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Resetting the Nominal Mapping Parameter in L2 English: Definite article use and the count–mass distinction*

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This paper presents two experiments in the acquisition of the nominal domain in English by Japanese and Spanish second language (L2) learners. The first experiment tests the L2 learners' ability to distinguish between count and mass nouns using a grammaticality judgement task and the second experiment tests learners on different types of definite (based on J. Hawkins's 1978 taxonomy) in count and mass contexts by means of a forced-choice elicitation task. The claim by Chierchia (1998a, b) is that there is a Nominal Mapping Parameter and the three languages discussed in this paper each have a different parametric value. The aim of the paper is to test Japanese and Spanish L2 learners of English to see whether they can reset the parameter to the English setting.

1. Introduction

First language (L1) acquisition studies of the count–mass distinction are numerous (Gordon, 1985; Soja, 1992; Bloom, 1994; Nicolas, 1997; Imai and Mazuka, 2003; Barner and Snedeker, 2005; Papafragou, 2005). Similarly, there have been second language (L2) acquisition studies of the count–mass distinction (Hiki, 1990; Yoon, 1993; Hua and Lee, 2005; Athanasopoulos, 2006). The present paper investigates the acquisition of the count–mass distinction and types of definites in L2 English, by adopting the proposal by Chierchia (1998a, b) for a Nominal Mapping Parameter. The first aim of the paper is to test the Nominal Mapping Parameter (hereafter NMP) in L2 acquisition by testing two different L1 groups; under Chierchia's account, Japanese lacks a count–mass distinction and Spanish has a count–mass distinction, but does not really allow the use of bare nouns. It is predicted that L2 learners will have to reset the NMP to the English setting. The second aim is to see whether certain types of definites, as defined by J. Hawkins (1978), are more difficult because of the type of definite (i.e. anaphoric, encyclopaedic) and/or because of the type of noun (singular, plural and mass).

2. The Nominal Mapping Parameter

Chierchia (1998a, b) provides a cross-linguistic account of NPs with regard to the mapping between syntactic categories and semantic types.[1] He proposes that there is a Nominal Mapping Parameter with a three-way parametric distinction that divides languages. This is illustrated below:

a. NP[+arg, +pred]
ENGLISH, German
- L1s with (in) definite articles.
- Number marking on Ns.
- Allow bare mass Ns and plural Ns in argument position.

b. NP[+arg, −pred]
JAPANESE, Chinese
- L1s lacking DP (no articles).
- No number marking on Ns.
- All Ns are mass.
- Generalized classifier system.

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[1] Gil (1987) proposes a similar parameter called "the configurational parameter". His account is based on the count–mass distinction universally present due to extragrammatical factors such as how concepts are represented in languages.

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c. NP[−arg, +pred]
SPANISH, Italian
- L1s with (in) definite articles.
- Number marking on Ns.
- Do not allow bare mass Ns in argument position.

adapted from Schmitt and Munn, 1999, p. 3)

All languages have a mass domain for noun denotations, but languages that have bare NPs are argumental or names of 'kinds' i.e. languages like Japanese, only have a mass semantic domain. Therefore, it has the NMP setting [+arg, −pred] as there is no singular/plural distinction. All nouns in Japanese appear as 'kinds'. Languages such as Spanish and English have a count semantic domain and a mass semantic domain. All nouns need to be licensed to appear as arguments hence a functional Determiner head always projects. Romance languages have the NMP setting [−arg, +pred]. However, English is a mixed language which allows argumental NPs (bare NPs) but predicative NPs (count NPs) require licensing. This gives English the NMP setting [+arg, +pred]. Examples of the count–mass distinction in English are presented in (1).

(1) a. *Al the boy* bought *al the book*
[±definite] [singular N]
b. *The* boy-*s* bought *the* book-*s*
[+definite] [plural N]
c. **Boy* bought *book*
d. *Boys* like *girls* [−definite] [bare plural N]
e. John received *money* for Christmas
[−definite] [bare mass N]

Count nouns in English like *boy* and *book* are predicates that are licensed by overt articles *the* or *a* or plural *-s* marking, as in (1a) and (1b); otherwise they are ungrammatical, as in (1c). However, English also allows kind-denoting nouns which are bare plurals, as with *boys* and *girls* in (1d) (a generic reading), and mass nouns with a mass-type reading, as with *money* in (1e), to be argumental. Unlike Romance languages where all nouns are licensed by a phonologically overt or covert article filling an obligatory D position,[2] Chierchia argues that this is not the case for English.[3] He proposes a type-shifting device to shift the semantic type of the NP as a last resort. This allows him to propose that the count–mass distinction exists in English as plural *-s* licenses the noun as an argument and mass nouns are always arguments that do not project D, hence there is no null (covert) article in English.[4]

3. The Nominal Mapping Parameter in L1 acquisition

According to Chomsky (1965) there is an innate component to language acquisition. Universal Grammar (UG) is part of the innate language faculty which constrains L1 acquisition. All L1 grammars conform to the principles and parameters of UG. However, as White (2003b) states, the logical problem of language acquisition or poverty-of-the-stimulus is that there is a mismatch between the input the child is exposed to and the output (unconscious grammatical knowledge that the child acquires).

The Nominal Mapping Parameter is UG-determined. Chierchia, Guasti and Gualmini (1999) claim that children start off initially with the Japanese setting of the NMP, which is a [+arg, −pred] type language. This means, universally, that every child starts off with a nominal system resembling Japanese. On the basis of innate grammatical knowledge and input, a Spanish child will have to reset the NMP and gradually project DP for argumenthood. However, an English child "will have to figure out item by item whether a noun refers to a kind (and hence is mass and can be a bare argument) or to a predicate (and hence is count and in the singular, cannot be a bare argument)" (Chierchia, 1998a, p. 401). This process of learning item by item will naturally take time, but it is uncertain how much time the lexical classification of nouns takes for an English child to work out which nouns are bare nouns and which nouns need to be licensed by a determiner. The point here is that the English child eventually resets the NMP for English. The L1 learner of that language then has to determine, based on positive evidence alone, whether all nouns like *dog* are always count and nouns like *furniture* are always mass. This depends on how much flexibility individual nouns are allowed, which is governed by their lexical semantics.[5]

Studies of the NMP in L1 acquisition have concentrated on the ability of children to distinguish between count and

[2] According to Bernstein (2001), Romance languages like Spanish have overt articles (definite: *el*/*la*/*los*/*las* and indefinite: *un*/*una*/*unos*/*unas*) and covert articles (null forms).

[3] Under the DP hypothesis (Abney 1987) a language like English has overt articles (*the* and *a*) and a covert or null article, as it seems to have grammatical, semantic and selectional properties.

[4] Chierchia's (1998a) account cuts across noun classification. The consequence of his proposal for syntactic representation is that count nouns would have to have two lexical entries: one for the singular which is [+pred] and one for the plural which is [+arg]. This however misses the lexical generalisation that plural count nouns are the same N as the singular, but with plural specification. This forces one to the straightforward position that count nouns are [+pred] while mass nouns are [+arg]. The licensing of count nouns as arguments can be implemented by articles, by the plural, by demonstratives, by quantifiers. English remains a [+arg, +pred] language, but with the distinction between [+pred] and [+arg] nouns drawn slightly differently.

