answer test item

picture. At the same time, the question and answer were presented aurally, using a tape recording by a native speaker of the language of the test. For all four languages, the native speakers who recorded the questions and answers were linguists who understood the purpose of the recording, and who took care to use appropriate stress and intonation in order to avoid creating a stress-based bias towards any particular answer type.

The picture and the question and answer were viewed together for 15 seconds before proceeding to the next test item. Participants were asked to indicate how possible they found each answer in the context of the question and the picture, using a scale on their answer sheets, as illustrated in (18):<sup>11</sup>

<sup>11</sup> Japanese text was used on the answer sheets for the participants who took the test in Japan.

サム                      えみ                      けん                      まり

Q: Nani-o daremo-ga kaita no?  
 what-Acc everyone-Nom drew Q  
 ‘What did everyone draw?’

A: Samu-kun-wa neko to tori-o, Emi-tyan-wa neko to nezumi-o,  
 Sam-kun-Top cat and bird-Acc, Emi-tyan-Top cat and mouse-Acc,  
 Ken-kun-wa neko to inu-o, Mari-tyan-wa neko to kingyo-o  
 Ken-kun-Top cat and dog-Acc, Mari-tyan-Top cat and goldfish-Acc  
 kaita.  
 drew  
 ‘Sam drew a cat and a bird, Emi drew a cat and a mouse, Ken drew a cat and a dog, and Mari drew a cat and a goldfish.’

Figure 2 Pair-list answer test item

18) (Is the answer possible?)

	No, definitely not			Yes, perfectly	Can't decide
1	-2	-1	+1	+2	×
2	-2	-1	+1	+2	×

The pictures and sentences did not appear on the answer sheet.

Pre-test training was provided, using four examples (not *Wh*-object/*QP*-subject questions), in order to familiarize the participants with the format of the test and with the judgement scale.

The procedure for the Korean, Chinese and English versions of the task was exactly as for the Japanese version. The question forms were as shown in (19–21). (The English question (21) provides the translation for (19–20).)<sup>12</sup>

- 19) Korean:    Mwues-ul    nwukwuna    V.Past    ni?  
                  what-Acc    everyone                    Q
- 20) Chinese:    Meigeren    V.Past    shenme?  
                  everyone                    what
- 21) English:    What did everyone V?

A number of observations are due here, about the vocabulary and question-form choices. First, as noted in Section II, the Japanese and Korean universal quantifiers *daremo* and *nwukwuna* belong to the ‘wh+particle’ class of quantifiers while Chinese *meigeren* and English *everyone* do not. It might be objected that alternative Japanese and Korean quantifiers could have been used: *minna* in Japanese and *motwu* in Korean also correspond to *everyone* but they are not wh+particle quantifiers. However, *minna/motwu* were not used because they have a collective interpretation as well as a distributive interpretation (like English *all*). *Daremo/nwukwuna* ‘everyone’, on the other hand, appear always to be distributive (like English *every*).<sup>13</sup> Since the possibility of a pair-list reading depends on the distributive property of the universal quantifier, *daremo/nwukwuna* are the more appropriate choice. Moreover, *daremo* and *nwukwuna* are the quantifiers used in the theoretical literature comparing Japanese and Korean *Wh*-object/

<sup>12</sup> Note that the task design further mitigates against a yes/no interpretation of the Korean question, ‘Did everyone V something?’ (see footnote 3), because the test questions are always followed by content-based answers, not yes/no answers.

<sup>13</sup> Miyamoto and Yamane (1996) comment on the collective property of Japanese *minna*, in contrast to *daremo*. Further enquiry by the author among native speakers of Japanese confirms the difference between the two words. Ahn (1990: 145) briefly discusses the difference between Korean *nwukwuna* and *motwu*. For exemplification of the distributive property of English *every*, see Beghelli and Stowell, 1997.

QP-subject questions with English and Chinese *Wh*-object/QP-subject questions (e.g. Hoji, 1985; Kim, 1989; Aoun and Li, 1993; Yoshida, 1995; Beck and Kim, 1997).

The second comment on the question forms concerns the absence of the nominative particle *-ka* on *nwukwuna* ‘everyone’ in the Korean question in (19). Nominative marking here is optional in Korean, and the particle was omitted in the test questions on the advice of native Korean informants who indicated that the question sounds more natural without it. Thus, the Korean question contrasts with the Japanese question form (repeated in 22), in which *daremo* ‘everyone’ is marked by the nominative *-ga*.

- 22) Nani-o      daremo-ga      V.Past no?  
       what-Acc    everyone-Nom      Q

In the Japanese *Wh*-object/QP-subject question, omission of *-ga* is ungrammatical.

Finally, in the Chinese question form (20), the floating quantifier *dou* ‘all’ is omitted, even though in the theoretical literature on Chinese *Wh*-object/QP-subject questions, *dou* is usually present, as in (4c), repeated in (23) (e.g. Aoun and Li, 1993):

- 23) Meigeren    dou    maile    shenme?  
       everyone    all    bought    what

The Chinese question is still grammatical without *dou*. *Dou* was excluded in order to investigate a Chinese question with a form as close as possible to the Japanese question form (i.e. without a floating quantifier). Further implications of these decisions about the test question forms are discussed in Sections VI–VIII.

A pilot study was conducted with the Japanese version of the task. The participants were nine native Japanese speakers in the UK. Revisions to some of the pictures as well as to the explanation of the task were made on the basis of post-test discussion with these participants. The general test procedure (i.e. scale-based judgement of test items in the context of a picture projected onto a screen) was piloted extensively for a related judgement task, with native Japanese speakers, native English speakers and English-speaking learners of Japanese (see Marsden, 2004).

