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Peter Crosthwaite*, Lavigne L.Y. Choy, Yeonsuk Bae

'Almost people': A learner corpus account of L2 use and misuse of non-numerical quantification

Abstract: We present an Integrated Contrastive Model of non-numerical quantificational NPs (NNQs, i.e. '*some* people') produced by L1 English speakers and Mandarin and Korean L2 English learners. Learner corpus data was sourced from the ICNALE (Ishikawa, 2011, 2013) across four L2 proficiency levels. An average 10% of L2 NNQs were specific to L2 varieties, including noun number mismatches (*'many child'), omitting obligatory quantifiers after adverbs (*'almost people'), adding unnecessary particles (*'all of people') and non-L1 English-like quantifier/noun agreement (*'many water'). Significantly fewer 'open-class' NNQs (e.g *a number of* people) are produced by L2 learners, preferring 'closed-class' single lexical quantifiers (following L1-like use). While such production is predictable via L1 transfer, Korean L2 English learners produced significantly more L2-like NNQs at each proficiency level, which was not entirely predictable under a transfer account. We thus consider whether positive transfer of other linguistic forms (i.e. definiteness marking) aids the learnability of other L2 forms (i.e. expression of quantification).

Keywords: Contrastive interlanguage analysis; learner corpora; second language acquisition; non-numerical quantification; Mandarin; Korean

1 Introduction

It is suggested that all languages make use of quantification (Wiese, 2003), despite differences in the means used to express quantification across languages, and the present study focus on how second language (L2) learners manage the expression of quantification in a second language.

Quantification can take the form of numbers or numerical quantifiers (i.e. 'one cookie', 'hundreds of cookies'), or non-numerical quantifiers (i.e. 'some cookies'). Numerous (non-corpus based) studies have investigated the production, interpretation and acquisition of the semantic and pragmatic scope of non-numerical quantifiers (henceforth NNQs, following Smith, 2009) in L1 (Cummins and Katsos, 2013; Cummins, Sauerland and Solt, 2012) and L2 production (Lee, Yip and Wang, 1999; Lee, 2009; Slabakova, 2010; Matthews and Yip, 2013; Gil and Marsden, 2013). The logic and inferential processes underlying quantificational expressions lie at the heart of the syntax/semantic/pragmatic interface, where research has shown that second language (L2) acquisition is troublesome (e.g. Sorace, 2011; Sorace and Filiaci, 2009). Kuno, Takami and Wu (1999) suggest that quantifier scope is determined 'by the interaction of various syntactic, semantic, idiosyncratic, and discourse factors' (Kuno, Takami and Wu, 1999:64). Acquisition of these elements is considered to be a gradual developmental feature of both L1 and L2 acquisition with both types of learners subject to over- and under-informative constraints on comprehension and production

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*Corresponding author: Peter Crosthwaite, Centre for Applied English Studies, University of Hong Kong, drprc80@hku.hk
Lavigne L.Y. Choy, University of Hong Kong, lavignec2011@gmail.com
Yeonsuk Bae, Tongmyong University, Korea, clairebae@hotmail.com

(Slabakova, 2010; Davies and Katsos, 2010). Thus, it is suggested that L2 learners are slower and less accurate than L1 speakers when processing quantificational scope in the L2 (Clahsen and Felser, 2006; Slabakova, 2010). Gil and Marsden (2013) suggest that this difficulty can be sourced to two concerns – first, L2 learners must map form to L2 function, then second, L2 learners must then reassemble the feature bundles associated with their L1-conceptual forms into features that are appropriate in the L2. In the examples of Korean and Mandarin from Matthews and Yip (2013:325/327), the quantifier precedes the negative marker, leading to an incremental reading (in English) where the 'cookie' is first quantified with *all*, before leading to the preferred reading 'none' when the negative marker is encountered. In each case, the reading is that no cookies were eventually eaten:

(1) [Korean]   마이크가   모든   과자를   않   먹었다.
        Mike-ka   motun[1] kwacalul anh   mekessta.
        Mike-NOM all/every cookie-ACC not ate.
        Mike didn't eat any of the cookies / Mike ate none of the cookies.

                他   所有   的 東西   都 不 吃.
(2) [Mandarin] tā   suǒyǒu de dōngxī dōu bù chī.
        He all   ATT thing   also not eat.

This differs from English, where the negation ('didn't') precedes the quantifier, leading to two possible readings, one where some cookies were eaten, and one where no cookies were eaten:

(3) Mike didn't eat all the cookies (he ate some / he ate none).

Here, L2 learners have to notice the difference in word order, while reassembling their L1 concept of 'all' (with its single possible reading) to the L2 configuration (with the two possible readings). In doing so, even though (adult) L2 learners have 'the pragmatic ability to overlook infelicitous conditions' of NNQs (DelliCarpini, 2003:58), they may still struggle to arrive at expressions that match the grammatical norms of the target language, resulting in frequent error or ambiguity in expression. This is more pronounced in situations where the L1 differs significantly from that of the L2 target, or where similar form/function mappings lead to negative transfer, as outlined by recent complex adaptive systems approaches to L2 acquisition (e.g. Filipović and Hawkins, 2013). The learnability of a feature in an L2 is related to its frequency in the target language, the syntactic complexity of the feature, and the opportunity for (or lack of) positive transfer of the feature from L1 into L2, as learners seek to maximise their expressive power and communicative efficiency while minimising learning and processing effort. Given the complexity and potential for L1 transfer involved in acquiring L2 quantification, learners may struggle to acquire the grammatical structures required to make particular quantificational expressions in the L2, may experience negative transfer from similar or multiple form/function mappings in their L1 into L2 production, and may acquire certain, more complex quantificational expressions in the L2 further into their L2 development than other syntactically simpler expressions.

However, while the majority of studies on L2 NNQs utilise production and comprehension tasks to determine semantic and pragmatic acquisition of quantifier scope, fewer studies have looked at the grammatical and lexico-grammatical features (including errors) of L2 NNQ use - a topic that is more suitable for a corpus-based analysis of surface features across large amounts of production data. There have been a number of corpus studies investigating the use of *a lot / lots of* and variations such as *loads of* in L1 (e.g. Channell, 1994) and L2 (Drave, 2002; Smith, 2009). However, Smith (2009) points out that there are still few corpus-based studies of other NNQs in English. With this in mind, the present study focuses on the L2 production of NNQs via the comparison of a learner corpus of Mandarin and Korean

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1 Korean Romanisation uses the Yale system. Mandarin Romanisation uses Pinyin.

L2 English written production data alongside a reference corpus of L1 English undergraduate production, focusing on differences between L1 and L2 grammatical construction (rather than felicity) of English NNQs. The methodological principles of the proposed study follow those of Contrastive Interlanguage Analysis (Granger, 1996, 2015), where learner language is compared with that of L1 speakers of the L2 target as well as other samples of learner language. The choice of source languages is motivated by Huang (2000), who labels English as a 'syntactic' language (rich in overt marking of definiteness, morphology, etc.) and Mandarin/Korean as 'pragmatic' languages, where the linguistic elements explicitly marked in English tend be unmarked in Mandarin and Korean. As such, L2 English learners from these reference varieties tend to struggle to adopt the obligatory forms of the L2 target when compared with more similar reference varieties such as Spanish (e.g. Diez-Bedmar and Papp, 2008, Diez-Bedmar, 2015) or Russian (e.g. Robertson, 2000). Crosthwaite (2014a, 2014b, 2016a, 2016b) has carried out a number of CIA analyses of Mandarin and Korean L2 English production, focusing on reference tracking (2014a), and article production (2014b, 2016a, 2016b, Crosthwaite and Choy, 2016), but comparison of L2 NNQ production by learners from these language groups has not yet been explored. We begin the paper with a general contrastive analysis of NNQ form and scope in L1 English, Mandarin and Korean, before making hypotheses regarding L2 acquisition of English NNQs by L1 Mandarin and Korean speakers.