[5] See Gathercole's (1986) proposal for a prototype structure of the count–mass category.

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mass nouns conceptually and/or linguistically. Gualmini (2000) set out to explore the classification process of count and mass nouns in child language with three Italian-speaking children's spontaneous speech. The results revealed that even at a late stage of acquisition there is still omission of articles, around 20% for each child. It could be that many nouns are still linguistically classified as mass. Gualmini (2000) concluded that the Italian children in his study correctly set the NMP from an early stage and were correctly using articles, but the classification for each noun was not yet fully adult-like.[6]

Guasti and Gavarró (2003) set out to test the NMP by looking at child speakers of Catalan. One of the hypotheses tested was whether child speakers of Catalan would behave as other children of Romance languages such as Spanish and Italian in the mapping between syntactic categories and semantic types. Catalan is similar to Italian in that there are no bare nouns. Nouns are predicates which require articles to turn them into arguments. They concluded from the data of the Catalan-speaking and Italian-speaking children that the NMP is compatible with an account of article acquisition. Children have to reset the NMP, meaning that the initial setting of the NMP is the wrong value for Catalan and Italian. Subsequently, in their developing grammar they realize that the Germanic parameter setting [+arg, +pred] is not valid for their L1, so they switch to the Romance setting [−arg, +pred].

4. Previous L2 studies of the count–mass distinction in English

Previous studies of the count–mass distinction in L2 English are not extensive as they tended to focus on the acquisition of articles. However, there are a few studies that have investigated L2 acquisition of articles and the problems L2 learners encounter with count and mass nouns (Hiki, 1990; Yoon, 1993; Young, 1996; Hua and Lee, 2005). I review one of the studies on the count–mass distinction in section 4.1.

4.1 Hua and Lee (2005)

A recent study of Chinese L2 learners of English has been conducted by Hua and Lee (2005). In one of three studies, they administered a count–mass grammaticality judgement task involving 20 nouns in total. The 20 nouns appeared in two types of count contexts (i) preceded by a numeral and (ii) preceded by the fuzzy quantifier *many*. The same nouns also appeared in mass noun contexts preceded by the fuzzy quantifier *much*. This produced a total of 60 test sentences (20 nouns × 3 contexts) as in the following examples:

(2) a. Count nouns in count-selective contexts (*many*)
Not *many computers* in the private study area exploded this afternoon, but a number of students were injured.
b. Count nouns in mass-selective contexts (*much*)
*Not *much computer* in the private study area exploded this afternoon, but a number of students were injured.
c. Mass nouns in mass-selective contexts (*much*)
The neighbours did not see *much smoke* coming out of the chimney of Mr. Ramsey's house; this suggests that he was often away from home.
d. Mass nouns in count-selective contexts (*many*)
*The neighbours did not see *many smokes* coming out of the chimney of Mr. Ramsey's house; this suggests that he was often away from home.

The authors tested three groups of ESL learners: (i) senior high-school students in Shanghai (n = 9), (ii) first- and third-year university students in Shanghai (n = 15 for each group) and (iii) a group of first- and second-year university students in Hong Kong. There was also a group of six English native speakers. Learners tended to accept count nouns in mass contexts (using the mass quantifier *much*) more often than when they were abstract nouns. There was a significant difference in acceptance between abstract and concrete nouns in mass contexts < T/S: GLOBALLY: Please insert a small # before and after the symbol = . > ($t = 4.43$, $p = 0.001$ for U1 students; 1.13 vs. 0.20, $t = 4.53$, $p = 0.000$ for U3 students; 1.24 vs. 0.47, $t = 3.49$, $p < 0.005$ for HKU students). For mass nouns occurring in count contexts (using the quantifier *many*) the learner judgements were more accurate for the mass concrete nouns. Hua and Lee claim that the results show that L2 learners of a language without a count–mass

[6] Chierchia et al. (1999) suggest that the order of parameter setting would be "Chinese" > "Italian" > "English". However, there could be a potential learnability problem if the parameter is set to one language setting i.e. Chinese, as the child has to then change the setting to the correct setting for his or her L1. A reviewer pointed out that there should not be a learnability problem if there is continual positive evidence. But, Kupisch (2006, p. 103, footnote 20) argues that this "order predicts that children acquiring German or English pass through a stage in which they use determiners where they should not occur; e.g. with mass and plural nouns that have no specific reference". This has not been found in any L1 acquisition studies so far. Evidence supporting the correct NMP setting from an early stage (no resetting required) comes from studies by Lleó and Demuth (1999) and Lleó (2001), of proto-articles. Any omission errors would be the result of "some prosodic mechanism . . . . . or some structural mechanism that sometimes forces children to omit articles" (Guasti and Gavarró 2003, p. 297). For discussion of prosodic constraints being the cause of omission of articles by child learners of Italian, see Crisma and Tomasutti (2000).

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distinction[7] are able to conceptualize what is countable versus what is uncountable in L2 English. But Hua and Lee do not discuss the resetting of the NMP, though they do refer to Chierchia (1998a). They simply argue that "the Chinese learner will have to unlearn the UG option that bare nouns can denote kinds in some languages, an option available in their L1" (Hua and Lee, 2005, p. 140). However, it is not clear what 'unlearn' means here, as I will argue in section 6 below that learners whose L1 lacks the count–mass distinction must ACQUIRE the syntactic category DP along with the associated features of DP. They must also acquire an uninterpretable number feature on count nouns as they require licensing by an article in English.

5. Previous L2 English studies of article acquisition

There are numerous studies of L2 English learners acquiring articles (Parrish, 1987; Tarone and Parrish, 1988; Chaudron and Parker, 1990; Shin-ichi, 1991; Shirahata, 1995; Takahashi, 1997; Robertson, 2000; Kowaluk, 2001; White, 2003a) but there are fewer studies where one group of L2 learners from a language without articles is compared with a group of learners whose L1 has articles (Thomas, 1989; Murphy, 1997; Wakabayashi, 1998; Liu and Gleason, 2002; Trademan, 2002; Snape, 2005).

5.1 Wakabayashi (1998)

Wakabayashi (1998) proposes that there is an optional/obligatory parameter, which is termed the D parameter. English and Spanish have setting (a) obligatory (D)eterminer and (Num)ber in every NP and Japanese has setting (b) which is to use D and Num optionally. Japanese speakers must acquire the specification of English D from 'scratch'. Therefore, the appearance of *a*/*-s* comes later for Japanese speakers and there are persistent L1 transfer effects due to parameter setting (b). He examined the use of the definite article by 55 Japanese speakers. In a gap-filling task the 55 participants were asked to supply the definite or indefinite article in a text extracted from a Japanese textbook used in high schools. The objective of his study was to test whether Japanese speakers would transfer the optional setting of D to their interlanguage grammars (hereafter ILGs). He also hypothesized that the demonstrative *sono* "that" in Japanese, at initial stages of acquisition, may be used as a translational equivalent to the definite article *the* in anaphoric contexts. However, he claimed that it is equally possible that Japanese speakers develop knowledge of the use of the definite article independent of their L1 grammar. The types of definite employed in the task are in (3).