## V Results

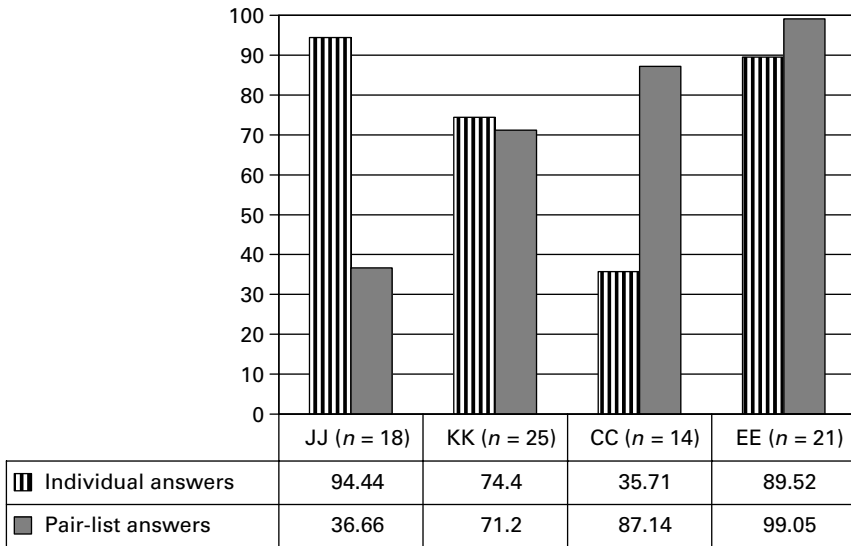
For the analysis, responses of +1 or +2 on the rating scale were considered to indicate acceptance of the question–answer pairing, and responses of –2 or –1, rejection. The responses to the 10 distractor items were examined first, to discover whether any individual had a high proportion of inappropriate acceptances or rejections, potentially indicating a lack of understanding of the task. Response sets from one intermediate Korean-speaking learner of Japanese, one intermediate English-speaking learner of Japanese and one native Korean control participant were excluded from the analysis due to more than one inappropriate answer on the distractors.

For the actual test items, rates of acceptance are reported. (These are virtually mirrored by the rates of rejection, since there were negligibly few ‘can’t decide’ responses: 0.61% of the total remaining in the analysis.) Group results and details of individual response patterns are presented first for the native control groups, then for the L2 groups. Implications of the results are discussed in Section VI.

### 1 *Native control data*

Figure 3 presents the rates of acceptance of each answer type by the four control groups. The patterns in Figure 3 are not all exactly as expected, according to the claims about *Wh*-object/QP-subject question interpretation summarized in Section II. The native Japanese and native Korean groups were expected to behave similarly, both accepting individual answers but rejecting pair-list answers. In fact, only the native Japanese responses exhibit this pattern: this group has a 94.44% acceptance of individual answers compared with only 36.66% acceptance of pair-list answers. A Wilcoxon signed rank test confirms that this difference in acceptance rates between the two answer types is statistically significant ( $p = .001$ ). By contrast, the acceptance rates for both individual answers (74.4%) and pair-list answers (71.2%) are relatively high in the native Korean group, and they do not differ significantly ( $p = .73$ ). Importantly – and unexpectedly – the native Korean group appears generally to accept pair-list answers to Korean *Wh*-object/QP-subject questions.

Turning to the native Chinese and native English data, these were expected to show acceptance of both individual and pair-list answers.



**Figure 3** Rates (percentages) of acceptance of individual and pair-list answers, by the native control groups

Indeed, both groups have high rates of acceptance of pair-list answers: 87.14% in the Chinese control group; 99.05% in the English control group. However, only the English group also accepts individual answers (acceptance rate = 89.52%). In the native Chinese group, the acceptance rate for individual answers is low, at 35.71%. Wilcoxon tests show that, in fact, both the Chinese and the English control groups have significantly higher rates of acceptance for pair-list answers than for individual answers, although for the Chinese group this difference is large ( $p = .002$ ), whereas it is very small in the English group ( $p = .04$ ).

It might have been expected that all the acceptance rates for the native control groups would either be close to 100%, showing unanimous acceptance of an answer type, or close to 0% showing unanimous rejection of an answer type. In fact, four of the group results testify to some within-group variation: the 36.66% acceptance of pair-list readings in native Japanese, the 74.4% acceptance of individual answers and 71.2% acceptance of pair-list answers in native Korean, and the 35.71% acceptance of individual answers in native Chinese. More information about this within-group variation is found by examining the consistency of individual response patterns. Table 2 presents

**Table 2** Consistency data for native control groups on individual and pair-list answers

Group	Individual answers: number (percentage) of participants who demonstrate:			Pair-list answers: number (percentage) of participants who demonstrate:		
	consistent acceptance	consistent rejection	inconsi- stency	consistent acceptance	consistent rejection	inconsi- stency
JJ (18)	17 (94.4)	1 (5.6)	0	6 (33.3)	10 (55.6)	2 (11.1)
KK (25)	19 (76.0)	2 (8.0)	4 (16.0)	17 (68.0)	2 (8.0)	6 (24.0)
CC (14)	2 (14.3)	7 (50.0)	5 (35.7)	12 (85.7)	0	2 (14.3)
EE (21)	17 (81.0)	0	4 (19.0)	21 (100.0)	0	0

Notes: 'Consistent acceptance' = selection of +1 or +2 on at least 4 out of 5 relevant test tokens; 'Consistent rejection' = selection of -1 or -2 on at least 4 out of 5 relevant test tokens; 'Inconsistency' = neither consistent acceptance nor consistent rejection

the consistency data for the native control groups on both answer types. A participant is considered to 'consistently accept' a particular answer type if she or he selected +1 or +2 on the rating scale for at least four of the five exemplars of that type. 'Consistent rejection' is defined as selection of -2 or -1 on at least four of the five exemplars of that type, and 'inconsistency' indicates response patterns that correspond neither to consistent acceptance nor to consistent rejection.