2 Non-numerical Quantificational NPs in English, Mandarin and Korean

2.1 Closed vs open class quantifiers.

Non-numerical quantifiers in English include a *closed class* (Quirk et al., 1985) of quantifying determiners including *some*, *many*, *all*, *no/none*. These quantifiers immediately precede a noun (when referring generically), with the corresponding noun in plural form for countable nouns (example 4). Adverbial pre-determiners can also precede universally quantified NPs including *all*, *every*, *none*, etc. (example 5):

(4) *Some children* like tennis.

(5) *(Almost) all men* like soccer.

English also uses a range of *open class* quantificational NPs, including quantity noun + 'of' + N, with distinction for plurality/countability dependent on the quantity noun or the nominal element:

(6) *A great number of people* like tennis / *Reading takes up *a great number of time*.

(7) *Lots of people* like soccer / Reading takes up *lots of time*.

Mandarin also has lexical single quantifiers that are near one-to-one equivalents to their English counterparts, as seen in the examples for 'some' and 'all' below:

(8) 有些　　小朋友　　　　喜歡　　網球.
　　 yǒuxiē xiǎopéngyǒu xǐhuān wǎngqiú.
　　 Some children like tennis.

(9)（差不多）　　所有　　男人　　都　　喜歡　　足球.
　　(chàbùduō) suǒyǒu nánrén dōu xǐhuān zúqiú .
　　 (Almost) all men ADV like soccer.

However, Mandarin does not appear to have an 'open' vs. 'closed' class structural difference for quantifiers, with Mandarin translation equivalents of the English 'A + quant + of + N' construction using only single lexical quantifiers. For example, the single item '很多' or 'many' can be used in place of 'a great number of X' and 'lots of X' respectively:

(10) 很多　　　人　　　喜歡　　　網球.
　　　hěnduō　rén　　　xǐhuān　wǎng qiú.
　　　Many　　people　like　　　tennis.
　　　A great number of people / Lots of people like tennis.

Korean also has a closed class of single lexical quantifiers, and even the 'almost all' L1 English equivalent construction in example (12) would be dispreferred in favour of a single lexical quantifier for 'most' (대부분 – *daebubun*):

　　　어떤　　아이들은　　　　테니스를　　좋아한다.
(11) Etten　aitulun　　　　tennis-lul　cohahanta.
　　　Some　children-NOM　tennis-ACC　like.
　　　Some children like tennis.

(12) 거의　　　모든　　남자들은　　　　축구를　　　　좋아한다.
　　　(Gueui)　motun　namcatulun　chwukkwulul　cohahanta.
　　　(Almost)　all　　men-NOM　　　soccer-ACC　　like.
　　　(Almost) all men like soccer.

As with Mandarin, there does not appear to be an 'open' class of quantifiers in Korean structured as in English. In these examples, 'maneun' functions as a 'great number' and 'lots of' respectively:

(13   많은　　　　　　　　　　사람들이　　테니스를　　좋아한다.
　　　manhun　　　　　　　　　salamtuli　tennis-lul　cohahanta.
　　　A great number of / lots of　people-NOM　tennis-ACC　like.
　　　A great number of people/lots of people like tennis.

Thus, while Mandarin and Korean speakers may be able to maximise positive transfer of closed-class equivalent quantificational NPs for L2 English production, both sets of learners have little opportunity for positive lexico-grammatical transfer of the open class form, and as such should acquire these at higher proficiency levels.

2.2 Specificity

Specificity is commonly discussed in terms of article use, but can also apply to readings of particular NNQs. Here, we follow Bickerton's (1981) distinction between referring generically (-specific, + hearer known), definitely (+specific, +hearer known), specific indefinite (+specific, -hearer known) and non-specific indefinite (-specific, - hearer known). The examples in section 2.1 are commonly used when one is referring generically (e.g. *all men like tennis*). When referring specifically (i.e. to a specific subset of a collective noun), in English, a partitive NNQ is used:

(14) *Some of the children* [in my school] like tennis.

(15) *All of the men* [at my workplace] like soccer.

In Mandarin, there is often no distinction for specificity / genericity in the lexico-grammar. Instead, specificity can be inferred from the prior information about the context, and even the item 其中 – 'qizong' – 'among' is non-obligatory in the following passage:

(16) 在　我　的　　學校　裡　　　(其中)　　一些　小朋友　　　喜歡　　網球.
　　　zài　wǒ　de　　xuéxiào lǐ　　　(qízhōng)　yīxiē xiǎopéngyǒu　xǐhuān wǎngqiú .
　　　[in　my　POSS　school]　PREP-in　(among)　　some　children　　　like　　tennis.
　　　Some of the children [in my school] like tennis.

(17) 在　我　的　　工作　　　單位 裡　所有　男人　都　喜歡　　足球.
　　　zài　wǒ　de　　gōngzuò　　shànwèilǐ　suǒyǒu nánrén dōu xǐhuān zúqiú .
　　　[at　my　POSS　workplace]　PREP-in　　All　　males ADV like　　soccer.
　　　All of the men [at my workplace] like soccer.

A similar approach is found in Korean, with only single lexical quantifiers used, and where specificity is to be inferred rather than marked:

(18) 우리 학교의　　어떤　아이들은　　　테니스를　좋아한다.
　　　wuli hakkyouy etten　aitul-un　　　tennis-lul　cohahanta .
　　　[Our　school-in] Some　children-NOM tennis-ACC　like.
　　　 Some of the children [in my school] like tennis.

(19) [우리회사의]　　모든　　남자들은　　축구린　　　　　좋아한다.
　　　[wulihoysa-uy]　motun　　namcatul-un chwukkwu-luyn cohahanta .
　　　[Our workplace-at] all of　　men-NOM　　soccer-ACC　　like.
　　　All of the men [at my workplace] like soccer.

Unlike Mandarin, certain quantifiers such as 'some' in English have more than one possible expression in Korean, both of which can be used both generically and specifically in some contexts, but where one can only be used specifically in others. Slabakova (2010:2451) highlights the difference between *etten* and *ilbu* in these similar expressions, where *ilbu* cannot be used generically in example (21i) while *etten* is permissible in both generic and specific indefinite contexts:

(20) 어떤　사람들은　　　키가　　　크다.
　　　Etten　salam-tul-un　　khi-ka　　khu-ta.
　　　Some　people-PLU-TOP　height-NOM　tall-DEC.
　　　(i) 'Some people are tall'.
　　　(ii) 'Some among the people are tall' (with reference to a specific subset of all people).

(21) 일부　사람들은　　　키가　　　크다.
　　　Ilbu　salam-tul-un　　khi-ka　　khu-ta.
　　　Some people-PLU-TOP　height-NOM　tall-DEC
　　　(i) *'Some people are tall'.
　　　(ii) 'Some among the people are tall' (with reference to a specific subset of all people).

2.3 Countability

Certain expressions of quantification in English have different forms depending on agreement with the countability of the nominal component. Two common examples in English include *much* and *many*:

(22) *Much time* has been devoted to the study of quantifiers.
(23) *Many* people have given their time to study quantifiers.
(24) **Many time* has been devoted to the study of quantifiers.
(25) **Much people* have given their time to study quantifiers.

In Mandarin, countability agreement of quantifiers such as 'much' or 'many' is less severe, with the quantifiers '很多' or '許多' for example expressing either 'much' or 'many':

(26) 花　　　了　　　很多/許多　　　時間　在　量詞　　　的　　研究　上.
　　　huā　　le　　hěnduō/xūduō　shíjiān zài liàngcí　de　yánjiū shàng .
　　　devoted PART *much*　　　　 *time*　to　quantifiers ATT　study　PREP.
　　　Much time has been devoted to the study of quantifiers.