Types of definiteness

(3) a. Anaphoric Use
Fred was wearing trousers. *The trousers* had a big patch on them.
b. Immediate Situation Use (Visible Situation Use)
[There is only one bucket in the visible situation] Pass me *the bucket*, please.
c. Immediate Situation Use (Immediate Situation Use)
[Opening conversation to a passenger, when you cannot see a dog] Don't go in there, chum. *The dog* will bite you.
d. Larger Situation Use (specific, with presupposed knowledge)
[In Britain, among British people] *The Prime Minister* has just resigned.
e. Larger Situation Use (general, without any specific presupposed knowledge)
[When invited to a wedding] Have you seen *the bridesmaids*?
f. Associative Anaphoric Use
The man drove past our house in a car. *The exhaust fumes* were terrible.
(from Wakabayashi, 1998, based on J. Hawkins, 1978)

For analysis of results, (3d) and (3e) uses of the definite article are placed into two different categories because Wakabayashi claims that they are associated with culturally specific uses. He found that the culturally specific uses of the definite article were the most difficult along with the anaphoric associative use. He also found that the Japanese speakers were more successful in supplying the definite article when the NPs were [singular] rather than [uncountable]. Hiki (1990, 1991) reported similar results in his study. Wakabayashi concluded that the Japanese speakers do independently acquire the definite article and do not directly transfer the demonstrative *sono* "that". A possible explanation for greater accuracy in suppliance of a definite article in [singular countable] NPs is Japanese speakers believe that it is obligatory but optional when the NP is either [plural] or [uncountable]. He suggests that in the Japanese speakers' ILGs "the definite article is not only associated with [+definite] but also with the number feature of the noun phrase" (Wakabayashi, 1998, p. 103). This is due to L1 transfer of the D parameter which has the [optional] value in Japanese.

5.2 Liu and Gleason (2002)

In a study similar to Wakabayashi (1998), the use of the definite article by L2 learners of English was tested by

[7] Chierchia (1998a, b) argues that Chinese lacks the count–mass distinction. See Cheng and Sybesma (1999) for an alternative account of Chinese.

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using a cloze test. Liu and Gleason decided to collapse the types of definite in (3) above into four main types:

(4) a. CULTURAL, where *the* is used with a noun that is a unique and well-known referent in a speech community.
We went hiking in (the) Lake District last autumn.
b. SITUATION, where *the* is used when the referent of a first-mention noun can be sensed directly or indirectly by the interlocutors or the referent is known by the members in a local community, such as the only dog in a family or the only bookstore in a town.
A woman, with her hands full, says to a man standing in front of the office, "Open (the) door for me, would you?"
c. STRUCTURAL, where *the* is used with a first-mention noun that has a modifier.
(The) movies that are shown here now are all rated R.
d. TEXTUAL, where *the* is used with a noun that has been previously referred to or is related to a previous mentioned noun.
We rented a boat last summer at a lake. Unfortunately, (the) boat hit another boat and sank.
(from Liu and Gleason, 2002, p. 7)

The test instrument consisted of 91 sentences in total. There were 15 types of each definite article per category in the cloze test. Sixty obligatory uses of the definite article were deleted from 51 of the sentences. The remaining sentences were distracters or control items. The participants were asked to supply a definite for each sentence.[8] Data were collected from three levels of proficiency (low, intermediate and advanced) from students attending intensive English programs at several universities in the USA. The participants came from 18 different L1 backgrounds, though the majority were Chinese, Korean and Japanese (n = 101) and the remaining participants (n = 27) were of Indo-European languages.[9] Liu and Gleason found that there were significant differences between the two groups in omission of *the* in the cultural and situation uses. However, the overall results revealed that the L2 learners seem to acquire definite article types in order of difficulty. Firstly, the situation use, then the structural and textual uses and lastly the cultural use. They concluded with some pedagogical implications for teaching practice and instructional material writing.

The results from the L2 studies show that Chinese L2 learners are able to distinguish between count and mass. Japanese L2 learners continue to have difficulty with articles because of the count–mass distinction and the definite article is difficult due to the type of NP context (countable vs. uncountable) and the type of definite article.

6. The Nominal Mapping Parameter in L2 acquisition

White (2003b, p. 23) argues that in order to support the poverty-of-the-stimulus situation for L2 acquisition, one would have "to demonstrate convincingly that interlanguage grammars are constrained by principles of UG". Three conditions should hold: (i) the property in question should not be available in the L1, (ii) it must be underdetermined by input, and (iii) it should not be known through instruction or other metalinguistic means. For the Japanese learners to successfully reset the parameter to the L2 setting they must be able to distinguish between countable and uncountable nouns. The properties in question are features of determiners and nouns which are absent in Japanese (see (5) below). The more input the learners receive the more likely it is that they will perform better on a count–mass grammaticality judgement task. However, the crucial point here is that even learners who have received little input should be able to reset the NMP if their ILGs are constrained by UG.[10,11]

If L2 learners are unable to reset the NMP to the English setting, we may expect Japanese learners to transfer the L1 setting and treat all count nouns (*a car*) and mass nouns (*furniture*) in English as a "kind" (mass-like), because Japanese cannot individuate (no singular/plural distinction).[12] Spanish learners may differ as Spanish is a language with count nouns and no bare NPs. Mass nouns

[8] There are potential problems with the test instrument Liu and Gleason (2002) employed. Many of the sentences had articles present. This could act as a priming effect as to whether or not a definite article is needed. As no blank space was provided it may not be obvious to all the participants that an article is required. There is no way of knowing whether the L2 learner simply does not know a definite article is required or they miss it because it looks grammatical.

[9] Liu and Gleason (2002) do not give any further details about the participants in their study. They admit that having more East Asians and less participants from other L1 backgrounds is a shortcoming of their study.

[10] The role of instruction may or may not facilitate knowledge of the count–mass distinction. This is because count nouns can appear as mass in context e.g. "I ate *dog* last night" or a mass noun like *skill* e.g. "To produce great art you require *skill* with a brush" can appear as count in context "He needs to learn *a skill* to gain employment", "He has many *skills* relevant for the job".

[11] Admittedly, to fully claim that learners can reset the Nominal Mapping Parameter they should not have received any target-language input or instruction. It is possible that learners at beginner level may not have received much input but if they are adult L2 learners they would have received instruction at high school. Further research is needed.

[12] One reviewer argues that there are other ways to individuate besides using determiners such as proper names, pronouns, numerals and classifiers. It is possible to individuate in Japanese, but for the purpose of acquiring the count–mass distinction in English learners

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in English may be accepted as countable by the Spanish learners as mass nouns such as *furniture* appear to be countable in Spanish (e.g. *los muebles*).[13] Therefore, we might expect to find differences between L2 learners who have the NMP setting [+arg, −pred] (Japanese) and L2 learners who have the setting [−arg, +pred] (Spanish).

