

Articles in child L2 English: When L1 and L2 acquisition meet at the interface

First Language

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Abstract

In this study, the authors investigate the acquisition of the article system of English as a phenomenon at the interface between morphosyntax and semantics. L1 acquisition studies have found that children make mistakes in article use until they are at least four years old or possibly older. Also, adult L2 acquisition studies have reported that learners of English often have consistent difficulty in the use of articles until very late stages of acquisition. This study sought to understand whether child L2 learners would display acquisition patterns similar to child L1 for the English article system. The authors analyzed article use in L2 children from four L1 backgrounds: Mandarin/Cantonese Chinese, Hindi/Urdu/Punjabi, Arabic, and Spanish. The findings of the study indicate that the interface domain of the article system is indeed problematic for child L2 learners. The authors found that all L1 groups had difficulty acquiring the semantic aspect of the phenomenon. In the no-article L1 groups, the acquisition of the morphosyntactic aspect of article use showed the effect of L1 in the form of article omissions. Transfer of the mapping of the feature [-definite] onto indefinite article forms from L1s did not take place in the Arabic and Spanish L1 groups, indicating that L1 transfer in child L2 acquisition is limited. Comparing the findings with those of the previous studies of child L1 and adult L2 acquisition, the authors conclude that the predominant trends in children's article acquisition were developmental rather than transfer-based. This finding in particular highlights the special status of L2 children as a unique learner population.

Keywords

article system, child L2 acquisition, interface phenomena, L1 transfer

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Introduction

Articles are involved in a variety of discourse processes and in the interaction of linguistic and non-linguistic knowledge. Therefore, the article system is an example of an interface phenomenon cutting across the domains of morphosyntax, semantics, and pragmatics. A lot of research has been dedicated to the acquisition of the English system of articles by first language (L1) learners (e.g., Maratsos, 1974; Schaeffer & Matthewson, 2005; Schafer & de Villiers, 2000; Warden, 1976) as well as by learners of English as a second language (L2) (e.g., Huebner, 1985; Ionin, Zubizarreta, & Maldonado, 2008; Master, 1987; Robertson, 2000; Snape, 2007; Snape, Leung, & Ting, 2006; Thomas, 1989). L1 acquisition studies have found that children make mistakes in article use until they are at least four years old, possibly older. Adult L2 learners of English often have consistent difficulty in the use of articles until very late stages of acquisition, or do not ever reach a native-like level of performance (Lardiere, 2004; White, 2003). Native-speaker usage of articles requires not only the knowledge of the correct DP (determiner phrase) structure and the mapping of morphosyntactic features onto phonological forms, but also the knowledge of appropriate semantic contexts for definite and indefinite articles. It is therefore not surprising that learners have difficulty grasping this interface phenomenon. The main goal of our investigation was to establish whether child L2 learners would display acquisition patterns similar to child L1 for the English article system by comparing the findings from the present study with those of previous studies on child L1 acquisition of articles.

We also further investigated L1 influence in the L2 acquisition of articles, which was attested in a longitudinal study of the acquisition of articles by child L2 learners from a variety of L1 backgrounds (Zdorenko & Paradis, 2008). In the present cross-sectional study, we investigated article use in the same storytelling task used in our earlier investigation (Zdorenko & Paradis, 2008), but with a larger number of participants who formed four equal groups according to their L1 backgrounds: Mandarin/Cantonese Chinese, Hindi/Urdu/Punjabi, Spanish, and Arabic. The findings of the study indicated that the acquisition of the article system displays an interplay of various patterns, both developmental and L1 transfer-based; however, the predominant trends were developmental.