Considering, first, the consistent rejection column for pair-list answers, the data here further highlight a clear qualitative difference between the native Japanese group, on the one hand, and the Korean, Chinese and English control groups, on the other. In the native Japanese group, 10 individuals (55.6% of the group) consistently reject pair-list answers. However, in the Korean group only two individuals (8%) consistently reject pair-list answers, and in the Chinese and English groups, none consistently reject pair-list answers.

Turning to within-group variation, the lack of unanimity on pair-list answers within the native Japanese group is mainly due to six participants (33.3%) consistently accepting this answer type. Thus, despite the overall pattern of pair-list unacceptability in Japanese, one third of the individuals in the group nonetheless judged the pair-list reading acceptable. A strikingly different picture appears in the native Korean pair-list data: group variation on pair-list answers comes predominantly from six participants (24%) who were inconsistent in their responses. The majority of this group (68%: 17 participants) consistently accepted pair-list answers, while just two (8%) consistently rejected them.

As for the within-group variation on individual answers, Table 2 shows that, in the native Korean group, this is due to six participants not consistently accepting individual answers: four (16%) were inconsistent and two (8%) consistently rejected individual answers; and in the native Chinese group, variation is due to half of the group (7 out of 14) demonstrating consistent rejection on this answer type, and a further five participants (35.7%) demonstrating inconsistency. Only two (14.3%) native Chinese participants consistently accepted pair-list answers.

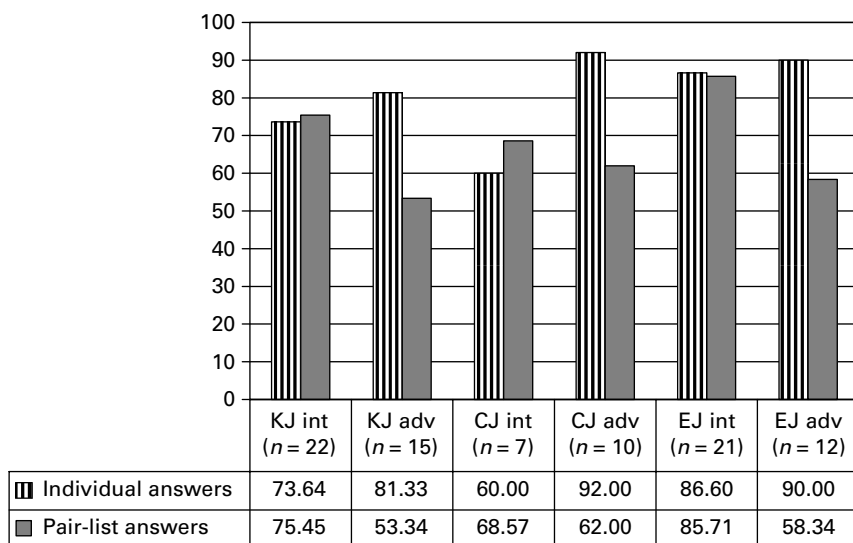
One factor contributing to the within-group variation may simply be that making judgements about quantifier interpretation can be hard, and thus unanimous results are difficult to obtain. This proposal is backed up by data from other experimental studies of quantifier scope phenomena. Yamakoshi (2006) also investigated the interpretation of *Wh*-object/*QP*-subject questions (among other question types) in Japanese. She used a truth value judgement task, and found that two out of 11 native Japanese speakers (18.2%) accepted pair-list readings on the two relevant tokens. Similarly, Lee *et al.* (1999) found up to 26.7% acceptance of object-wide scope on (contextless) Chinese doubly-quantified sentences in native Chinese, even though object-wide scope is considered unacceptable in this language. In addition, Kurtzman and MacDonald (1993) found that when native English speakers read an active doubly-quantified sentence like *A kid climbed every tree*, they accepted the object-wide scope interpretation provided by a disambiguating follow-on sentence – *The kids were full of energy* – only up to 35% of the time, even though object-wide scope is theoretically possible. Moreover, there are many comments in the theoretical literature about the difficulty and subtlety of quantifier scope interpretation (e.g. Kuroda, 1970: 113, footnote 26; Reinhart, 1997: 347; Tomioka, 2007: 3). In short, it seems that the interpretation of quantifier interactions is often difficult, and unanimous judgements simply cannot always be hoped for.

Within-group variation among native control participants could also occur because of a flawed experiment design. However, if a flawed experiment design were the cause, one would expect the same type of answer pattern to emerge across native groups. This clearly did not happen: the native Japanese group's low acceptance of pair-list answers is quite distinct from the high acceptance of pair-list answers by the other

three groups, and the native Chinese group's low acceptance of individual answers is quite distinct from the high acceptance of individual answers by the other three groups. Moreover, the individual participants show a high level of consistency: only a minority fall into the 'inconsistency' columns in Table 2, yet if the test design had led to confusion, it might have been expected that participants would answer randomly, with very little individual consistency. Therefore, it will be assumed that the results are valid. Further discussion of the native control data is presented in Section VI.

## 2 L2 data

The results for the L2 Japanese groups are shown in Figure 4. The data in Figure 4 reveal similarities across the three L1s. None of the three intermediate groups appears to distinguish between individual and pair-list answers: acceptance rates are 73.64% for individual answers compared with 75.45% for pair-list answers in the intermediate KJ group, 60% compared with 68.57% in the intermediate CJ group, and 86.6% compared with 85.71% in the intermediate EJ group.