To consider the detail of the acquisition of the [+arg, +pred] (English) setting of the NMP by Japanese and Greek speakers, Hawkins et al. (2005) adopt a syntactic analysis of the English DP that involves the notion of 'Agree' defined by Adger (2003). The set of assumptions based on Radford (2000) is given in (5) for singular count nouns:

(5) *a boy*

[+singular] [noun, animate, masc, 3pers, *u*num:] →

[+singular] [noun, animate, masc, 3pers, ~~*unum*~~: +singular]

Japanese does not have articles (lacks the functional category DP) and nouns do not enter into the derivation carrying an uninterpretable number feature [*u*num:] as all nouns have an argumental interpretation i.e. are "kinds". Spanish has articles and all nouns enter into the derivation with an uninterpretable feature which has to be valued and deleted by an article, as shown in example (5) above. English differs from Japanese and Spanish as it allows count nouns and bare nouns. Since mass nouns are inherently plural under Chierchia's (1998a, 1998b) account, there is no need to claim that mass nouns carry an uninterpretable feature. This is sketched in (6).

(6) The syntactic three-way parametric distinction according to the NMP

English: count nouns: [num, sing:pl] [N, *u*num:]
mass nouns: [N]

Japanese: all nouns: [N] "kinds"

Spanish: all nouns: [num, sing:pl] [N, unum:]

The approach adopted in my study is to claim that L2 learners have difficulty with the count–mass distinction because of the different L1 NMP settings. The task of resetting the NMP may be more difficult for learners of an L1 with the setting [+arg, −pred] because Japanese lacks the functional category DP (Wakabayashi, 1998) and the uninterpretable number feature as there is no number marking on nouns. But, it is assumed, under the Full Transfer/Full Access Hypothesis (Schwartz and Sprouse, 1996), that "learners can acquire new functional categories, features and feature values, together with their associated consequences, thus, implicating parameter resetting" (White, 2003b, p. 148).

In order to find out whether Japanese and Spanish learners can reset the NMP to the English setting, two tasks were administered. The first was a count–mass grammaticality judgement task and the second was a forced-choice elicitation task. These are discussed in section 7.

7. Method

7.1 Predictions and hypotheses

Hypothesis 1 (H^1) was formulated in order to test parameter resetting using a count–mass grammaticality judgement task:

H^1 L2 learners from different L1 backgrounds can reset the NMP to the English setting [+arg, +pred].

Spanish is a language with articles and number marking on nouns; therefore it has the NMP setting [−arg, +pred]. Japanese is a language, according to Chierchia (1998a), where all nouns are argumental [+arg, −pred] (mass-like). Chierchia et al. (1999) suggest parameter resetting can be very fast as it only takes a few occurrences of articles and plural morphology to trigger resetting. If the L2 groups differ in performance then (i) L1 transfer may be persistent even though the parameter has been reset (ii) it may be due to their proficiency level in English. The more advanced the learners are the better they should perform overall. Hypothesis 2 (H^2) was formulated in order to test definite article types in count and mass contexts using a forced-choice elicitation task.:

H^2 Japanese L2 learners can reset the NMP, but there may be a difference in the suppliance of definites in singular, plural and mass noun contexts due to the different pragmatic uses of the definite article.

Perhaps frequency of the different contexts is a factor in acquiring definite article use, but as L2 learners from article-less languages have a persistent problem, not L2 learners from article languages, I argue that frequency is not the only factor.

7.2 The participants

All participants were students at the University of Essex and were tested on campus (see Appendix for further information on participants). In total, 75 participants took part in the study. There were 15 native speakers of English, 30 native speakers of Japanese and 30 native speakers of Spanish. All participants (apart from the native controls) were asked to complete the Oxford Quick Placement Test (OQPT; Syndicate, 2001). The participants were then

need to acquire new syntactic features i.e. features of DP and an uninterpretable number feature on nouns.

[13] English mass nouns such as *furniture* can be countable when preceded by a measure phrase e.g. *a* piece of furniture/piece*s* of furniture, but without a measure phrase they are ungrammatical e.g. **a* furniture/* furniture*s*.

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Table 1. *Adnominal quantifiers and nouns used in the grammaticality judgment task.*

AdnQ + count plural	AdnQ + mass	AdnQ + count singular	AdnQ + mass plural
some shirts	some information	*much car	*some butters
many tickets	*many money	*many sweet	*many evidences
*much roses	much paper	*much cookie	*much fruits
few tourists	*few information	*few cyclist	*few sunshines

placed into intermediate or advanced groups depending on their OQPT scores. Factors such as age and length of stay in English-speaking countries were not included in the final analysis.

7.3 The tasks

The count–mass grammaticality judgement task was designed with four conditions: (i) count singular, (ii) count plural, (iii) mass, and (iv) *mass plural (* means ungrammatical), and is based on a task used by Hawkins et al. (2005). Some examples of the conditions with nouns are in Table 1.[14] The items were randomized and included in short contexts. An example of a context is in (7).

(7) Terry needed ... some milk ✓
many butter ✗
much sugar ✓

Each participant was required to choose which continuations produce a possible sentence of English (that is, one that you could say), and tick those continuations. If they thought a continuation was not possible they were instructed to place a cross next to it. Before the main study was administered, a pilot study was conducted with a small group of Japanese, Spanish and native English control participants.[15] It was found that L2 learners and native controls accepted the quantifier *some* with count singular nouns e.g **some ticket*, **some train* as it was being used as a determiner. As a result, the count singular nouns co-occurring with *some* were removed from the task.[16]

The forced-choice elicitation task consists of 92 short dialogues in total. Generic contexts (singular, plural and mass) were included in the task as distracters. The test instrument was designed to incorporate three definite contexts based on J. Hawkins (1978). The three types of definite were anaphoric, encyclopaedic and larger situation uses in combination with singular (12 items), plural (12 items) and mass (12 items) nouns. All the target definite articles were removed from the short dialogues. Instead, a blank space remained, which the participants were asked to fill with an article. The dialogues were designed in order to avoid any priming effects, so no definites or indefinites appear before the blank space. Each short dialogue had either a count or a mass noun following the article. Based on previous studies it was believed that the L2 learners would have difficulty selecting the correct article due to the type of definite and/or the type of noun.

The short dialogues in (8)–(9) are designed to test hypothesis 2 above.

(8) Types of definiteness (count singular nouns)

a. Anaphoric Use (specific, with presupposed knowledge)

A: I left my wallet behind this morning.

B: That's terrible! What did you do?

A: I returned home to get ____ *wallet*.

a *the* ∅ *an*

b. Larger Situation Use (encyclopaedic, obligatorily unique or cultural knowledge)

A: Jason isn't taking his boat out tomorrow.

B: Isn't he?

A: He has seen ____ *ocean*, and he thinks it is too rough.

∅ *an* *a* *the*

c. Larger Situation Use (general, without any specific presupposed knowledge)[17]

A. Are you interested in our internship programme?

[14] One reviewer suggests that the task is unbalanced because there is not an equal number of contexts and there is only one stimulus with *few* in combination with mass plurals. However, the aim of the task was not to test the learners' knowledge of quantifiers, but rather to test whether they accept a count noun as count and a mass noun as mass. I agree that more contexts are needed with the task being balanced across the range of quantifiers and noun type combinations and I intend to include more contexts in a follow-up task.