(27) 很多/許多　　　人　　花　時間　去　研究　量詞.
　　　hěnduō/xūduō rén　huā shíjiān qù yánjiū liàngcí .
　　　Many　　　 people give time　to　study quantifiers.
　　　Many people have given their time to study quantifiers.

The same claim can also be made for Korean, with 많은 'manhun' functioning as either 'much' or 'many' with no distinction for countability of the noun:

(28) 많은　　　시간이　　수량사의　　　연구에　　할애되었다.
　　　Manhun sikani　　swulyangsa-uy yenkwuey halaytoyessta.
　　　Much　　time-NOM　quantifiers-ATT study-e　　 has been devoted.
　　　Much time has been devoted to the study of quantifiers.

(29) 많은　　　사람들은　　 ［그들의］　시간을　　수량사의　　　연구에　　　할애하였다.
　　　Manhun salamtulun [kutuluy]　sikanul swulyangsa-uy yenkwuey halahayessta
　　　Many　　people-TOP [they-POSS] time-ACC quantifiers-eui study-NOM have given.
　　　Many people have given their time to study quantifiers.

2.4 Summary

As Mandarin and Korean are [-Num] and [-Art] languages, Mandarin and Korean learners of English must acquire the noun number, countability and specificity systems of L2 English in order to produce quantificational NPs in particular contexts. Difficulties with Mandarin and Korean L2 English learners and English article acquisition have been widely reported (Diez-Bedmar and Papp, 2008; Crosthwaite, 2013, 2014a, 2014b, 2016a, 2016b, Crosthwaite and Choy, 2016), while corpus studies of Chinese students by Milton (2001), Papp (2004) and Chuang and Nesi (2006) found that Chinese writers experienced considerable difficulty with L2 English noun number as well as missing or redundant particles/prepositions (e.g. ***'people want a better quality [of] life / 'The United Kingdom still remains outside [of] the EU', Chuang and Nesi, 2006:265). Thus, both Mandarin and Korean L2 English learners might struggle to produce the required particle 'of' for the English partitive NNQ, or fail to associate the partitive with specificity and overuse 'of' when referring generically.

　　　An additional complication for Mandarin is the widespread use of classifiers when creating quantificational NPs (such as '人' 'ren' for people in the examples above), and there are approximately 900 such classifiers in the language (Zhang, 2007). In English, certain nouns have the same function as Mandarin classifiers (e.g. 'a *cup* of water', 'a *piece* of cake') yet significant differences are found in grammatical form between these classifying nouns and Mandarin classifiers. For example, classifying nouns in English have plural forms (*Some glasses* of water) while there is no such inflection in Mandarin, and classifiers in

English do not carry grammatical meaning, unlike in Mandarin. Xiao and McEnery (2010) note that it is also more likely for Mandarin classifiers to have a one-to-one correspondence with their nominal element, and occasionally Mandarin classifiers may come *after* the noun in certain genres such as reports and official documents. Korean also makes use of grammatical classifiers in a similar structure to Mandarin, although classifier use is more productive in Mandarin discourse (Crosthwaite, 2014a).

The differences in the grammatical expression of quantification between the three L1s can be summarised in Table 1 below:

Table 1: Summary of L1 contrastive analysis of NNQs

	English	Mandarin	Korean
Quantifier class	'Closed' (single item) and 'open' ([Art] +Quant+of+ N) class of NPs	Single lexical items	Single lexical items
Specificity	Distinction for generic indefinite ('some N') and specific indefinite ('some of the N')	No grammatical distinction for specificity	No grammatical distinction for specificity, although some lexical items can only be used in certain contexts
Countability	Distinction for noun countability in quantifier used (e.g. much vs. many)	No distinction for countability	No distinction for countability

L2 learners of English from L1 Mandarin / Korean backgrounds are likely to have difficulty constructing the 'open' class of English quantificational NPs, given the preference in their L1 for single lexical items. They are also likely to struggle to appropriately manage noun number when producing quantificational NPs in the target language, producing NPs such as *'many person' or *'many apple[s]'. It is also likely that due to issues with grammatical considerations of specificity, they may omit the required particle 'of' and the definite article in specific contexts (e.g. *'Some [of the] people), or oversupply the particle in generic contexts (e.g. *'all of people'). They are also likely to have difficulty selecting the appropriate quantifier agreement for the countability of the NP (e.g. *many time, or *much part-time jobs). However, given that L2 interlanguage may take on elements of the L1, the L2 target, both L1 and L2 or neither L1 nor L2 (e.g. Selinker, 1972; Klein and Perdue, 1997), it is possible that L2 production of quantificational NPs may exhibit other kinds of errors not previously considered.

3 Methodology

3.1 Sample

The L2 data are drawn from the written version of the *International Corpus Network of Asian Learners of English* (ICNALE; Ishikawa 2011, 2013), including the L1 English data and the L2 English data from L1 Mandarin and L1 Korean speakers. The ICNALE is composed of 1.8 million words of speeches and essays taken from college students across 10 Asian languages (Hong Kong, Pakistan, the Philippines, Singapore, China, Indonesia, Japan, Korea, Thailand and Taiwan) alongside data from L1 English speakers from the UK, the US, Australia, Canada and New Zealand. The ICNALE's design criteria (following Ishikawa 2011) were considered advantageous for the present study over other large learner corpora for two main reasons.

Firstly, the data is spread across four L2 proficiency levels, allowing for linguistic features across pseudo-longitudinal measures of L2 proficiency to be quantifiably determined. These proficiency groupings are claimed in Ishikawa (2011) to be equivalent to the levels A2-B2/C1 of the *Common European Framework of Reference for Languages* (CEFR; Council of Europe 2001). However, there are a number of different measures of proficiency used in the construction of the ICNALE. All participating students took Nation and Beglar's (2007) Vocabulary Size Test regardless of whether they had previously taken a standardized test such as the International English Language Testing System (IELTS®). However, students who had taken a standardized test had the score of these tests converted into an ICNALE level based on a conversion table offered by the test providers, while students who had not previously taken a standardized test had their Vocabulary Size

Test score converted (via regression analysis) into an ICNALE level. Thus, there is a discrepancy in the grade conversion measure used between students reporting standardized test scores and those without. For these reasons, the present study makes no assumptions regarding ICNALE proficiency distinctions and CEFR equivalence, and comments only on differences across and between the ICNALE-defined distinctions of proficiency. In this respect, the ICNALE levels have been renamed 'Beginner', 'Lower-Intermediate', 'Intermediate' and 'Upper-intermediate' respectively for the purposes of the present study.

Secondly, the entire corpus is comprised of argumentative essays covering only two writing prompts across the different L2 proficiency levels. The prompts for this task are seen by the writers when producing the texts, and read as follows.

> *"Do you agree or disagree with the following statements? Use reasons and specific details to support your answer.*
> *[Part-time job]: It is important for college students to have a part-time job.*
> *[Smoking ban]:Smoking should be completely banned at all the restaurants in the country."*

Von Stutterheim and Klein (1989) suggest that the question or *quaestio* (implicit question) that prompts a given text constrains the writer's selection of potential referents, and accordingly the range of potential NP types, before the writer has even begun the text. Therefore, there would be a difference in the structure of a text if the question that prompted the text was 'What happened?' or if the question was 'What happened to X?'