**Figure 4** Rates (percentages) of acceptance of individual and pair-list answers, by the L2 groups

By contrast, some differentiation between the two answer types is evident in the advanced L2 groups. Specifically, all three advanced groups have considerably lower rates of acceptance for pair-list answers compared with individual answers: 53.34% (pair-list) vs. 81.33% (individual) in the advanced KJ group; 62% (pair-list) vs. 92% (individual) in the advanced CJ group; and 58.34% (pair-list) vs. 90.00% (individual) in the advanced EJ group. Wilcoxon tests show that none of these within-group differences are statistically significant ( $p \geq .067$ ). In short, at the group level the advanced L2 learners show a target-like pattern of high acceptance of individual answers compared with lower acceptance of pair-list answers, but their rates of acceptance of pair-list answers are considerably higher than in the native Japanese control group (36.66%). The intermediate L2 groups do not demonstrate any target-like differentiation between answer types.

Moving on to consider individual consistency among the L2 participants, the relevant data are presented in Table 3. Considering the individual answer data in Table 3, first, the most striking feature is the difference between the intermediate and advanced Chinese groups with regard to consistent acceptance: only 28.6% of the intermediate Chinese-speaking group (two out of seven participants) consistently accept individual answers in Japanese compared with 90% of the advanced Chinese-speaking group (nine out of 10 participants). Among the Korean-speaking learners and the English-speaking learners, rates of consistent acceptance of individual answers are high (>68%), and there

**Table 3** Consistency data for L2 groups on individual and pair-list answers

Group	Individual answers: number (percentage) of participants who demonstrate:			Pair-list answers: number (percentage) of participants who demonstrate:		
	consistent acceptance	consistent rejection	inconsi stency	consistent acceptance	consistent rejection	inconsi stency
KJ int (22)	15 (68.2)	4 (14.1)	3 (17.7)	15 (68.2)	3 (13.6)	4 (14.1)
KJ adv (15)	11 (73.3)	1 (6.7)	3 (20.0)	7 (46.7)	6 (40.0)	2 (13.3)
CJ int (7)	2 (28.6)	2 (28.6)	3 (42.8)	4 (57.1)	1 (14.3)	2 (28.6)
CJ adv (10)	9 (90.0)	0	1 (10.0)	6 (60.0)	4 (40.0)	0
EJ int (21)	17 (81.0)	1 (4.76)	3 (14.3)	18 (85.7)	2 (9.5)	1 (4.8)
EJ adv (12)	10 (83.3)	0	2 (16.7)	6 (50.0)	5 (41.7)	1 (8.3)

*Notes:* 'Consistent acceptance' = selection of +1 or +2 on at least 4 out of 5 relevant test tokens; 'Consistent rejection' = selection of -1 or -2 on at least 4 out of 5 relevant test tokens; 'Inconsistency' = neither consistent acceptance nor consistent rejection

is little difference between intermediate and advanced groups: 68.2% (intermediate) vs. 73.3% (advanced) among the Korean speakers and 81% (intermediate) vs. 83.3% (advanced) among the English speakers.

The most noteworthy feature of the pair-list data – the key dataset in this study – is that in each advanced learner group there is a higher proportion of participants who consistently rejected pair-list answers than in the intermediate group with the corresponding L1. In addition, the learners' rates of inconsistency were relatively low, at less than 15%, except for the intermediate Chinese-speaking group, which had a 28.6% rate of inconsistency (two out of seven individuals). The lack of unanimity in the advanced L2 acceptance rates thus comes from each advanced group broadly having two populations: one that accepts pair-list readings and one (the smaller one, in each case) that rejects pair-list readings. Of those who consistently rejected pair-list readings, it should be noted that each participant also consistently accepted individual readings. In other words, a substantial proportion of the advanced learners made the target contrast: they allowed individual answers but rejected pair-list answers.

### *3 Summary of results*

The key findings of the experimental study are summarized as follows:

- The native Japanese and native English results supported the claims of the theoretical literature: individual answers were highly acceptable in both languages, whereas pair-list answers were generally rejected in Japanese but almost unanimously accepted in English. Some within-group variation was acknowledged in the native Japanese responses to pair-list answers.
- There were unexpected findings in the native Korean and native Chinese data: general acceptance of pair-list readings of Korean *Wh*-object/QP-subject questions, and general rejection of individual readings of Chinese *Wh*-object/QP-subject questions.
- The three intermediate learner groups tended to accept both individual and pair-list answers in Japanese, without differentiating between the two answer types.
- The three advanced groups had considerably lower rates of acceptance for pair-list answers than for individual answers. Moreover, a considerable proportion of the advanced learners consistently rejected

pair-list answers and accepted individual answers in a target-like way (though in the native Japanese group – but not the advanced learner groups – the difference in acceptance rates for individual and pair-list answers was statistically significant).