[15] See Snape (2005) for results of a study involving five participants from each L1 background: Japanese, Spanish and English.

[16] A reviewer argues that the count singular items used with *some* should be included in the final count otherwise it is unbalanced. But these items were not included in the main task, only in the pilot study. As the native controls were not performing as expected, nothing can be said here about the performance by the L2 groups.

[17] My larger situation use is equal to Ionin, Ko and Wexler's (2008) Unique by Entailment Use and Associative Use.

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B. Yes, I would like to work in your Colchester bank.

A. OK, then, I will contact ____ *branch manager* for you.

the *a* *an* ⊘

(9) Types of definiteness (mass nouns)

a. Anaphoric Use (specific, with presupposed knowledge)

A: Jason just asked me for some more cash!

B: I don't understand why he is always so short.

A: He says he will use ____ *cash* to pay off his credit card bill.

an ⊘ *the* *a*

b. Larger Situation Use (encyclopaedic knowledge)

A: I went to Italy on holiday last summer.

B: Did you enjoy it?

A: Yes. In particular, I enjoyed ____ *sunshine*.

⊘ *an* *a* *the*

c. Larger Situation Use (general, without any specific presupposed knowledge)

A: I've just finished our new patio.

B: That must have been hard work.

A: Not really. Mixing ____ *cement* was difficult, though.

an ⊘ *the* *a*

7.4 Procedure

The count–mass grammaticality judgement task appeared as one of a series of four tasks of which I discuss two in this paper. There were two versions of the task so as to avoid any ordering effects. The two versions differed in terms of the order of the AdnQ + noun combinations. The task was given to the participants after they had completed the OQPT. There was no time limit to complete the task. The instructions for the task were in English and the researcher was present in the room in case the participant had any questions concerning the task.

The forced-choice elicitation task was administered directly after the first task. There were two versions of the task so as to avoid any ordering effects. The dialogues appeared in a different order in each version of the task. There were four items for each type of stimulus, apart from the definite encyclopaedic plural, which had three. One item from the definite encyclopaedic plural context was removed because there is potentially two readings with the plural "colours" in the short dialogue in (10) below. It can have the encyclopaedic interpretation "the colours" meaning all the colours in German, which is the desired interpretation, or it can be interpreted as the word "colours" in German, which does not require the use of a definite article:

(10) A: I started learning German just last week.

B: Have you learnt anything interesting yet?

A: Yes, I know how to say ____ *colours* in German!

an ⊘ *the* *a*

The task was not timed, but all participants were encouraged to read each short dialogue and choose from four possible items that could fill the gap provided. They were asked to choose the item that they felt was most appropriate to fill the gap and put a circle around it. They were asked not to take too long in deciding which article should be inserted. Rather, they should choose the article that they thought was the most appropriate article to fill the gap. The average amount of time to complete the task was forty five minutes. Written instructions for completion of the task were given and once each participant had read the instructions the researcher then asked each of them if they had clearly understood what they were being asked to do.

7.5 Results

For the count–mass grammaticality judgement task an item analysis was conducted before examining the scores for each group. Certain items were not included in the analysis of results as they proved to be problematic for the native controls, such as **some breads* and *much rain*. Both the Spanish and Japanese groups had difficulty with item 24 (**many evidences*), so it was not included in the analysis.[18] After removing certain items the responses were scored as number of correct responses versus number of incorrect responses. To see whether the L2 groups behave differently across the different adnominal quantifiers an item analysis was conducted. Across the 33 items in the task the Spanish groups had difficulty with one particular item **few sunshines*. They were accepting *sunshines* as countable. There was only one token of the adnominal quantifier *few* with a mass plural. The native controls and the Japanese also had some difficulty with this item. However, the Japanese groups had difficulty across all the quantified mass N contexts (mass and *mass plural). No differences were found between the two versions of the task.

The scores from individual quantifiers were collapsed for each group and were converted into percentages. All

[18] The problem for the L2 learners (not the native controls) is that "*evidence*" is accepted as a count noun. I agree with a reviewer that maybe this item should have been included in the analysis, but this is an abstract mass noun and all other mass noun items, except one, are either object or substance mass nouns. It could be that certain abstract mass nouns are more problematic for L2 learners than the object and substance type mass nouns, as Hiki (1990) found in his study.

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Table 2. *Total number of correct responses. (Three count singular, three mass and three mass plural nouns were removed from the final analysis.)*

Groups	Proficiency level	Count ingular nouns	Count plural nouns	Mass nouns	*Mass plural nouns
Japanese	INT ($n = 15$)	77/90 (86%)	117/120 (98%)	65/90 (**72%**)	58/90 (**64%**)
	ADV ($n = 15$)	83/90 (92%)	115/120 (96%)	77/90 (**86%**)	71/90 (**79%**)
Spanish	INT ($n = 15$)	82/90 (91%)	110/120 (92%)	80/90 (**89%**)	62/90 (**69%**)
	ADV ($n = 15$)	85/90 (94%)	118/120 (98%)	81/90 (**90%**)	76/90 (**84%**)
Native controls	($n = 15$)	87/90 (97%)	114/120 (95%)	90/90 (100%)	78/90 (87%)

Table 3. *Definite singular contexts.*

Groups		the	*a/an	*⊘
Japanese	INT ($n = 15$)	149/180 (82.8%)	**19/180 (10.6%)**	12/180 (6.6%)
	ADV ($n = 15$)	160/180 (88.9%)	13/180 (7.2%)	7/180 (3.9%)
Spanish	INT ($n = 15$)	163/180 (90.6%)	8/180 (4.4%)	9/180 (5%)
	ADV ($n = 15$)	175/180 (97.2%)	2/180 (1.1%)	3/180 (1.7%)
Native controls	($n = 15$)	179/180 (99.4%)	0/180 (0%)	1/180 (0.6%)

the groups' performances in the four conditions – count singular, count plural, mass and *mass plural are reported in Table 2. In order to give a clearer overview, the results are presented as graphs in Figure 1.

To examine whether there are differences between the L2 groups, repeated measures ANOVAs (with Language as a between-subjects factor and Count and Mass as a within-subjects factor) were performed between the intermediate groups and between the advanced groups. For the intermediate groups there is an interaction between language and the count condition ($F_{(1,28)} = 4.805$, $p < 0.05$) and an interaction between language and the mass condition ($F_{(1,28)} = 5.888$, $p < 0.05$). Separate paired sample t-tests for count and mass conditions were performed. The Japanese performed significantly better in the count plural condition ($t_{(14)} = -4.119$, $p < 0.05$) as there were more errors in the count singular condition. No difference was found in the mass conditions. The Spanish performed significantly better in the count conditions ($t_{(14)} = -.192$, $p > 0.05$) than in the mass conditions ($t_{(14)} = 3.154$, $p < 0.05$), as more errors were found in the mass plural condition. A repeated measures ANOVA was conducted for all three language groups. Both L2 intermediate groups are significantly different to the native control speakers in the count condition ($F_{(2,42)} = 11.167$, $p < 0.05$) and the mass condition ($F_{(2,42)} = 4.066$, $p < 0.05$). Post-hoc Tukey tests revealed that significant differences were found between the intermediate Japanese learners and native controls and the intermediate Spanish learners and native controls.