Given that the corpus data is limited to only two possible questions, the data ensure comparability of interlanguage and native-speaker data, two of the requirements of Contrastive Interlanguage Analysis (Granger 1996:44). Under this framework, so called 'reference language varieties' (Granger, 2015) are compared against interlanguage varieties according to the appropriate setting of dialectic or diatypic variables for meaningful comparison. Dialectic variables refer to data reflecting individual varieties of English (e.g. near-native, creole, American versus British, L1 vs L2), whereas diatypic variables refer to text-type comparability (e.g. essays, reports). In this case, our dialectic variable is that of undergraduate native speakers of English (not making assumptions about this variety as an 'ideal' model, only as a potential reference), while the diatypic variable is that of argumentative essays. Within the interlanguage varieties, the learner variables include L2 data from Mandarin and Korean backgrounds at 4 proficiency levels, while the task variables are texts produced under the same diatypic variable conditions as the L1 data. This configuration of variables ensures reliability and validity of comparison between language and interlanguage groups.

The original ICNALE dataset contains 400 native English texts, 800 Mandarin L2 English texts, and 600 Korean L2 English texts with a 50/50 split between 'Part-time job' and 'Smoking ban' tasks. Most L2 texts in the ICNALE are sourced within Lower-Intermediate and Intermediate proficiency levels, so normalised frequencies (per 1,000 words) are reported when comparing corpora of difference sizes. In some cases, a number of texts had to be substituted with others either due to duplication of data (or at least, where the vast majority of one text was identical to that of another), or when it was apparent that online translation from L1 into L2 had been used to generate the text (mostly in the Korean L2 English dataset at Beginner level). Thus, the final ICNALE corpus sample is shown in Table 2:

Table 2: word counts and number of texts in final corpus

Task	L1E	ML2E	KL2E
Part-time job	44764 (*n*=200)	Beg. = 11908 (*n*=54) Low-Int. = 55677 (*n*=232) Int. =26357 (*n*=105) Upp.Int.=3260 (*n*=13) Total = 97202 (*n*=399)	Beg. = 12652 (*n*=59) Low-Int. =11586 (*n*=53) Int. =12920 (*n*=84) Upp.Int =18337 (*n*=76) Total = 55495 (*n*=272)
Smoking ban	44982 (*n*=200)	Beg. = 12398 (*n*=56) Low-Int.=52996 (*n*=231) Int. =24967 (*n*=105) Upp.Int. =3187 (*n*=13) Total = 93548 (*n*=399)	Beg. = 13215 (*n*=62) Low-Int. =12707 (*n*=59) Int. =18918 (*n*=86) Upp.Int =17361 (*n*=76) Total = 62201 (*n*=283)
Total	89746 (*n*=400)	190750 (*n*=798)	117696 (*n*=555)
Total corpus size = 398192 (*n*=1753)			

3.2 Annotation

Corpus annotation was performed using UAMCorpustool (O'Donnell, 2008), version 3.2. UAMCorpustool uses the Stanford Parser (v 3.3.1.) for parsing and POS tagging (Socher, Bauer, Manning and Ng, 2013). These tools were used to automatically annotate all NPs in the texts, leading to an initial 120971 NPs. NPs with indefinite article determiners (except open class quantifiers such as 'a lot', 'an amount of X'), and NPs fronted by definite articles, possessive adjectives ('his job'), generic no-determiner NPs ('people'), 'bare' nominals typical of L2 production where a determiner is usually required ('[a] man had a job'), and demonstrative NPs ('this man') were then filtered out, and the remainder incorporated into a new annotation layer for quantificational NPs, comprising an initial number of 6584 such NPs. A wordlist of the quantifiers captured under this approach is provided in appendix A. These were then divided into 'L1-English-like use' and 'L2-specific use' NP use according to the annotation scheme below, with examples provided for each scheme:
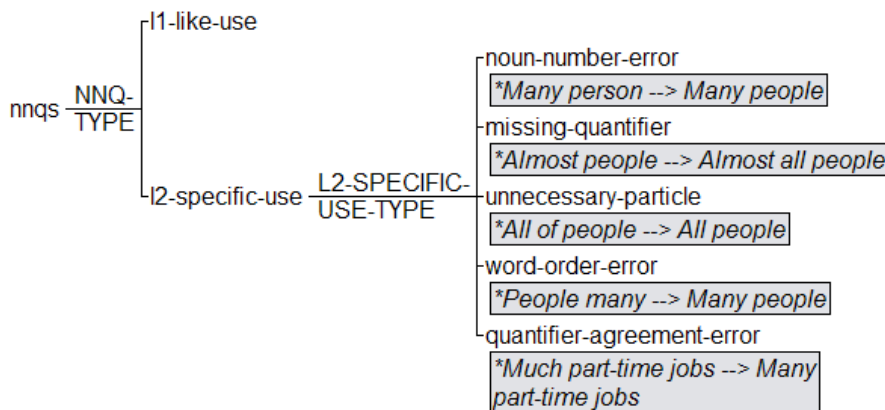

Figure 1. Annotation scheme for NNQs

The criteria for annotating error follows Granger & Meunier (1994) and Chuang and Nesi (2006) in that 'error categories should not overlap, should have precise definitions, and should describe, not explain' (2006:252). *Noun number* errors are defined as any quantificational NP where the head noun is not marked for plurality as required by the quantifier. Thus, head nouns following quantifiers such as 'many' must necessarily be in plural form, either with plural –s morphology for regular nouns, or the irregular form (with the exception of terms such as 'many a student', of which no examples were found in the corpus sample, and specific indefinite readings such as 'some place' which were filtered out of the results). *Missing quantifier* errors occur when an adverb precedes a plural noun (e.g. 'almost people') where the writer intended a quantificational NP but treated the adverb as the quantifier rather than the required word. *Unnecessary particle* errors occur where a particle (e.g. 'of') provides an unintended specific indefinite reading to a generic indefinite reading, and where the requisite definite article is also omitted (e.g. all of [the] people). *Word order* errors occur where the determiner and nominal element are in reverse order. *Quantifier agreement* errors occur where the countability of the nominal element does not match the appropriate quantifier, most typically *much* for uncountable nouns vs. *many* for countable nouns. These largely correspond to Chuang and Nesi's (2006) error categories of misformation {#}, omission{-}, overinclusion {+}, misordering {[]} and misselection {|} respectively.

The 6584 NPs were manually annotated by an English-speaking research assistant of near-native L2 proficiency and by the researcher (a native speaker of English). After annotation, a concordance list of each NP with a 9-word context either side of the NP was produced and printed out, and the annotators checked each annotation once again, changing the annotation where disagreement was reached. The researcher had the final decision on any disagreement after consultation with the research assistant. Two native speakers of English (both linguists working at the researcher's institute) then sampled concordance

lists containing annotated 500 NPs, marking each annotation as correct/incorrect. The total proportion of 'correct' annotations was 96%, as rated by both rater 1 and rater 2, suggesting that annotating errors of NQQ use via our taxonomy was largely unproblematic due to the discreet categories adopted. Rater agreement was measured by Intraclass Correlation Coefficient with a final statistic of .843, of which a value greater than .740 is considered 'excellent' in the literature (Fleiss, 1981).

Following the annotation and reliability procedures, 242 of the original 6584 NPs annotated were subsequently found to not have been quantificational NPs and were removed from the annotation layer, leaving 6342 NPs in the final analysis. UAMCorpustool allows for an Excel spreadsheet to be generated containing the statistics for all feature coding within a given annotation scheme. Due to differences in corpus size between NES, ML2E and KL2E groupings, all raw statistics are accompanied by a conversion of potential instances per 1,000 words, again provided through UAMCorpustool. The Excel sheet was converted into SPSS format, which was used for all statistical analyses to follow.