## VI Discussion of L2 findings

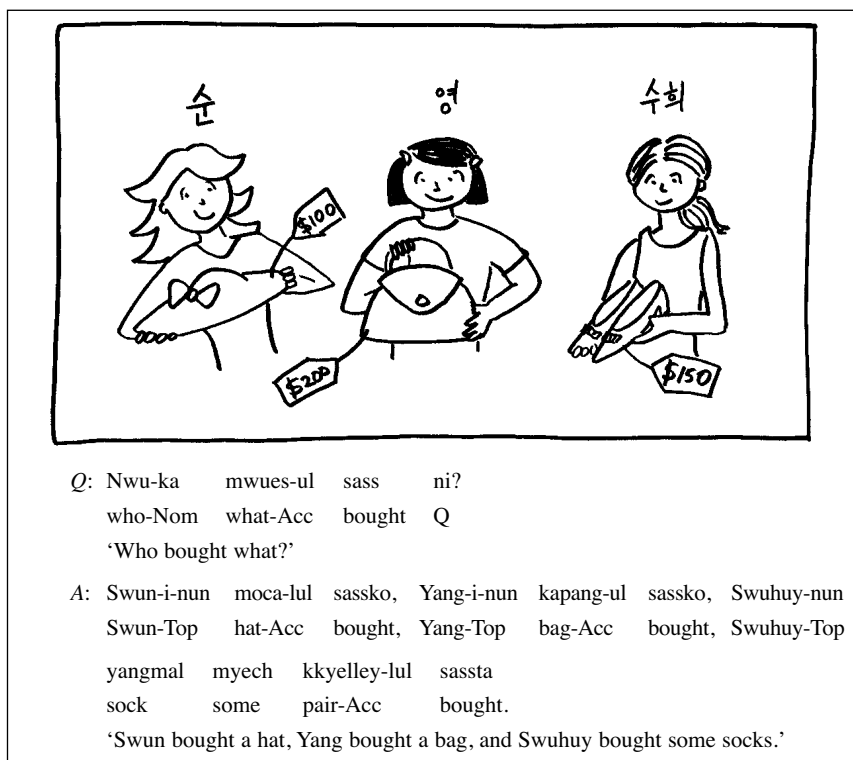
The native control data confirmed that a pair-list reading of *Wh*-object/*QP*-subject questions is generally unavailable in Japanese whereas it is generally readily available in English and Chinese. Unexpectedly, it was found that pair-list readings are also readily acceptable in Korean. This could be due to extraneous variables or problems with the test design. Considerable care was taken in the present study to avoid such problems. The experimental procedure was piloted, as detailed in Section IV.<sup>14</sup> All test sessions were administered by the author using the same protocol. Appropriate conditions were ensured in the test rooms (visibility of the screen, audibility of the tape recording, etc.). Finally, with regard to the native Korean test specifically, this was conducted at a university in Korea, and no English was used in the test room, so there is no reason to suspect that the participants were somehow influenced by English in their responses. Moreover, responses to the distractor items show that the native Korean control group did not exhibit a ‘yes bias’. On distractor items that required a ‘no’ response (i.e. selection of –1 or –2 on the rating scale), such as the item in Figure 5, the native Korean participants correctly supplied this. The answer in Figure 5 (‘Swuhuy bought socks’) conflicts with the picture (Swuhuy is holding shoes). The correct rejection of picture–question–answer combinations such as this confirms that the native Korean group was not subject to a yes bias.

<sup>14</sup> It is acknowledged that piloting included only the Japanese version and not the Korean, Chinese and English versions.

<sup>15</sup> A reviewer suggested that omission of *-ka* in the Korean questions might have given rise to interpretation of *nwukwuna* ‘everyone’ as a floating quantifier with a covert subject, as follows:

- i) *pro*    mwues-ul    nwukwuna    sass    ni?  
       *pro*    what-Acc    everyone    bought    Q  
       ‘What did *pro* all buy?’

Since there was no discourse in the test items to promote a null subject, it seems unlikely that this interpretation would arise. However, further investigation of this possibility may be informative.



**Figure 5** Korean distractor item

In short, the unexpected native Korean acceptance of pair-list readings in the present study should be treated as valid.<sup>15</sup> This means that the Prediction 1b (15) now holds for learners of all three L1 backgrounds, as in (24):

- 24) Revised prediction 1: Due to L1 transfer, lower proficiency Chinese-speaking, English-speaking and Korean-speaking learners will accept non-target-like pair-list interpretations of Japanese *Wh*-object/QP-subject questions.

This revised prediction is confirmed. All three intermediate groups generally accepted pair-list answers in Japanese, with group acceptance rates of 68% or higher.

This result is compatible with the Full Transfer model of L2 acquisition. However, as Schwartz and Sprouse (2000) point out, the strongest evidence of L1 transfer in L2 acquisition comes from comparative interlanguage research, which investigates the acquisition of a target

language phenomenon by learners whose L1s are typologically distinct with respect to that phenomenon. If the developmental paths of the different L1 groups diverge, then L1 transfer is implicated, since the input is presumably comparable regardless of L1. In the present study, since the L1s of all three learner groups ultimately turned out to allow pair-list answers, this comparative element is lost from the pair-list data.

This loss of the comparative interlanguage element means that a second explanation of the pair-list results cannot be ruled out: namely, that the three intermediate L2 groups exhibited a universal L2 acquisition pattern with respect to pair-list interpretation that is independent of the individual L1. This could provide support for models of L2 acquisition that claim that only UG, and not L1 knowledge, shapes L2 development (e.g. Epstein *et al.*, 1996). However, there is a growing body of evidence against such a claim, in the form of comparative interlanguage studies that provide clear evidence of L2 developmental paths that differ according to the L1 (e.g. White, 1985; Vainikka and Young-Scholten, 1996; Hawkins and Chan, 1997; Marsden, 2004; 2005; Hopp, 2005).

In addition, suggestive evidence against the ‘no L1 transfer’ model is also found in the present data on individual answers to *Wh*-object/QP-subject questions. The unexpected low acceptance rate (35.71%) by the native Chinese group for individual answers to Chinese *Wh*-object/QP-subject questions plays a role here, as follows.

The reason for this low acceptance seems likely to lie in the omission of the floating quantifier *dou* ‘all’ from the Chinese test questions, as described in Section IV. The Chinese *Wh*-object/QP-subject question form is illustrated again below.