For the advanced groups, no interaction was found between language and the count condition ($F_{(1,28)} = 0.498$, $p > 0.05$) and language and the mass condition ($F_{(1,28)} = 0.033$, $p > 0.05$). Separate paired sample t-tests for count and mass conditions were performed. The Japanese group performed well in both the count singular and count plural conditions ($t_{(14)} = -1.006$, $p > 0.05$) and in the mass conditions ($t_{(14)} = 1.065$, $p > 0.05$). The Spanish group performed well in both the count singular and count plural conditions ($t_{(14)} = -1.080$, $p > 0.05$) and in the mass conditions ($t_{(14)} = 1.160$, $p > 0.05$). A repeated measures ANOVA was conducted for all three language groups. Post-hoc Tukey tests revealed that both L2 advanced groups did not differ significantly to the native control speakers in the count or mass conditions.

The results from the forced-choice elicitation task are presented in Tables 3–5. They show the total percentage of articles supplied by each group. No differences were found between the two versions of the task. .

Repeated measures ANOVAs were performed within the intermediate L2 groups and within the L2 advanced groups on the use of *the* for definites (anaphoric, encyclopaedic and larger situation) in the singular, plural and mass conditions. For the intermediate Japanese group, a significant difference between definites in the singular condition was found ($F_{(2,28)} = 3.540$, $p < 0.05$); a significant difference was found between definites in the plural condition ($F_{(2,28)} = 5.021$, $p < 0.05$); and a significant difference was found between definites in the mass condition ($F_{(2,28)} = 11.645$, $p < 0.05$). For the

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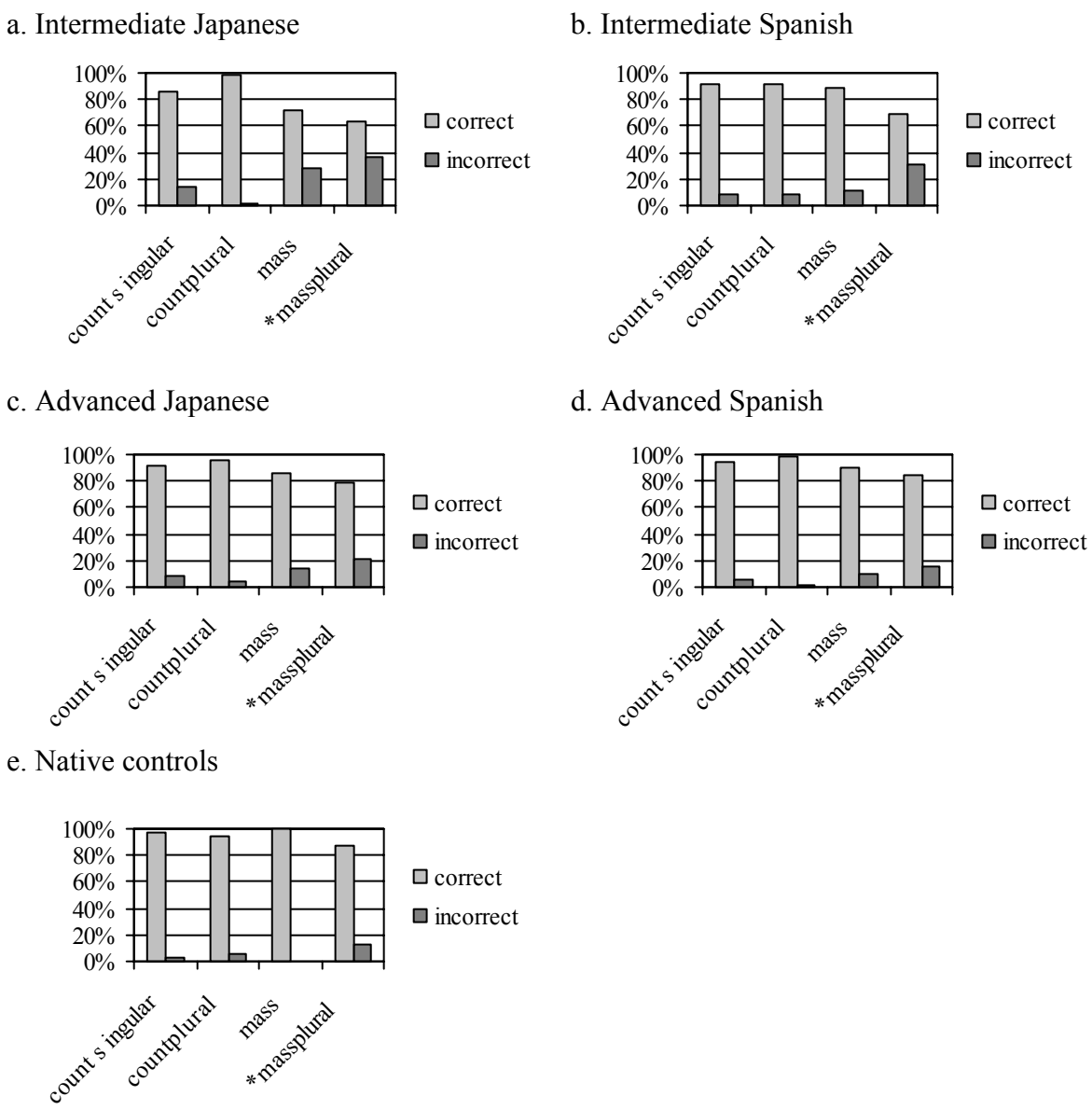


Figure 1. Total percentages of correct and incorrect judgements.

Table 4. *Definite plural contexts.*

Groups		the	*a/an	*∅
Japanese	INT ($n = 15$)	118/165 (72%)	3/165 (2%)	**44/165 (26%)**
	ADV ($n = 15$)	134/165 (81%)	1/165 (1%)	**30/165 (18%)**
Spanish	INT ($n = 15$)	140/165 (85%)	6/165 (4%)	**19/165 (11%)**
	ADV ($n = 15$)	150/165 (91.1%)	5/165 (2.8%)	10/165 (6.1%)
Native controls	($n = 15$)	161/165 (98%)	0/165 (0%)	4/165 (2%)

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Table 5. *Definite mass contexts.*