4 Results

Table 3 describes the distribution of appropriate and inappropriate quantificational NPs by language grouping, with raw frequency values followed by normalised frequency per 1000 words. As the data is non-normally distributed, non-parametric comparison of L1-L2 and L2-L2 production is performed using Kruskal-Wallis tests. For individual L2-specific usages, a corrected alpha value of 0.0125 was used for multiple tests (n=4)[2], with post-hoc pairwise comparison corrected for multiple analyses using Dunn's correction:

Table 3: Distribution of NNQ types by language grouping.

Quantifier classification	L1E (raw, normalised)	ML2E	KL2E	Kruskal-Wallis	Pairwise Comparison[3]
L1-English-like use	1295 (14.03)	3061 (14.93)	1568 (12.24)	H(2)=66.05, *p<.001*	KL2E<L1E, t(2)= -171.84, *p<.001* ML2E>KL2E t(2)= 223.97, *p<.001*
L2-specific use	4 (0.04)	189 (0.92)	225 (1.76)	H(2)=111.74, *p<.001*	ML2E>L1E t(2)= 159.42, *p<.001* KL2E>L1E t(2)= 229.73, *p<.001* ML2E<KL2E t(2)= -70.31, *p<.001*
Noun number error	1 (0.01)	139 (0.68)	133 (1.04)	H(2)=75.69, *p<.001*	ML2E>L1E t(2)= 125.80, *p<.001* KL2E>L1E t(2)= 161.31, *p<.001*
Missing quantifier	1 (0.01)	4 (0.02)	23 (0.18)	H(2)=27.48, *p<.001*	KL2E>L1E t(2)= 27.48, *p<.001* ML2E<KL2E t(2)= -26.38, *p<.001*
Unnecessary particle	2 (0.02)	20 (0.10)	40 (0.31)	H(2)=20.30, *p<.001*	KL2E>L1E t(2)= 40.01, *p<.001* ML2E<KL2E t(2)= -25.76, *p=.004*
Word order error	0	0	0		
Quantifier – Agreement error	0	26 (0.13)	29 (0.23)	H(2)=15.03, *p=.001*	ML2E>L1E t(2)= 28.53, *p=.004* KL2E>L1E t(2)= 34.57, *p=.001*

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2 Word order errors not included in tests as frequency = 0 in all groups

3 Only adjusted p value after Dunn's correction is shown.

It is apparent that the overall frequency of NNQ production per 1,000 words between L1 and L2 varieties is not dissimilar, with the L1E and KL2E group producing such NPs at almost identical frequencies (14.07 / 14.01 instances per 1,000 words respectively), with the ML2E group producing slightly more (but not statistically significantly, t(2)=52.12, *p*.283) . Also of interest is that across L2 proficiency levels, the proportion of L1-English-like to L2-specific NNQs is weighted towards L1-like use, with only 6.1% of ML2E NPs considered L2-specific (189 out of 3250 NPs) and 14% of KL2E NPs considered L2-specific (225 out of 1793 NPs) However, the KL2E group appear to produce a significantly higher frequency of L2-specific quantificational NPs than their ML2E counterparts (14% to 6.1% respectively), namely quantificational NPs with missing quantifiers and unnecessary particles, which is likely to have consequences on the coherence of the discourse produced.

Noun number errors appear to make up the majority of errors for both ML2E and KL2E groups, which is predictable given that Mandarin and Korean do not mark nouns for number. The most frequent noun number errors for quantificational NPs were that of 'some part-time job[s]' (n=11) 'every people' (n=8) and 'some place [s]' (n=5), with the ML2E group producing 10 of the 11 'some part-time job[s]' error and the KL2E group producing all 8 of the 'every people' error.

[CHNPTJ073B1-1.txt] *Many people regard that college students should do *some part time job* because college students should come into contact with society

[KORSMK233B2.txt] *In addition, *every people* are born to be non-smoker.

For missing quantifiers, the KL2E group omitted the quantifier 'all' after the use of 'almost' 23 times (e.g. 'almost [all] people...') compared to 4 occasions in the ML2E and once in the NES data. This is interesting in that this kind of error occurs when a learner considers the adverb to be a quantifier, which is not predictable by L1 transfer, and which represents an L2-specific feature instead. Here, the learners may be treating 'almost' as an A-type quantifier, e.g.

a)*Almost people will eat when hungry.

b) Usually people will eat when hungry.

While it is possible that learners have taken 'almost' to be an A-type quantifier like 'usually[4]', given the more frequent habitual reading typically associated with such quantifiers, we suggest instead that the KL2E learners make no distinction in scope between 'almost all' and 'most', (대부분, as거의 모든 is dispreferred in Korean) leading to optionality of the L2 form. In the production of a complex verbal task such as an essay where the L2 processing demands are high, the KL2E learners thus mistakenly equate ''most'/almost all' as a single lexical item 'almost'. This does not occur in Mandarin, which has a closer one-to-one translation equivalent in the form of差不多所有人 (chàbuduō suǒyǒu rén, literally 'almost all people'), which is a commonly used expression with clear distinction in scope from 'most'.

For unnecessary particles, the use of 'of' following quantifiers such as *many* or *some* in generic contexts (e.g. 'Some **of** students wish to...') was commonplace in the ML2E and KL2E data, although significantly more so in the KL2E data. These create false/incomplete partitive readings, with this example having a false partitive reading where they should be referring generically (with 'some students' as the target), or an incomplete definite partitive reading (some of [these] students):

[CHNPTJ054B1-1.txt] *Today's students don't like part time job. What's more, *some of students* say that they can't near the cruelty of society.

Finally, the use of expressions such as 'many [working] experience', 'many time' and 'many research' – where *much* is appropriate – was occasionally found in both the ML2E and KL2E data, which was predictable from the L1 given both Mandarin and Korean make no distinction for countability.

[KORPTJ229A2.txt] *... when owners need and pick the new officer, they usually want who man has *many experience* to other office.

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4 We give thanks to here to one of the anonymous reviewers of this paper who made this suggestion.

There was an effect of task on the use of L1-English-like NNQs, measured by Mann-Whitney U analysis (with Holm-Bonferroni Sequential Correction applied for multiple tests, n=6), with values of U=457,948, Z-2.842, *p*=.004 showing that more L1-English-like NNQs were produced for the 'Smoking Ban' task (mean rank = 915.29) than the 'Part-time job' task (mean rank=846.43). There was no effect of task, however, on L2-specific NNQs. To explore further, the five most frequent nominal elements across L2-like NNQs across tasks were determined. These were 'people' (n=39), 'part-time job(s)' (n=18), 'smoker(s)' (n=18) 'college student(s)' (n=16), and 'experience(s)' (n=8). From these results, a likely explanation for the lack of an effect of task on L2-like NNQs is that a roughly equal number of NNQ errors can be attributed to nominal elements that are directly related to each task prompt, with the most frequent error ('people') not specific to either prompt. However, keyword analysis suggests differences by task in terms of certain errors. Namely, unnecessary particle errors in the 'Part-time job' task appears to show that the KL2E group produced expressions such as 'more **of** students', and 'all **of** students / universities', while the ML2E students did not frequently produce such expressions. In addition, the KL2E group particularly struggled to attach the correct noun number to the phrases 'all building [s]' and 'many toxic material[s]' for the 'Smoking ban' task, with numerous errors for either type compared with zero in the ML2E data.