- 25) Meigeren (dou) maile shenme?  
 everyone (all) bought what  
 ‘What did everyone buy?’

*Dou* ‘all’ was omitted in the test, in order to make the Chinese question closer in form to the Japanese, Korean and English question forms, which also did not contain floating quantifiers. Post-test discussion with native speakers of Mandarin Chinese indicates that, with or without *dou*, the most natural answer is the pair-list answer. However, inclusion of *dou*, especially if *dou* is stressed, makes the individual answer much more accessible (personal communication, Yu Jiang, Zhengzheng Wang,

June 2004). Thus, omission of *dou* in the test presumably decreased the availability of the individual reading.

If individual answers are unacceptable in Chinese (at least for *Wh*-object/QP-subject questions without the floating quantifier *dou*), then lower proficiency Chinese-speaking learners of Japanese may be predicted, due to L1 influence, to reject individual answers to Japanese *Wh*-object/QP-subject questions. Lower proficiency Korean-speaking and English-speaking learners, on the other hand, are predicted to accept individual answers to Japanese *Wh*-object/QP-subject questions, because individual answers are highly acceptable in native Korean (74.4%) and native English (89.52%). Such a difference is indeed evident: only two of the seven intermediate Chinese-speaking learners (28.6%) consistently accepted individual answers in Japanese compared with 15 out of 22 intermediate Korean-speaking learners (68.2%) and 17 out of 21 intermediate English-speaking learners (81%). The lower acceptance in the intermediate Chinese–Japanese group could represent vestiges of the influence of the L1 grammar, which does not readily allow individual answers for *Wh*-object/QP-subject questions without a floating quantifier. In group terms, the intermediate Chinese-speaking learners' acceptance rate for individual answers was 60%. This was considerably higher than the native Chinese group's 35.71% acceptance of individual answers in Chinese, but this could presumably be precisely because these are intermediate learners: their interlanguage grammar has already undergone some restructuring towards the target language grammar.<sup>16</sup>

Prediction 2 (16) must also be revised in light of the native Korean acceptance of pair-list readings:

- 26) Revised prediction 2: Due to UG 'access', higher proficiency Chinese-speaking, English-speaking and Korean-speaking learners will reject non-target-like pair-list interpretations of Japanese *Wh*-object/QP-subject questions.

Statistically, the data were inconclusive with regard to this prediction. All three advanced learner groups had lower acceptance rates for

<sup>16</sup> Since individual answers are possible in Japanese, L2 knowledge of this interpretation could, in theory, be deduced from direct evidence in the input (in contrast to acquisition of the absence of pair-list readings; see Section III). Therefore, although the intermediate Chinese-speaking learners' emerging knowledge of the possibility of individual answers in Japanese provides suggestive evidence of L1 transfer, it is not informative about the role of UG in L2 acquisition.

pair-list answers than for individual answers. In this, they contrasted with the intermediate groups, who did not distinguish between the two answer types. However, unlike the native Japanese control group, the advanced L2 groups' acceptance rates for pair-list answers were not statistically significantly lower than their acceptance rates for individual answers. In group terms, the advanced learners tended to accept pair-list readings. Nonetheless, examination of the data in terms of individual consistency revealed that a proportion of learners in each advanced group made the target contrast: around 40% of advanced learners consistently rejected pair-list answers and also consistently accepted individual answers. By contrast, in the intermediate learner groups, fewer than 15% of participants consistently rejected pair-list answers. Thus, the results from these advanced learners provide evidence that target-like L2 knowledge of a syntax–semantic interface phenomenon can be acquired even when the target form is interpretively more restrictive than the equivalent L1 form: learners can acquire knowledge of the absence in the target language of a possibility that exists in their L1. Since, as argued in Section III, there can be no direct evidence in the input from which to induce the absence of pair-list readings in Japanese *Wh*-object/QP-subject questions, this finding implicates the internal mechanisms of UG in the L2 acquisition process. In other words, the finding is compatible with Schwartz and Sprouse's (1996) 'Full Access' hypothesis, which proposes that L2 acquisition is fully constrained by UG.

## VII *Wh*-object/QP-subject question interpretation in UG

The conclusion that acquisition of L2 knowledge about *Wh*-object/QP-subject question interpretation is constrained by UG leads to the question of what, within UG, enables (at least some) learners to acquire the more restrictive Japanese syntax–semantics mappings. In order to address this question, it is necessary to consider hypotheses about UG architecture with respect to *Wh*-object/QP-subject question interpretation.

### 1 *Previous accounts*

Two accounts of the cross-linguistic differences in *Wh*-object/QP-subject question interpretation were outlined in Section II: Aoun and Li's

(1993) analysis in which the presence or absence of pair-list readings is linked to whether or not a language requires a question particle in *wh*-question formation; and Saito's (1999) account, in which the particular properties of the Japanese particle *-mo* within *daremo* 'everyone' rule out the pair-list reading in Japanese. However, both of these accounts turn out to be problematic for the finding in the present study that pair-list readings are acceptable in Korean *Wh*-object/QP-subject questions.

Considering Aoun and Li (1993) first, pair-list readings should be ruled out structurally in Korean, as in Japanese: no LF representation is available for pair-list readings of *Wh*-object/QP-subject questions in languages in which question markers are obligatory in *wh*-questions, as in Korean and Japanese.