Groups		the	*a/an	*⊘
Japanese	INT ($n = 15$)s	107/180 (59.5%)	11/180 (6.1%)	**62/180 (34.4%)**
	ADV ($n = 15$)	118/180 (65.5%)	3/180 (1.7%)	**59/180 (32.8%)**
Spanish	INT ($n = 15$)	151/180 (83.9%)	5/180 (2.8%)	**24/180 (13.3%)**
	ADV ($n = 15$)	169/180 (93.9%)	0/180 (0%)	11/180 (6.1%)
Native controls	($n = 15$)	179/180 (99.4%)	0/180 (0%)	1/180 (0.6%)

intermediate Spanish group, a significant difference was found only between definites in the plural condition ($F_{(2,28)} = 23.725$, $p < 0.05$). A separate ANOVA was conducted for all three language groups. Post-hoc Tukey tests revealed that both the Japanese and the Spanish groups differed significantly to the native controls in each condition. Repeated measures ANOVAs were also performed within the advanced L2 groups. For the advanced Japanese group, no significant differences between definites in the singular condition was found ($F_{(2,28)} = 0.067$, $p > 0.05$); a significant difference was found between definites in the plural condition ($F_{(2,28)} = 9.900$, $p < 0.05$); and a significant difference was found between definites in the mass condition ($F_{(2,28)} = 12.005$, $p < 0.05$). For the advanced Spanish group, a significant difference was found only between definites in the plural condition ($F_{(2,28)} = 14.913$, $p < 0.05$). A separate ANOVA was conducted for all three language groups. Post-hoc Tukey tests revealed that there were significant differences between the Japanese and native controls in the definite singular condition; significant differences between both L2 groups and the native controls in the plural condition, and a significant difference between the Japanese and native controls in the definite mass condition.

In order to find out which definites (anaphoric, encyclopaedic and larger situation uses) the Japanese L2 learners had difficulties with, one-way ANOVAs with planned comparisons were performed on the use of *the* between the native controls and L2 groups. The ANOVAs with planned comparisons were conducted to address hypothesis 2.

Comparison between intermediate groups

Definite singular conditions For the Japanese group there is a significant difference between the native controls and Spanish group in the encyclopaedic use ($t = -2.191$, $p < 0.05$) and larger situation use ($t = -3.011$, $p < 0.05$). All groups performed equally in the anaphoric use ($t = -1.131$, $p > 0.05$).

Definite plural conditions A one-way ANOVA with planned comparisons revealed that the Japanese group are significantly different to the native controls and the Spanish group in the encyclopaedic use ($t = -3.552$, $p < 0.05$) and larger situation use ($t = -3.428$, $p < 0.05$), but all groups performed equally in the anaphoric use ($t = -787$, $p > 0.05$). Post-hoc Tukey tests revealed significant differences between the native controls and the Spanish group in the larger situation use ($p < 0.05$).

Definite mass conditions For the definite mass condition significant differences were found in the anaphoric ($t = 7.290$, $p < 0.05$), encyclopaedic ($t = 2.477$, $p < 0.05$) and larger situation uses ($t = 4.320$, $p < 0.05$) between the native controls and the Japanese group. Post-hoc Tukey tests revealed significant differences between the native controls and the Spanish group in the anaphoric use ($p < 0.05$).

Comparison between advanced groups

Definite singular conditions In the definite singular condition no significant differences were found between the L2 groups and the native controls in anaphoric, encyclopaedic and cultural uses.

Definite plural conditions Significant differences were found between the Japanese group and the native controls in the encyclopaedic ($t = 3.154$, $p < 0.05$) and larger situation ($t = 3.713$, $p < 0.05$) uses. No significant difference was found in the anaphoric use ($t = -.651$, $p > 0.05$). Post-hoc Tukey tests revealed a significant difference between the native controls and the Spanish group in the larger situation use only ($p < 0.05$).

Definite mass conditions Significant differences were found between the Japanese group and the native controls in all three definite mass conditions: anaphoric ($t = 4.015$, $p < 0.05$), encyclopaedic ($t = 2.269$, $p < 0.05$) and larger situation uses ($t = 7.651$, $p < 0.05$).

7.6 Summary

The results from the grammaticality judgement task show that the Japanese groups seem to be incorrectly rejecting grammatical mass contexts and accepting ungrammatical mass plural contexts. The Spanish groups seem to be behaving like the Japanese groups in the mass plural

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contexts. The Japanese speakers overall do not have problems with count nouns but they do have difficulty with mass nouns. The Spanish speakers have fewer problems with mass nouns.

The Japanese groups can generalize what is countable and what is uncountable. Given the results from the grammaticality judgement task it looks as though the Japanese and the Spanish speakers can reset the NMP. However, a continuing difficulty with definites may lie in the types of definites (e.g. anaphoric, encyclopaedic, situation) that co-occur with nouns in context rather than a representational deficit (Hawkins et al., 2005). The results from the forced-choice elicitation task show that the Japanese speakers have difficulty with definite plural and mass NP contexts, whereas the Spanish speakers have difficulty with mass NP contexts. One explanation for the difficulty with definite encyclopaedic plural is that the Japanese groups, not the Spanish groups, are treating the items as proper nouns e.g. *Houses of Parliament*, *Twin Towers in New York* and *Pyramids*. However, no such explanation can be offered for any of the other items in the task. For the definite larger situation use there was a significant difference found within the intermediate Japanese group of substitution of *a* for *the* in the singular condition. Substitution of *a* for *the* was also found in the advanced Japanese group, but no significant difference was found within the group across the three types of definite in the singular condition. Greater accuracy in the definite anaphoric singular condition of the use of *the* is predicted as the context is obligatorily specific.[19]

Overall, the results reveal similar patterns of use across types of definites as found in the studies by Wakabayashi (1998), Liu and Gleason (2002), and Ionin et al. (2008). The advanced Japanese are less accurate in the use of all definite article types in the plural and mass contexts, as Wakabayashi (1998) found in his study of Japanese speakers.

8. Discussion

A couple of questions recently posed by Inagaki and Barner (2006, p. 163) is "How do morphological and syntactic representations of language affect our conceptual representations of objects and events? Do all humans share a universal conceptual repertoire that is made explicit to differing extents by natural language, or do the morpho-syntactic structures of language actually supply certain concepts?". These questions have also recently been discussed by Nisbett (2003), who reviews much of the research into the differences between Western and Eastern cultures. The answers to these questions are of great interest to scholars from a number of disciplines e.g. philosophy, psychology and linguistics. How do learners of a first language acquire conceptual knowledge and how does this relate to components of linguistic representations such as syntax and semantics? Work by Imai and Genter (1997), who investigated the differences between L1 English child speakers and L1 Japanese child speakers, found that there are differences, which are perhaps due to language. Inagaki and Barner (2006), who investigated the differences between L1 English adult speakers and L1 Japanese adult speakers, claim that they found evidence for a universal semantics underlying linguistic quantification. The Japanese essentially access the same meanings as speakers of languages like English, but lack the syntax for disambiguating these meanings when they have to interpret whether the NP is count or mass. One way of distinguishing between the world's languages is by claiming that there is a Nominal Mapping Parameter. The question I have tried to address in this paper is whether adult L2 learners with a different L1 parameter setting are able to reset the parameter to the L2 setting.

The findings from the tasks support hypothesis 1, repeated here:

H[1] L2 learners from different L1 backgrounds can reset the NMP to the English setting [+arg, +pred].