Figure 2 below explains the distribution of appropriate quantificational NPs via L2 proficiency, with the L1E values also displayed:
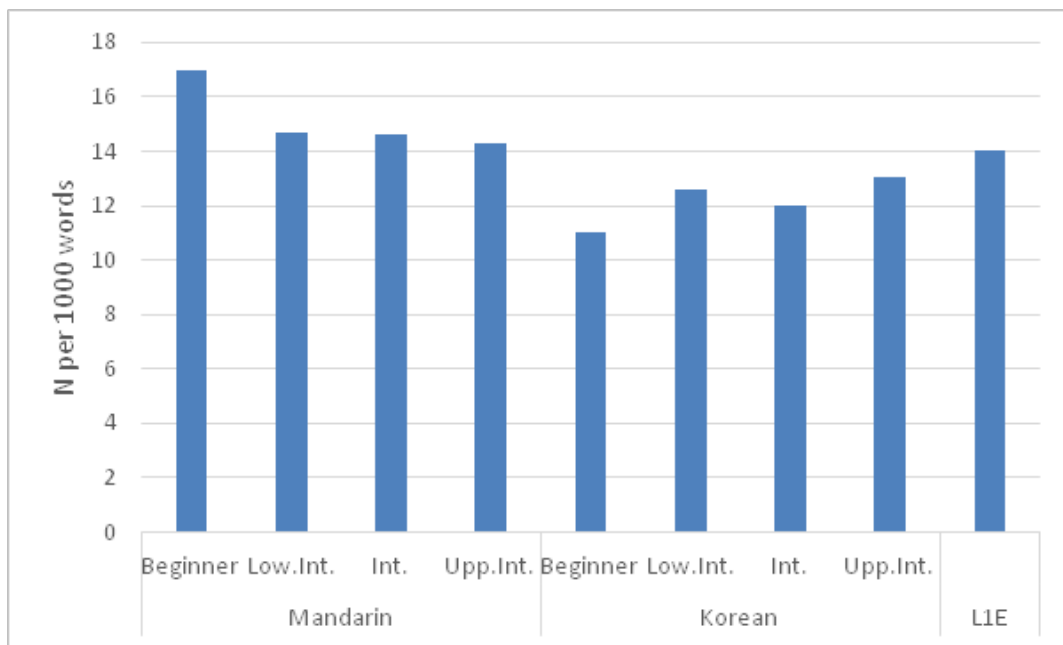

Figure 2. Appropriate L1-English-like NNQ production across L2 proficiency

While the use of L1-English-like NNQs in the ML2E data is not significantly different from that of the L1E data, a surprising finding is that the ML2E data contains a higher frequency of L1-English-like NNQs at Beginner level than at higher levels and compared with the L1E group (U=15819, Z=-3.204, *p=.001*). Here, we consider that the ML2E group are producing NNQs over using the zero article for generic expressions ('some people' vs. 'people'). Crosthwaite (2016b) has shown that ML2E learners (and speakers of Korean and Thai) frequently add unnecessary articles to generic reference (*the people need part time jobs), while adding the quantifier some keeps the generic reading without causing noticeable error. This approach changes at higher proficiencies as L2 learners are more comfortable with using articles for marking of genericity/definiteness. Comparing KL2E and L1E production of L1-English-like NNQs, there are significant differences at Beginner level (U=15925, Z=-6.209, *p<.001*), Lower-Intermediate (U=18115, Z=-3.441, *p=.003*), Intermediate

(U=28889, Z=-2.800, *p*=.010) and Upper-Intermediate levels (U=2.6852, Z=-2.079, *p*=.038). Thus, the KL2E group do not reach the L1E distribution of L1-English-like NNQs by the highest L2 proficiency level analysed, always producing fewer NNQs than their L1 counterparts.

Pairwise comparisons of L1-English-like NNQ production by L2 proficiency were performed using the Holm-Bonferroni Sequential Correction for multiple analysis correction, shown in Table 4.

Table 4. Distribution of L1-English-like NNQ types by L2 proficiency

Quantifier classification	ML2E	KL2E	Mann-Whitney U
L1-like			
Beginner	449 (16.98)	261 (11.05)	**U=3108, Z=-6.553, *p* <.001**
Lower-Intermediate	1744 (14.70)	311 (12.58)	**U=19979, Z=-4.145, *p*<.001**
Intermediate	806 (14.61)	499 (11.98)	**U=14862, Z=-2.807, *p*=.025**
Upper-Intermediate	99 (14.31)	497(13.06)	U=1788, Z=-0.774, *p*=1

The ML2E data shows a higher frequency of L1-English-like NNQs than the KL2E data at Beginner, Lower-Intermediate and Intermediate levels, before reaching similar levels at Upper-Intermediate level. However, given the high frequency of L1-English-like NNQs in the ML2E data compared to the L1E data as mentioned above, we cannot count on frequency of L1-English-like NNQ forms alone to determine whether the L2 learners have acquired the form and scope of such NNQs. Rather, we must now determine whether the frequency of L2-specific NNQ forms also drops with L2 proficiency.

Figure 3 below describes the distribution of L2-specific NNQ use via L2 proficiency:
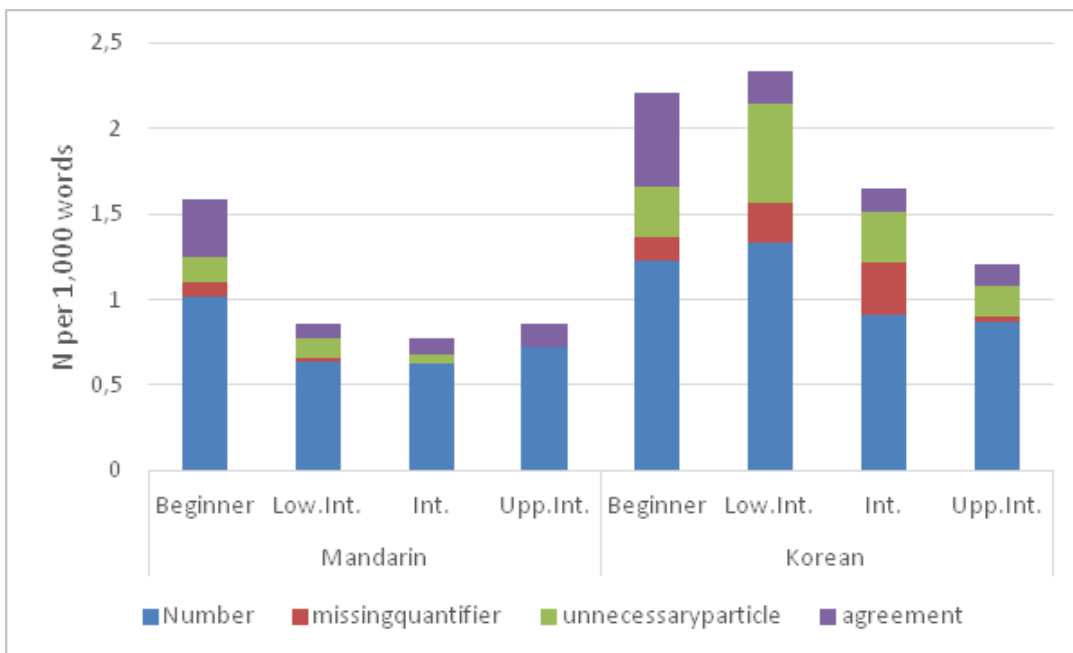

Figure 3. L2-specific quantificational NP production

From the chart, it is apparent that the ML2E group produce fewer inappropriate NNQs than the KL2E group at each L2 proficiency level.

Table 5 compares ML2E and KL2E use of L2-like NNQs across each of the four L2 proficiency levels analysed, with Mann-Whitney U tests again performed when the raw frequency of occurrence in one group was greater than 10. The *p* values reported here have already been adjusted following Holm-Bonferroni Sequential Correction.