The article system of English

Following a number of recent studies on the acquisition of various aspects of DP structure (Hawkins et al., 2006; Lardiere, 2009; Snape et al., 2006; Wakabayashi, 2009), we adopt a feature-assembly approach to the analysis of English articles. In her work on L2 acquisition, Lardiere (2000, 2004, 2009) based her analyses on the assumption that the output of syntactic operations produces strings of terminal nodes that host clusters of morphosyntactic features. Lexical items (i.e., actual sound-meaning pairings) are inserted into terminal nodes after all syntactic operations have been applied. According to Lardiere (2009), formal linguistic features reflect fundamental cognitive categories. While the fundamental categories are the same across languages, languages differ in terms of what features they select from the universal inventory and use in the assembly of functional categories. Applying a feature-assembly approach to article systems, we

can say that articles are exponents (phonological representations) of the functional category D, which can host formal features such as [definite], [specific], or [singular]. In English in particular, the article system encodes the contrast of *definiteness* rather than that of *specificity* (Ionin, 2003; Ionin, Ko, & Wexler, 2004; Li, 1999). Definitions of what it means for a noun to be definite or specific differ across studies, but the crucial semantic dimension mentioned in all the definitions is whether the DP referent is a part of the hearer's and/or the speaker's beliefs. For this study, we adopt Ionin et al.'s (2004, p. 5) definitions of definiteness and specificity:

- (1) Definiteness and specificity: informal definitions:
 If a Determiner Phrase (DP) of the form [D NP] is...
 [+definite], then the speaker and hearer presuppose the existence of a unique individual in the set denoted by the NP.
 [+specific], then the speaker intends to refer to a unique individual in the set denoted by the NP and considers this individual to possess some noteworthy property.

On a feature-based approach, the definite and indefinite articles in English are inserted in the terminal nodes with the following bundles of features:

- (2) [D, +definite, +singular] = 'the'
 [D, +definite, -singular] = 'the'
 [D, -definite, +singular] = 'a'

Combinations of these features and the projection of the functional category D describe the syntactic aspect of the article system. An analysis of articles in terms of bundles of features can be applied in both L1 and L2 acquisition. Under a feature-based approach to acquisition (Hegarty, 2005; Lardiere, 2009), there is a universal set of features available to the child, and the child's acquisition task is to select only those features that are deployed in his/her L1, while disregarding the other features. Selected features are assembled into language-specific lexical items that enter into the computation. Importantly, children acquiring their L1 compose lexical items feature by feature, since the universal set of features is freely available to them, but specific feature bundles are not. Hence, featural components of lexical items in child L1 will not necessarily be adult-like and uniform across all stages of L1 acquisition. The difficulty in selection and assembling of features can thus account for developmental errors found in L1 acquisition of articles, which is discussed in the next section.

The acquisition problem is somewhat different in L2 acquisition. Learners start the task of L2 acquisition equipped with the knowledge of the combinations of features and the mapping of these combinations onto morphophonological forms that are specific to their L1. According to Lardiere (2009), features that are not present in the L1 are in principle available to learners and acquirable, but morphological differences in how features are assembled in lexical items present a true learning problem, even in the case of L1–L2 pairs when both languages select the same subset of relevant features. The acquisition

problem in this case involves the learners' figuring out how the relevant features are remapped onto new language-specific morphophonological forms.

The advantage of a feature-based approach is that it can be applied to both L1 and L2 acquisition. Generalizing Lardiere's (2009) discussion of feature assembly in L1 and L2, we can outline processes that characterize both acquisition types. First, both L1 and L2 learners can access formal features such as [definite], [specific], or [singular] from the universal inventory. The difference between L1 and L2 acquisition is that in L1 acquisition, all functional categories are assembled feature by feature, for which relevant features have to be extracted from the input mappings of phonological forms onto feature bundles. In L2, this process takes place for particular functional categories not available in the learner's L1. Furthermore, the feature-based approach can account for potential unequal difficulty in the acquisition of superficially similar morphemes that differ in the complexity of their feature composition. For instance, the indefinite article can only be inserted in [-definite, +singular] contexts, while the definite article can be inserted in any [+definite] context, which makes the indefinite article more featurally complex and thus potentially harder to acquire.