Turning to Saito (1999), at first glance this analysis appears to offer a solution to the Korean acceptance of pair-list readings in the present study. Namely, although the Korean universal quantifier *nwukwuna* 'everyone' is morphologically similar to Japanese *daremo* in that it also contains a quantificational particle *-na*, the Korean particle is a disjunction not a conjunction. This could mean that it does not have the crucial domain-widening property of Japanese *daremo*. However, a Korean translation (27) of the Japanese dialogue that appeared in (9) does not support this hypothesis: *nwukwuna* 'everyone' can be used with exactly the same 'domain-widening' effect as *daremo* 'everyone' in the final utterance (Kook Hee Gill, personal communication, September 2005):

- 27) A: Ecey            haksayng-tul-un    ku    hotheyl    ey    mwukessta.  
       yesterday student-PL-TOP    that    hotel    in    stayed  
       'Yesterday the students stayed at that hotel.'
- B: Haciman,    John-un    caki    chinkwu    cip    eyse  
       but            John-TOP    self    friend    house    at  
       would-stay        said  
       mwukulcelako    malhayssta.  
       'But John said that he would stay at his friend's house.'
- A: Anya,    nwukwuna    ku    hotheyl    ey    mwukessta.  
       no            everyone    that    hotel    in    stayed  
       'No, everyone stayed at that hotel.'

Moreover, English *everyone* also appears to act as a domain widener, as the translation of (27) shows. Since Saito claims that the domain-widening effect of *daremo* suppresses the pair-list reading in Japanese, a problem for this account is how the pair-list reading obtains in English or in Korean.

A further problem for both Aoun and Li (1993) and Saito (1999) is that neither analysis can account for the minority of native Japanese speakers in the present study who allowed pair-list readings for Japanese *Wh*-object/QP-subject questions. An alternative account that addresses these problems is outlined below.

## 2 *A focus-based account*

A solution to the problem of native Korean acceptance of pair-list readings in the present study may be found by investigating the role of focus in *Wh*-object/QP-subject questions. In English *Wh*-object/QP-subject questions, the pair-list reading obtains far less readily if *everyone* is focused by means of stress:

28) What did EVERYONE buy?

In (28), the individual interpretation is readily available, but the pair-list reading is suppressed. A context for (28) might be one in which the speaker knew that ‘everyone’ (say, Sam, Jo and Sue) had bought something in common (e.g. concert tickets), but the conversation had focused only on things that Sam and Jo had bought. Similarly, *Wh*-object/QP-subject question interpretation is affected by stress in Chinese, too. As noted in Section VI, when the floating quantifier *dou* ‘all’ is stressed in a question like (4c), repeated in (29), the availability of an individual answer increases.

29) Meigeren DOU maile shenme?  
 everyone all bought what  
 ‘What did everyone buy?’

The difference between the unstressed and stressed *Wh*-object/QP-subject question may have to do with information structure. The non-*wh*-element of a *wh*-question is usually contextually old information, or the topic. However, stress on the non-*wh*-element turns it into new information, or a focus. Thus, in (28), the stressed EVERYONE represents ‘new’ information in the sense that the speaker is trying to elicit an understanding of *everyone* that has not occurred yet in the discourse.

Turning to Japanese and Korean, the nominative particles *-ga* in Japanese and *-ka* (or *-i*, post-consonantly) in Korean often mark new information. Thus, nominative-marked nouns in Japanese and Korean

are frequently in focus (Kuno, 1973; Yeon, 2003; Tomioka, 2007). In this context, recall that there was a difference between the Korean and Japanese question forms used in the experiment. In the Korean question form – (19) repeated in (30) – the nominative particle *-ka* was omitted on the subject QP *nwukwuna* ‘everyone’, because the particle is optional (in this question form), and the question reportedly sounds more natural without it. However, the Japanese question – (17) repeated in (31) – is ungrammatical if the nominative particle *-ga* is not included.

30)	Mwues-ul what-Acc	nwukwuna(-ka) everyone(-Nom)	V.Past	ni? Q
31)	Nani-o what-Acc	daremo*(-ga) everyone-Nom	V.Past	no? Q

This means that *daremo* ‘everyone’ in the Japanese test questions receives the (mild) focusing force of *-ga*, whereas *nwukwuna* ‘everyone’ in the Korean questions is not focused in any way. Therefore, the proposal here is that pair-list readings are rejected in Japanese *Wh*-object/QP-subject questions due to the focusing effect of *-ga*, in the same way that the focusing of *everyone* in English *Wh*-object/QP-subject questions also excludes the pair-list interpretation.<sup>17</sup> In the Korean *Wh*-object/QP-subject questions used in the experiment, since the subject quantifier was not focused, pair-list readings were allowed, as in neutrally stressed English *Wh*-object/QP-subject questions.

This proposal makes a testable prediction: that Korean *Wh*-object/QP-subject questions in which the nominative *-ka* is retained should not allow a pair-list interpretation. There is a hint in the relevant literature that this may be along the right lines. In Beck and Kim (1997) and Kim (1989), discussion of the lack of a pair-list interpretation in Korean *Wh*-object/QP-subject questions refers to questions in which the subject quantifier is marked with *-ka*. However, Ahn (1990) discusses Korean *Wh*-object/QP-subject questions with no nominative particle *-ka*. Ahn himself finds that the pair-list reading is odd, but he notes that ‘quite a few native speakers of Korean accept [it]’ (Ahn, 1990: 145, footnote 149). The reason for this may be precisely that he sought judgments about questions in which *-ka* was omitted, as in the present study.

<sup>17</sup> Yoshida (1995: 167) also speculates that focus may be implicated in suppressing pair-list readings in Japanese. She suggests that the focus may come from the conjunctive *-mo* in *daremo* ‘everyone’.