Japanese learners did not judge count nouns in mass contexts to be acceptable, but instead judged mass nouns to be acceptable as count nouns. This is unexpected unless certain mass nouns are seen as countable as they are used with measure phrases e.g. *a pat of butter*. The Japanese learners did not have difficulty with count nouns. The findings lend support to hypothesis 1 as it seems that the parameter has been reset. The Japanese learners are able to acquire the functional category DP and the uninterpretable number feature associated with count nouns. The fact that they accepted mass plural nouns as countable nouns and rejected count nouns as uncountable may be because certain AdnQ + noun combinations are more acceptable to them than others. The results have to be treated with caution as it seems that part of the difficulty may have to do with adnominal quantifiers. The Spanish learners successfully reset the parameter as expected, because DP and the uninterpretable number feature on nouns is part of the L1 grammar. However, there is some persistent L1 transfer effects as some mass plural nouns were acceptable to some of the Spanish learners.

The results from the forced-choice elicitation task support hypothesis 2, repeated here:

H[2] Japanese L2 learners can reset the NMP, but there may be a difference in the suppliance of definites in singular, plural and mass noun contexts due to the different pragmatic uses of the definite article.

[19] See Ionin et al. (2008) for further discussion of definiteness and specificity.

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The intermediate Japanese group continued to omit definites in encyclopaedic and larger situation singular, plural and mass noun contexts, but the advanced Japanese group only continued to omit definites in plural and mass noun conditions.

The results from the two studies suggest that the Spanish and Japanese L2 learners of English do reset the parameter to the English setting. The problem Japanese learners have with definites is not due to an inability to reset the NMP. If omission of *the* was persistent across all the types of definites and conditions, then it could be argued that the learners have failed to reset the parameter. But, as they are more accurate in supplying definites in the anaphoric use in singular and plural conditions,[20] it appears that the advanced Japanese learners continue to have difficulty with certain types of definites i.e. encyclopaedic and larger situation uses due to a problem with the mapping between information of the pragmatic component and how this links to information of the syntax component (Bos, Hollebrandse and Sleeman, 2004).[21]

9. Conclusion

I originally set out to test the NMP in L2 acquisition by administering a count–mass grammaticality judgement task and a forced-choice elicitation task. The findings are consistent with the claim that Japanese learners have full access to UG and can acquire the uninterpretable number feature of nouns along with features associated with DP. Therefore, it can be argued that the Spanish and Japanese learners have successfully reset the Nominal Mapping Parameter,[22] but the continued difficulty for advanced Japanese learners is the different pragmatic uses of the definite article.

[20] All mass conditions proved to be problematic for the Japanese learners. Perhaps learners omit definites more often in mass noun contexts because they associate *the* only with count nouns, as Wakabayashi (1998) found; see Kowaluk (2001) for further discussion.

[21] Following universal principles, the simplest set of mapping rules for one to one mapping would be those shown in (i.):

(i)

Pragmatics			Grammar
Anaphoric use	↔	DP	✓
Associative use	↔	DP	✗
Encyclopaedic use	↔	DP	✗

They have acquired the mapping rule for anaphoric use, but are unable to acquire the rules for associative and encyclopaedic uses.

[22] For criticisms targeting empirical and theoretical issues regarding the NMP see Schmitt and Munn (1999), Ticio (2001), Borer (2005), Choi (2005), Öztürk (2005), and Tsoulas (2005).

Appendix. Profiles of participants in the count–mass grammaticality judgement task

Intermediate Japanese subjects

Subject ID	Age	Proficiency	Age of L2 learning (years)	Years of learning English	Current length of stay in UK (months)	English speaking countries (months)
J1Int	32	Upp-int	12	10	9	0
J2Int	33	Upp-int	13	6	1	0
J3Int	26	Upp-int	13	6	1	12
J4Int	24	Upp-int	13	6	1	0
J5Int	25	Upp-int	13	6	1	0
J6Int	31	Upp-int	13	10	16	9
J7int	26	Low-int	12	10	21	0
J8Int	27	Upp-int	12	9	12	0
J9Int	23	Low-int	5	10	12	48
J10Int	24	Low-int	13	10	1	9
J11Int	21	Low-int	12	9	6	6
J12Int	29	Low-int	6	7	19	0
J13Int	34	Low-int	12	8	4	1
J14Int	21	Upp-int	13	8	1	1
J15Int	25	Upp-int	13	6	1	0

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Intermediate Spanish subjects

Subject ID	Age	Proficiency	Age of L2 learning (years)	Years of learning English	Current length of stay in UK (months)	English speaking countries (months)
S1Int	32	Low-int	12	9	8	0
S2Int	32	Upp-int	7	10	48	12
S3Int	34	Upp-int	16	8	18	24
S4Int	26	Upp-int	14	4	12	12
S5Int	24	Low-int	8	12	8	0
S6Int	24	Upp-int	13	5	60	0
S7Int	24	Low-int	9	5	12	0
S8Int	25	Low-int	18	4	10	0
S9Int	27	Upp-int	5	12	2	0
S10Int	24	Upp-int	3	13	4	0
S11Int	20	Upp-int	12	10	12	1
S12Int	21	Low-int	6	10	12	0
S13Int	26	Low-int	17	3	5	8
S14Int	33	Upp-int	6	2	24	0
S15Int	40	Low-int	34	4	1	0

Advanced Japanese subjects

Subject ID	Age	Proficiency	Age of L2 learning (years)	Years of learning English	Current length of stay in UK (months)	English speaking countries (months)
J1Adv	24	Adv	7	10	12	12
J2Adv	32	Adv	13	17	24	0
J3Adv	22	Adv	3	6	5	0
J4Adv	27	Adv	12	14	36	0
J5Adv	26	Adv	13	7	5	0
J6Adv	36	Adv	12	10	60	0
J7Adv	25	Adv	10	8	1	0
J8Adv	44	Adv	12	10	42	0
J9Adv	39	V-adv	12	8	96	0
J10Adv	33	Adv	12	8	20	13
J11Adv	30	Adv	12	12	8	0
J12Adv	42	Adv	12	10	96	36
J13Adv	31	Adv	11	10	53	0
J14Adv	30	Adv	11	10	84	0
J15Adv	31	V-adv	12	10	54	24

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Advanced Spanish subjects

Subject ID	Age	Proficiency	Age of L2 learning (years)	Years of learning English	Current length of stay in UK (months)	English speaking countries (months)
S1Adv	26	Adv	5	8	24	0
S2Adv	26	Adv	9	10	30	0
S3Adv	37	V-adv	16	6	24	0
S4Adv	22	Adv	8	13	8	0
S5Adv	30	Adv	16	0	6	12
S6Adv	25	V-adv	4	18	9	0
S7Adv	30	V-adv	5	5	8	0
S8Adv	40	Adv	12	10	18	12
S9Adv	43	Adv	5	5	84	0
S10Adv	29	Adv	8	13	12	18
S11Adv	34	Adv	12	15	5	0
S12Adv	27	Adv	12	1	24	0
S13Adv	22	V-adv	7	14	1	0
S14Adv	28	Adv	11	4	1	10
S15Adv	29	V-adv	11	10	36	0

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