Importantly, the feature-assembly approach holds promise for accounting for learner errors found in L1 acquisition as well as in L2 acquisition because, in the absence of L1 transfer, both types of acquisition involve the process of selecting and assembling new features. We expect this to be the case in child L2 learners as well: when the L2 learners have no articles in their L1, they will be expected to pattern with L1 children with respect to acquisition sequences and substitution errors. Wakabayashi (2009, p. 339) hypothesized that at the early stages of L2 acquisition learners assemble a new feature only to a prototypical lexical item and often fail to include the feature into numeration altogether. We suggest that this interpretation can be applied to L1 as well as child and adult L2 acquisition. According to this account, the early stage of the acquisition of articles can be characterized by the substitution of one prototypical article form (the definite article) in various contexts and by the omission of articles, which is exactly what was found in the previous studies.

Importantly, some of the children in the study come from L1s that do have article systems. For such learners, we can expect L1 transfer effects in the form of remapping known feature bundles onto new L2 forms, which is the case of L2 acquisition. This analysis is promising for the comparison of learners with L1 backgrounds that differ in the manifestation of the article system, for instance languages with no articles (Mandarin and Cantonese) compared with languages that have only one article (Arabic), in turn compared to languages with a two-article contrast (Spanish). In this study, we apply the feature-assembly approach to our analysis of acquisition patterns in L2 children from these L1 backgrounds. First, we summarize the findings of previous studies on the acquisition of articles in L1 and L2.

The article system of English in L1 acquisition

L1 acquisition studies found that English-speaking children use articles relatively early on, between the ages of 2;8 and 3;5 (Brown, 1973; de Villiers & de Villiers, 1973), but that they make errors in article use until they are at least four years old. One of the

earliest studies of the L1 acquisition of English that mentioned this type of error was Brown (1973). The study discussed the acquisition of several functional morphemes and was not dedicated to the acquisition of articles only. However, Brown mentioned some properties of article use in child English. He found that article suppliance in obligatory contexts in the children's speech reached 90% between the ages of 2;8 and 3;5, and that *the* was sometimes used erroneously in indefinite contexts. He concluded that, by and large, children have no difficulty with expressing indefiniteness and definiteness, but sometimes they cannot estimate the hearer's knowledge in the discourse, which also determines article choice. Further experimental studies confirmed Brown's observation. Both studies that used indefinite- and definite-eliciting conditions (Maratsos, 1974; Schaeffer & Matthewson, 2005; Warden, 1976; Zehler & Brewer, 1982) and those that used storytelling as an elicitation technique (Emslie & Stevenson, 1981; Hickmann & Hendriks, 1999; Schafer & de Villiers, 2000; Warden, 1976) found that children used definite nouns inappropriately in indefinite contexts. The opposite type of error, namely the substitution of *a* in definite contexts, was also present in the data in these studies, but it was significantly less frequent.

Because of the overuse of definite articles, children's accuracy in definite contexts surpasses their accuracy in indefinite contexts, since a greater number of substitution errors would occur in the latter contexts. In order to explain the difficulty children have in using indefinite nouns appropriately, it has been suggested that the specific–non-specific dimension of article semantics is acquired earlier than definiteness (Bickerton, 1981; Maratsos, 1974; Zehler & Brewer, 1982). This suggestion was made because it was observed that children use *a* appropriately only with indefinite nouns that are also non-specific, and they use *the* appropriately with definite nouns that are specific.

In addition to article substitution, article omission has been documented in child English (Brown, 1973) as well as cross-linguistically, but comparative studies have reported variation in the rate of omission. Several studies found that children acquiring Romance languages show lower rates of article omission than children acquiring Germanic languages (Kupisch, 2006, 2007). For instance, Catalan-speaking children omit articles less often than Dutch-speaking children (Guasti, Gavarró, De Lange, & Caprin, 2007). Despite the variation, we can generalize from the previous studies that, regardless of language type, article omission in L1 children appears to drop below 10% by the time they reach the age of 2;6. Thus, article omission appears to be a property of the very early stages of L1 acquisition, unlike the substitution of *the* in indefinite contexts, which is a more protracted phenomenon.