Table 5. Distribution of L2-like NNQs by L2 proficiency

Quantifier classification	ML2E	KL2E	Mann-Whitney U
L2-specific (all types)			
Beginner	42 (1.59)	53 (2.24)	**U=5917, Z= -1.008, *p*=1**
Lower-Intermediate	100 (0.84)	58 (2.35)	**U=31,134 Z=-3.997, *p* <.001**
Intermediate	43 (0.78)	69 (1.66)	**U=20028, Z=-2.780, *p* =.025**
Upper-Intermediate	6 (0.87)	46 (1.21)	U=2110, Z=-0.770, *p*=1
Noun Number Error			
Beginner	27 (1.02)	29 (1.23)	**U=5999, Z= -0.927, p=1**
Lower-Intermediate	74 (0.64)	33 (1.33)	**U=29289, Z=-2.662,** p =.018
Intermediate	35 (0.63)	38 (0.91)	U=18593, Z=-1.078, *p*=.562
Upper-Intermediate	5 (0.72)	33 (0.87)	U=2086, Z=-0.698, *p*=1
Missing Quantifier			
Beginner	2 (0.08)	3 (0.13)	**U=6275, Z= -0.201, *p*=1**
Lower-Intermediate	2 (0.02)	6 (0.24)	**U=27951, Z=-4.375,** p<.001
Intermediate	0	13 (0.31)	**U=18795, Z=-3.370, p=.006**
Upper-Intermediate	0	1 (0.03)	U=1989, Z=-0.414, *p*=1
Unnecessary Particle			
Beginner	4 (0.15)	7 (0.30)	Not calculated
Lower-Intermediate	13 (0.11)	14 (0.57)	**U=28039 Z=-2.727,** p =.018
Intermediate	3 (0.05)	12 (0.29)	U=18519, Z=-2.266, *p* =.069
Upper-Intermediate	0	7 (0.18)	Not calculated
Agreement Error			
Beginner	9 (0.34)	13 (0.55)	**U=6141, Z= -0.712, *p*=1**
Lower-Intermediate	11 (0.09)	5 (0.20)	U=27148, Z=-1.155, *p*=.248
Intermediate	5 (0.09)	6 (0.14)	Not calculated
Upper-Intermediate	1 (0.14)	5 (0.13)	Not calculated

Significant differences between the L2 groups appear to occur at Lower-Intermediate and Intermediate levels. At Beginner levels, both L2 groups struggle with noun number and agreement errors – both symptomatic of a lack of positive L1-transfer. This effect continues into higher levels for the KL2E group but not for the ML2E group. By Upper-intermediate level, the KL2E learners appear to have largely overcome the lack of L1 transfer, producing L2-like NNQs at a frequency comparable to the ML2E group, but lower than seen at other L2 levels.

The data suggests a decrease in L2-specific NNQ use as an effect of L2 proficiency. This corresponds with an increase in L1-English-like NNQ production in the L2 data, suggesting that both ML2E and KL2E learners are gradually acquiring the form and scope of English NNQs. By way of evidence, the ratio of L2-specific NPs (compared with L1-English-like NP usage) in the ML2E data stands at 9.3% at Beginner level, 5.7% at Lower-Intermediate, 5.3% at Intermediate and 6.0% at Upper-Intermediate level, compared with the KL2E data of 20% at Beginner level, 18% at Lower-Intermediate level, 13.8% at Intermediate level and 9.2% at Upper-Intermediate level. The drop in this ratio is less pronounced in the ML2E data across L2 levels, although the ML2E ratio at Beginner level is similar to that of the KL2E ratio at Upper-Intermediate level, making the KL2E change in ratio appear more pronounced.

In terms of error type, while noun number errors and use of unnecessary particles are predictable in both ML2E and KL2E data via L1 transfer, the omission of quantifiers by the KL2E group is not predictable

from the L1, and appears to be the distinguishing feature of the KL2E data at these levels compared with the ML2E data, who make such errors at far lower frequencies. Here, we repeat our claim that the KL2E learners do not have the same one-to-one equivalence of 'almost all' as seen in Mandarin, and thus lack the same opportunity for positive transfer.

In terms of the development of quantificational NPs by L2 proficiency, Table 6 describes all closed-class and open-class L1-English-like uses, with a raw frequency of >10 together with a normalised frequency per 1000 words.

Table 6. Distribution of L1-English-like NNQ types by L2 proficiency (Open class NNQs in bold)[5]

Beginner (50173 words)	Lower-Intermediate (132966 words)	Intermediate (83162 words)	Upper-Intermediate (42145 words)	L1E (89746 words)
Many - 211(4.20)	Some – 568 (4.27)	Many– 352(3.90)	Some – 161 (3.82)	Many – 261 (2.90)
A lot of –128(2.55)	Many – 509 (3.82)	Some – 310(3.72)	Many – 155 (3.67)	Some – 226 (2.51)
Some – 127(2.53)	**A lot of –231 (1.73)**	**A lot of –139(1.67)**	All – 82 (1.94)	No – 199 (2.21)
All – 50(0.99)	All – 195 (1.46)	No – 129(1.54)	**A lot of – 42 (0.99)**	All – 164 (1.82)
No – 47(0.93)	No – 173 (1.30)	All – 123(1.47)	No – 31 (0.73)	Any – 143 (1.59)
More – 44(0.87)	More – 108 (0.81)	Every – 64(0.76)	Lots of – 26 (0.61)	**A lot of – 129 (1.43)**
Every – 23(0.45)	Lots of – 79 (0.59)	More – 55(0.65)	Any – 21 (0.49)	Every – 64 (0.71)
Lots of – 16(0.31)	Every – 77 (0.57)	**A/X Quant of –52(0.62)**	Every – 15 (0.35)	All of – 51 (0.56)
Any – 15(0.29)	Any – 45 (0.33)	Lots of –47(0.56)	Both – 14 (0.33)	**A few of –44(0.49)**
A number of – 14 (0.27)	Some of – 39 (0.29)	Another–35 (0.41)	Another – 13 (0.30)	Some of –44(0.49)
All of – 13(0.25)	Another – 35 (0.26)	Any – 31 (0.37)	More – 13 (0.30)	**(A/X) Quant (s) of – 41 (0.45)**
Some of -11(0.21)	All of – 30 (0.22)	Each – 24 (0.28)	**(A/X) Quant of – 11 (0.26)**	Both – 36 (0.40)
	Each – 29 (0.21)	Some of –23 (0.27)		**A bit (of) – 28 (0.31)**
	Both – 23 (0.17)	Both -21 (0.25)		Each – 21 (0.23)
	(A/X) Quant of[5] – 21 (0.15)	All of – 21 (0.25)		Another – 17(0.18)
	Much – 14 (0.10)	**A variety of – 13 (0.15)**		Almost X – 16 (0.17)
	A few – 13 (0.09)	A little – 10 (0.12)		**A variety of – 13 (0.14)**
	A number of – 13 (0.09)			
	Almost X–10(0.07)			

From these results, it is apparent that L2 learners initially start out with a limited set of closed class quantifiers at Beginner level, before incorporating more open class quantifiers by Lower-Intermediate level. This development path can be explained in that the vast majority of these NNQs have direct translation equivalents from the L1 (reducing processing effort), and that they are syntactically simpler than open-class quantifiers (reducing learning effort). The high frequency of 'a lot of' and examples of 'a number of' at Beginner level lies in stark contrast to other open class quantificational NPs, and it must be assumed that these constructions are learned as chunks early on in instructed second language acquisition. Thus, it may be difficult to assume that use of 'a lot of' or 'a number of' represents acquisition of the L1 English open-class quantificational NP structure.