This proposal remains speculative, subject to further testing. However, if correct, it provides an account for the acceptance of pair-list readings in native Korean in the present dataset, as well as the general rejection of pair-list readings in native Japanese. In addition, it offers a solution to why some native speakers of Japanese judged pair-list readings acceptable. Namely, some Japanese speakers may interpret *-ga* only as a case marker in the questions used in this study; they may ignore its focus function (just as in English *What did EVERYONE buy?* some speakers may be less sensitive than others to the effect of the stress on *EVERYONE*). In effect, this account proposes that *Wh*-object/QP-subject questions always allow both an individual and a pair-list answer, but that the pair-list answer may be suppressed by means of focus.

### VIII Conclusions: implications for L2 acquisition of *Wh*-object/QP-subject question interpretation

If the focus-based proposal is correct, then, considering English-speaking and Chinese-speaking learners of Japanese first, the learnability problem concerns acquisition of the realization of focus in Japanese. If learners can acquire the focus property of the post-nominal grammatical particle *-ga*, then the mechanism for suppressing the pair-list reading in Japanese *Wh*-object/QP-subject questions should be available. Such knowledge clearly cannot arise via L1 transfer, since:

- English and Chinese do not have post-nominal particles; and
- focus in *Wh*-object/QP-subject questions in the L1 is realized by means of stress, not by a grammatical mechanism.

Moreover, unambiguous evidence in the input about the focus property of *-ga* is likely to be scarce. For example, Chino (1991: 14) lists ‘indicat[ing] the subject of the sentence when new, as-yet-unknown information is being presented’ as one of the functions of *-ga*. However, she notes that the topic-marking particle *-wa* can replace *-ga* when new information occurs in a contrastive context, as exemplified in (32) (based on Chino, 1991: 15):

- 32) Go-syoukai simasu. Kotira-ga Yamada-san de, kotira-wa Suzuki-san desu.  
 introduction do. this-Nom Yamada Cop, this-Top Suzuki Cop  
 ‘Let me do the introductions. This is Mr Yamada, and this is Ms Suzuki.’

This shows that there is no single obligatory context for the focus function of *-ga*: it can optionally be replaced by the topic particle *-wa* under certain conditions. In other words, the facts of *-ga*-induced focus in Japanese are underdetermined by the learners' L1 and by evidence in the input.<sup>18</sup>

Given the paucity of unambiguous evidence about the focus property of *-ga*, it is not unexpected that the present study found only low numbers of advanced English-speaking and Chinese-speaking learners who demonstrated consistent knowledge of the native Japanese contrast between individual and pair-list readings. However, as argued in Section VI, this minority of learners provides support for a UG-based model of L2 acquisition. In terms of the focus-based account, the interlanguage of these learners must have undergone restructuring so that focus can be realized by a grammatical particle – a UG-permitted option that is not instantiated in the L1s.

For the Korean-speaking learners of Japanese, the focus-based proposal about pair-list interpretations makes a different prediction. Since Korean has a nominative/focus particle, *-ka*, like Japanese *-ga*, the focusing function of *-ga* could presumably be acquired via transfer of knowledge about Korean *-ka*. This leads to the prediction that, after all, intermediate-level (as well as advanced-level) Korean-speaking learners of Japanese should reject pair-list readings in Japanese, since, by L1 transfer, they should be sensitive to the focussing effect of *-ga*. This is not, however, what the intermediate Korean–Japanese results showed.

Continuing to assume that the focus-based proposal about pair-list interpretation is along the right lines, and, also, that L1 knowledge transfers to the interlanguage, a solution to the intermediate Korean-speaking learners' acceptance of pair-list readings might be found by closer examination of some key differences between Japanese and Korean. Regarding the nominative/focus particles, we have already seen that the distributions of Korean *-ka* and Japanese *-ga* are not

<sup>18</sup> Learners may encounter explicit instruction about the focus function of *-ga* in the classroom. Indeed, a text such as Chino (1991) is intended for use by learners of Japanese. However, the fact that it is notoriously difficult for L2 Learners of Japanese to attain native-like knowledge of particles such as *-ga*, despite classroom instruction (Tomita, 1997), suggests that explicit instruction about the function of *-ga* does not reliably translate into linguistic competence.

exactly equivalent: *-ka* can be omitted in Korean *Wh*-object/QP-subject questions whereas *-ga* cannot in Japanese. Choe (1995) comments on further differences between Korean and Japanese with respect to the optional omission of *-ka* and *-ga*. Such subtle differences may affect Korean–Japanese interlanguage knowledge of *-ga*, so that some non-target-like behaviour occurs. In addition, the properties of Japanese *daremo* ‘everyone’ and Korean *nwukwuna* ‘everyone’ may play a role. Though morphologically similar, there are also differences between the two words. For example, as already noted, the quantificational particle in Japanese, *-mo*, is a conjunction, whereas Korean *-na* is a disjunction. In addition, *nwukwuna* ‘everyone’ is semantically a universal quantifier, but it also has characteristics of a free-choice item (i.e. it can be interpreted as ‘anyone’ in a context such as ‘Anyone can do it’; see Gill *et al.*, 2007), whereas *daremo* ‘everyone’ is a negative polarity item as well as a universal quantifier (Nishigauchi, 1999; Gill, 2004). L1 knowledge of Korean *nwukwuna* might thus lead to non-target-like interpretation of *daremo* ‘everyone’ in Korean–Japanese interlanguage.

Further exploration of these suggestions, along with further investigation of the proposed focus-based account of pair-list interpretation, is left for future research. The key contribution of the present article is the finding that a number of advanced L2 learners of Japanese demonstrated knowledge of the absence of pair-list readings in Japanese *Wh*-object/QP-subject, despite a lack of direct evidence to motivate deduction of the relevant facts. This result supports the hypothesis that L2 acquisition at the interpretive interface is constrained by the mechanisms of UG.

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