The article system of English in adult and child L2 acquisition

Similarly to child L1 studies, research on adult L2 acquisition of articles has reported errors of omission and substitution. Article omissions were reported in learners of English whose L1s did not have articles (Huebner, 1985; Lardiere, 2004; Parrish, 1987; Robertson, 2000; White, 2003), and such learners' difficulties with articles were naturally attributed to the influence of their L1s, which did not have a functional category D. In addition to omission, difficulty in choosing appropriate articles was also documented in these learners,

who produced more errors of substitution than speakers of languages with article systems similar to English, such as French (Sarko, 2008), Greek (Hawkins et al., 2006), or Spanish (Ionin et al., 2008; Snape et al., 2006). Omission and substitution errors were documented in learners from no-article L1 backgrounds of all proficiency levels, even in learners who reached the final state of L2 development (Lardiere, 2004; White, 2003). Various groups of L2 learners were consistently reported to be more accurate with the definite article than with the indefinite article (e.g., Lardiere, 2004; Robertson, 2000; White, 2003). In other words, learners seem to acquire *the* earlier than *a*, and thus the article acquisition sequence is the same in L1 and L2 acquisition. Lardiere (2004) suggested that L2 learners find it easier to acquire *the* because 'definite articles in English need not take number and the count/mass distinction into account, which makes them less featurally complex than indefinites in at least one respect' (p. 335). If featural complexity is the underlying reason for the acquisition order of *the* and *a*, then L2 learners are expected to display this pattern regardless of L1 background. The same reasoning can be applied to L1 acquisition in order to account for why children learning English as their L1 acquire *the* before *a*.

We consider L2 children to be learners whose initial exposure to the L2 is between the ages of four and seven, following Schwartz (2003, 2004) and Unsworth (2005), and therefore we expect that L2 children are not subject to fossilization and will most likely become indistinguishable from native speakers. However, due to a later age of onset, should we expect differences between child L1 and early child L2 acquisition in patterns and rate, if not in ultimate attainment? Dulay and Burt (1973, 1974) found that the order of acquisition of morphemes in child L2 was similar to the order reported in child L1, as reported in Brown (1973) (see also Paradis, 2005). Extending this line of research to child L2 acquisition of articles, we can similarly ask whether developmental errors such as article omissions and *the* substitutions are present in child L2, and whether L2 children can exploit the knowledge of their L1 to assist them in the acquisition of feature mappings in the article system of English.

Support for the similarity of child L2 and adult L2 acquisition comes from the studies that found L1 transfer effects at the early stages of child L2 acquisition of syntax (Haznedar, 2001; Unsworth, 2005). In the area of child L2 acquisition of articles, Chondrogianni (2008) found evidence for the initial transfer of L1 properties in Turkish learners of Greek. However, Chondrogianni focused on the acquisition of only the definite article in comparison with pronominal clitics. Few recent studies have investigated the acquisition of English articles in child L2 learners from different L1 backgrounds. In one such study, Zdorenko and Paradis (2008) used data from a longitudinal corpus of narratives from 17 English L2 children with L1s that do not have articles (Chinese, Korean, and Japanese – the [-article] L1 group) and L1s that do have article systems (Spanish, Romanian, and Arabic – the [+article] L1 group). Over two years, the role of L1 transfer in article use and error types in child L2 English was examined. Zdorenko and Paradis found evidence for L1 transfer in child L2 learners. The children from [-article] L1 backgrounds omitted articles significantly more often than the children from [+article] backgrounds. This error was explained by the absence of the category D in the initial state grammar of the [-article] L1 speakers.