The limited word count of Upper-Intermediate level hampers the statistical progression, but when analysing the frequency of open class quantifiers from Beginner to Intermediate levels, there is a slight increase from 14 (0.27 per 1000 words) at Beginner, to 65 (0.78 per 1000 words) at Intermediate level, leading to a log likelihood difference score of LL=14.93 ($p<0.001$). However, this is still low when compared to the L1 English use of such quantifiers (113, or 1.25 per 1000 words), with a log likelihood difference of LL=9.71 ($p<0.01$). Thus, L2 learners tend to stick with a limited range of closed-class quantifiers in their L2 production, with the most frequently occurring closed-class quantifiers having exact or very similar L1 equivalents.

5 Discussion

This study has looked at the grammatical and lexico-grammatical features (including errors) of L2 NNQ use via learner corpus analysis, focusing on differences between L1 and L2 grammatical construction (rather than felicity) of English NNQs, a relatively underexplored area in corpus linguistics. The results of the Contrastive Interlanguage Analysis suggest that although L1 English and L2 English users produce a similar frequency of NNQs in their writing, there are significant differences between L1/L2 and L2/L2 reference varieties in NNQ form and the distribution of L2-specific L2 NNQ forms between L2/L2 varieties also. Namely, L2 learners often omit or confuse required marking for number on quantifier-headed nouns, often unnecessarily add the particle 'of' to generic NNQs (resulting in inappropriate/incomplete partitive definite readings), occasionally omit obligatory quantifiers after adverbs such as 'almost' (treating 'almost' as a determiner rather than a modifier) and occasionally produce quantifiers that do not agree with their nominal counterparts. NNQs of these varieties account for an average 10% of L2 NNQ production across both L2 varieties, which represents a small but noticeable proportion of total NNQ production, and account for an average of 1 out of every 1,000 words of total L2 discourse even by Upper-Intermediate level. Moreover, the L2 learners sampled here tend to rely on a 'closed-class' of single quantifiers as determiners (which is similar to their L1-like NNQ constructions), while producing significantly fewer 'open-class' constructions than the sampled L1E reference variety (which are not present in their L1), even into Upper-Intermediate level.

These features of the L2 production are largely predictable on two fronts. Firstly, from a developmental point of view, low-proficiency L2 production generally lacks the syntactic norms of the L2 target, which are acquired at higher proficiency levels as learners seek to maximise their expressive power and communicative efficiency after successfully minimizing their learning and processing effort over time. Secondly, from an L1 transfer point of view, L2 learners seek to maximise the opportunity for positive transfer of form and function from their L1, and struggle to produce forms where there is no opportunity for positive transfer (i.e. lexico-grammar of English open class NNQs) or occasionally permitting negative transfer (i.e. not marking nouns for number) where this does not impede communicative efficiency or expressive power. As such, these findings are in line with many other contrastive studies where the L2 reference variety lacks a key syntactic element of the L2 target, e.g. Crosthwaite 2014a, 2014b.

However, the comparatively weaker L2 NNQ production by the Korean L2 English learners is, in this case, not predictable by L1 transfer. Unlike other contrastive studies of these two L2 reference varieties that have looked at determiners and pronominal anaphor (Crosthwaite, 2013), reference tracking more generally (Crosthwaite, 2014a), use of 'bridging' definite discourse-new NPs (Crosthwaite, 2014b, 2016b), or L2 article

use (Crosthwaite, 2016a, Crosthwaite and Choy, 2016), there are no discernible differences between L1 Mandarin and Korean NNQ production, and so there are no real opportunities for Mandarin L2 English learners to maximise positive transfer at the expense of Korean L2 English learners.

Thus, how to account for the significantly weaker NNQ production by the Korean L2 English learners, given that, both in the ICNALE data and other non-corpus based studies (e.g. Crosthwaite 2014a), the L2 proficiency level of the two L2 reference varieties is supposed to have been controlled for? For the authors of this study, there are three potential possibilities.

The first is that the sample is deficient, and that whatever means has been used to measure L2 proficiency between Mandarin and Korean L2 English speakers is flawed. However, given that the other studies previously mentioned have used different datasets produced by different learners under different testing conditions and found similar results, we are sceptical of this argument.

Second, (assuming the sample is not flawed), it could be the case that where the Mandarin L2 English users are generally more accurate on grammatical form at a particular ICNALE proficiency level, the Korean L2 English users have a higher proficiency in vocabulary or discourse production that allows them to be measured as equivalent to their Mandarin-speaking counterparts at the same ICNALE proficiency level. In this case, the question to ask is 'what (else) are the Korean L2 English users getting *right*, and what (else) are the Mandarin L2 English users getting *wrong* that leads to them be ranked at the same proficiency?'. However, at present, the authors do not have an answer to this question, as each of the contrastive studies presented by the authors so far have results favouring the Mandarin L2 English group. Further comparative studies on different linguistic features within the Mandarin/Korean ICNALE data are necessary to resolve this issue.

Third, given the advantages that Mandarin L2 English speakers appear to have, it could be the case that positive transfer experienced by such learners for such functions as definiteness marking, reference tracking etc. is not just improving performance in those areas, but is 'freeing-up' the learners' ability to process and acquire other linguistic forms more easily. This could be the case even for items where positive transfer is not to be expected, as is the case with NNQs. If so, this might have significance for contrastive accounts of transfer and for complex adaptive systems-type processibility-based accounts of language acquisition more generally, in that the question of 'what is easy and what is difficult to learn in a second language' might not be as predictable as first thought.

The main significance of the present study thus lies in the provision of further evidence that even where opportunities for positive L1 transfer between two L2 groups are the same (in this case, with NNQs), we have seen differences in the rate of acquisition as measured by the ratio of L1-like to L2-specific usage of NNQs. We therefore propose that the relative impact of positive transfer of certain form/function relationships has a knock-on effect on the acquisition of other form/function mappings (in this case quantification), which has to be taken into consideration when considering L2 learnability of such mappings. This is certainly possible under a complex adaptive systems account of SLA where the rate of L2 acquisition depends on reductions to learning and processing effort. Namely, if the ML2E learners are able to resolve issues with the marking of other L2 form/function relationships (e.g. definiteness / specificity, Crosthwaite, 2016a, 2016b), earlier than their KL2E counterparts, they would then be able to devote extra learning or processing effort to the acquisition of NNQs despite both ML2E and KL2E learners having the same opportunities for positive transfer.

The potential pedagogical impact of the findings can be realised in the development of linguistic indicators of L2 proficiency (such as the CEFR) for diagnostic and assessment purposes. The findings show a clear trajectory of development for L2 NNQs, from a reliance on single lexical NNQs alongside a significant frequency of L2-like NNQs at Beginner levels, to the gradual introduction of open class NNQs accompanied by a reduction of L2-like NNQs at higher L2 proficiencies. This information can be used to sequence difficulty of input texts and task types (multiple choice, gap fill, etc.) in L2 materials and language tests, and assist examiners in determining a candidate's L2 proficiency. For educators, special attention must be drawn to the similarities between L1 and L2 lexical NNQs so as to aid positive transfer. Educators should also create activities that help students to notice how noun number affects NNQ selection, and to make learners fully aware of the differences in the scope and form of generic and specific NNQ expressions, so as to avoid unnecessary particle use.

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Appendix A – Wordlist of quantifiers analysed

Some (of/more) X
Many (of/more) X
Much (of/more) X
(Nearly/Almost/Not) All (of) X
(Nearly/Almost/Not) Every X
Most (of) X
(Nearly/Almost) No X
(Nearly/Almost) None of X
Each (of) X
More (of) X
Less (of) X
Fewer X
Another (of) X
A lot of X
Lots of X
An/X amount(s) of X
A/X number(s) of X
A great deal of X
A proportion of X
Both X
Any (of) X
Certain X
(Twice, three times etc.) As many X as X
Loads of X
Quarter/half /third etc. of X
Various X
A variety of X