Studies of L1 acquisition and L2 acquisition of English found similar types of errors in learners, namely substitution of the definite article in indefinite contexts and omission of articles. Previous studies seem to converge on the finding that all learners of English,

i.e., L1 and L2 learners, reach higher accuracy with the definite article than with the indefinite article at the early stages of acquisition. Even though the underlying reasons for the similarity of errors in all learner populations could be somewhat different due to age of onset, there appears to be continuity in the development of the article system in L1 and L2 acquisition. In a recent study of 10- to 12-year-old children acquiring L2 English, Ionin, Zubizarreta, and Philippov (2009) found similar errors of article substitution in the 10- to 12-year-olds and adults learning L2 English. Putting this finding together with the study of five- to six-year-old L2 learners in Zdorenko and Paradis (2008), we suggest that there is continuity in the way the article system develops in L1 learners, in all age groups of child L2 learners, and in adult L2 learners.

First language backgrounds of the children in the study

Mandarin/Cantonese

These languages do not have counterparts of English articles (Li & Thompson, 1997; Matthews & Yip, 1994). Mandarin and Cantonese have a quantifier ‘one’ that can be used to mark indefiniteness, and demonstrative pronouns ‘this’ and ‘that,’ which can express definiteness, similarly to English. According to Chen (2004), Mandarin Chinese does have various devices to indicate the universal pragmatic notion of identifiability but the grammatical feature [definiteness] does not yet exist in the language. Chen argues that demonstratives and the numeral ‘one’ are developing uses of definite and indefinite articles respectively, but morphologically they have not been fully grammaticalized, confirming what was pointed out by Li and Thompson (1981). Thus, unlike English, languages like Mandarin do not have an article system, i.e., a set of morphemes that have developed highly specialized uses to indicate (in)definiteness. Following Cheng and Sybesma (1999) and Leung (2005), we assume that both Mandarin and Cantonese do not grammaticalize the feature [definiteness].¹

Hindi/Urdu/Punjabi

These three languages were grouped together for the purposes of this study because they are closely related. In fact, differences between Hindi and Urdu are mostly sociolinguistic: ‘at the phonological and grammatical level they are so close that they appear to be one language’ (Schmidt, 1999, p. xiv), and the differences between Hindi/Urdu and Punjabi lie in the area of morphophonology (Bhatia, 1993). There are no crucial differences between these languages with respect to the expression of definiteness. Hindi (Kachru, 2006), Urdu (Schmidt, 1999), and Punjabi (Bhatia, 1993) do not have a category of article. For example, Punjabi (Bhatia, 1993, p. 218) can use determiners such as the numeral *ikk* ‘one’ or pronouns *koi*:/*kujj* ‘some, any,’ and demonstrative adjectives *e* ‘this/these’ and *o* ‘that/those’ to express similar semantic contrasts in combination with the features of proximity or remoteness. Generally, the marking of the contrast definiteness/indefiniteness is not grammaticalized in Hindi, Urdu, and Punjabi and is not obligatory, and potential ambiguity is resolved using pragmatic factors. Thus, we assume that these languages are similar to the Chinese languages in that they have not grammaticalized the category of definiteness.

Spanish

The Spanish system of articles is similar to the English system (Butt & Benjamin, 1988). Just like in English, in Spanish there is a D projection, in which the feature [definiteness] is checked (Montrul, 2004; Zagona, 2002). In addition to definiteness, articles in Spanish also agree with the noun in gender and number. There are indefinite masculine and feminine articles *un/una*, and singular and plural definite articles *el/los* (masculine) and *la/las* (feminine).

Arabic

There is a definite article in Arabic realized as the prefix *l-* (Bateson, 1967). The definite article is prefixed to the noun and assimilated to certain initial consonants (e.g., *l-šams* – *ššams* ‘sun’ – ‘the sun’). In spoken Arabic, there is no marker of indefiniteness. Without the definite article, the noun is unambiguously indefinite, unless it is followed by possessive or pronominal determiners. Zdorenko and Paradis (2008) grouped Arabic together with Spanish in the [+article] L1 group and did not compare children within the group. In the present study, we separated Arabic and Spanish speakers into two groups, in order to see whether there are more subtle L1 effects due to the differences in the article systems of these languages. Since Arabic has a definite article, we assume that it has a functional category D. Unlike in Spanish, the phonological exponent of the feature [–definite] is null in Arabic, which is similar to plural indefinite nouns in English, except in Arabic both singular and plural nouns are bare.

Comparison across L1 backgrounds

Although all languages presumably have the semantic concepts underlying the features definiteness and specificity (they are semantic universals according to Ionin, 2003), languages do not select the same features for mapping onto morphosyntactic forms. We can assume for the purposes of this study that English, Spanish, and Arabic grammaticalize the feature [definite], whereas languages like Mandarin/Cantonese Chinese and Hindi/Urdu/Punjabi do not. Languages like English and Spanish have a grammaticalized expression of definiteness in the shape of special functional morphemes – articles. Even among languages with article systems there is variation, so Spanish has a contrast between indefinite and definite articles, and Arabic has a contrast between a zero article and a definite article. Thus, the division of L1s in this study (Spanish vs. Arabic vs. Mandarin/Cantonese Chinese and Hindi/Urdu/Punjabi) is particularly interesting with respect to our investigation into the role of L1 in L2 acquisition.

Research questions

RQ1: Acquisition patterns in child L2: Is the acquired before a? How does accuracy in definite and indefinite contexts change with exposure to English?

This research question concerns the acquisition sequence of the morphemes *a* and *the*, and the acquisition of the feature [definiteness] instantiated in the English article system.

Previous studies found that the sequence of morpheme acquisition in child L2 was similar to that in child L1. Applying this generalization to the article system, we can predict that article use in L2 children will be similar to article use in L1 children. In other words, we predict that L2 children will be more accurate with the morpheme *the* in definite contexts than with the morpheme *a* in indefinite contexts (hence the acquisition sequence *the* before *a*). This prediction is also motivated by the observation made in the previous studies that *the* is less featurally complex than *a* and is thus easier to acquire (Hawkins et al., 2006; Lardiere, 2004). We also predict that L2 children will be more accurate using *a* in [–specific, –definite] contexts than in [+specific, –definite] contexts, since this difference was found in L1 acquisition (e.g., Brown, 1973; Maratsos, 1974).

RQ2: Error distribution in indefinite and definite contexts: Is the substitution in indefinite contexts the predominant error?

Following up on the findings of Zdorenko and Paradis (2008), we expect all children to substitute *the* in indefinite contexts, since their findings suggest that this error is present in all child L2 learners of English, regardless of L1 background. Under a feature-based view of the early stages of L2 acquisition, it was hypothesized that learners might initially assemble a feature onto a new lexical item for prototypical cases only. We suggest that in the case of the acquisition of articles, learners might erroneously assemble the feature [+/- definite] onto one article, namely the definite article, as the default morpheme. If this is the case, *the* substitution will be the predominant error in child L2 acquisition, similarly to L1 as well as adult L2.

RQ3: Error distribution in indefinite and definite contexts: Are children influenced by their L1 grammars in L2 acquisition of the article system?

We predict L1 transfer effects in the form of omissions in the Chinese and Hindi/Urdu/Punjabi L1 groups in definite and indefinite contexts, because omissions have been documented in learners with [–article] L1 backgrounds in the previous studies of adult and child L2 acquisition. We predict omissions to be very infrequent in the Spanish L1 group, since these learners already have the knowledge of the functional category D. Under a feature-assembly account, L2 learners start off with a fully assembled set of L1 lexical items and grammatical categories. Thus, both the Spanish- and the Arabic-speaking learners are expected to transfer the knowledge of the functional category D to their L2 English. The difference between the former and the latter group is that the Spanish speakers know that indefinite as well as definite features are mapped onto an overt vocabulary item (the article) in DPs, whereas the Arabic speakers need to learn that the feature [–definite] is mapped onto the overt indefinite article on singular nouns, rather than a null article. Thus, we expect the Arabic group to have more difficulty with the indefinite article than the Spanish group, in the form of omission errors in indefinite contexts.

Methods

Participants

The participants were English by L2 children 5;0–6;11 years old, living in Edmonton, Canada. Testing sessions for each child included a series of tasks analyzing children's mastery of the various aspects of English phonology and morphosyntax, as well as a

parental questionnaire. For the particular study presented here, we selected 40 children out of approximately 160 children who participated in the larger study. We selected only those children whose exposure to English was within the range of 2–18 months.² The reason for this selection was the following. In a previous longitudinal study, Zdorenko and Paradis (2008) found that L1 effects faded away sometime between 16 and 20 months of exposure. Since one of our goals was to investigate L1 influence in child L2 acquisition, we wanted to focus our investigation on the learners at the earliest stage of L2 acquisition, when the effects of L1 are most pronounced. It is important to point out that for this study and the previous cohort of L2 children examined in Zdorenko and Paradis (2008), onset of exposure to English was defined at the child's entry into a daycare, preschool, or school program conducted in English. Therefore, it is possible that children could have had some limited pre-exposure to English if they were born in Canada or arrived before entry into a program. However, in all households, the L1 was the primary or exclusive language used by parents to their children – this was an inclusion criterion for the study.

Children were divided into four groups according to their L1: Mandarin/Cantonese, Hindi/Urdu/Punjabi, Spanish, and Arabic. In the Mandarin/Cantonese group, there were three speakers of Cantonese and seven speakers of Mandarin. In the Hindi/Urdu/Punjabi group, there was one speaker of Hindi, three speakers of Punjabi, and six speakers of Urdu. Table 1 summarizes the background information for the four groups of participants.

Materials and procedures

We analyzed children's use of articles in storytelling. Two picture books were used to elicit stories from children. The picture books were a part of the Edmonton Narrative Norms Instrument (www.rehabmed.ualberta.ca/spa/enni). Each book contained a set of three stories. The experimenters, who were native speakers of Canadian English, asked the children to tell stories while looking at the pictures. Importantly, in order to minimize mutual knowledge, the pictures were turned away from the experimenter and were only visible to the child. In addition, each experimenter was instructed to explain to the children that the rules of the 'storytelling game' were such that the experimenter was not allowed to see the pictures. The experimenters asked prompt questions, for instance, 'How do you start your story?', 'Tell me everything that is happening because I can't see the pictures,' but they never mentioned the names of the characters in the story in order to avoid a discourse situation where the children would use definite nouns for new

Table 1. Description of the participants

L1	# of participants	Age	MOE
Chinese	10	5;11 (5;03–6;09) 0;5	9 (5–17) 3.8
Hindi/Urdu/Punjabi	10	5;08 (5;01–7;00) 0;6	9 (4–17) 4.4
Spanish	10	5;09 (5;00–7;00) 0;10	10 (4–18) 6.5
Arabic	10	5;09 (4;10–6;08) 0;7	11 (2–18) 6.8

Notes: For each L1 group, the number of participants, age in years and months and months of exposure to English (MOE) are shown. The numbers are given in the following format: mean (range) standard deviation.

characters because they had been mentioned by the experimenter first. All storytelling sessions were videotaped and transcribed by the experimenters in CHAT format (MacWhinney, 2000).³

Using narratives as a source of data has several other advantages. First of all, elicitation of narratives using picture books provides us with comparable speech samples, and it enables us to study children's use of DPs in coherent discourse rather than in isolation (e.g., in answers to questions in experimental studies). In this respect, narratives are similar to spontaneous speech. In addition, the fact that the stories were based on picture prompts allowed us to clearly distinguish indefinite/definite and specific/non-specific contexts. In this storytelling situation, the listener did not have prior knowledge of the characters, and thus the child was expected to use indefinite nouns for first mentions of characters, and definite nouns for subsequent mentions. Thus, unlike spontaneous child speech, narratives were not influenced by the presence of most specific referents in the sight of the listener.

Data coding

Each of the two picture books used in the experiment had a sequence of three stories with two protagonists (two different animals), two secondary characters, and one or two objects that played a role in the story. The protagonists stayed the same throughout the three stories, and the secondary characters and objects were added in the second and third stories, thus increasing the complexity of the cartoons. We limited our analysis only to referring expressions that were used for the main and secondary characters and for concrete objects, because the children were likely to refer to them several times throughout the story. In this way, we could control better for definite/indefinite contexts in the children's stories and have a uniform basis for comparing the use of articles across children.

We excluded plural, mass, and uncountable nouns, as well as idiomatic use of articles in expressions such as *to have a headache* or *to go home*. Names, personal and deictic pronouns were also excluded. Thus, we limited our analysis only to the use of articles with singular countable nouns, which required an article in all contexts. In what follows we describe the coding rationale and provide illustrations from children's stories.

Two contexts were set apart, namely definite and indefinite contexts. Since each child told six stories all in all, each involving at least two different animals and one object, there were a sufficient number of contexts to be analyzed, provided that the child did not use only pronouns or names (e.g., *Doctor Bunny* or *Max the Elephant*). We didn't include data from children who used fewer than four scorable definite or indefinite nouns. Most of the nouns used in the stories were specific, since they had a particular referent that was a character or an object in the story. The first mention of a referent was scored as indefinite, and all subsequent mentions of the same referent were scored as definite. For each noun in indefinite and definite contexts, the use of the article were further scored as correct (*a* in indefinite contexts, *the* in definite contexts), substitution (*the* in indefinite contexts, *a* in definite contexts), or omission (null article). Consider the first two utterances from a child's story given in (3). In the first utterance, indefinite articles are supplied correctly in an indefinite context. In the second utterance, *the* is used correctly with the definite nouns *elephant* and *donkey*, but it is used incorrectly with the indefinite noun *ball*, which is the first mention of this object in the story:

- (3) There's **a elephant** and **a donkey**.
The elephant and **the donkey** throw **the ball** in the mud.
 (participant 028, L1 Arabic, 5 years old, 18 months of exposure)

In (4), we find an incorrect use of *the* with the nouns *girl rabbit* and *boy rabbit* that are mentioned in the story for the first time, but a correct use of *a* with the noun *castle*:

- (4) **The girl rabbit** was making **a castle**, and then **the boy rabbit came**.
 (participant 088, L1 Punjabi, 5 years old, 17 months of exposure)

Example (5) illustrates *the* substitution in an indefinite context with the noun *balloon* and correct use of indefinite and definite articles with nouns referring to the characters *elephant* and *bunny*:

- (5) Once upon a time, there was **a elephant** with **a bunny**.
The bunny see **the balloon**.
 (participant 019, L1 Spanish, age 5;0, 6 months of exposure)

Omissions of articles are illustrated in the story given in (6), which clearly illustrates the child's inconsistency with article use: the same nouns *giraffe* and *elephant* are used intermittently with and without an article:

- (6) **Giraffe** is um playing with his plane.
 And he's, **the giraffe** is um flying it.
 And then **the elephant** is um flying it.
 And then **elephant** drop it in the water.
 (participant 040, L1 Urdu, age 5;7, 15 months of exposure)

While most nouns in the stories were specific because they referred to unique characters in the pictures, in some stories it was also possible to find indefinite and non-specific nouns. Such nouns were first mentions of a new referent and therefore indefinite, but they did not refer to a unique character or object in the story. Most of these contexts occurred in the story mentioning a seller with a bunch of balloons, in which case some children mentioned *a balloon* without referring to any particular balloon in the picture, as illustrated in (7):

- (7) And then he, the other rabbit said, can we have **a balloon**? (*characters are looking at a bunch of balloons*)
 (participant 141, L1 Spanish, age 6;9, 18 months of exposure)

Non-specific uses of indefinite nouns also occurred when the children used the indefinite article in the nominative function. For instance, in (8), the DP *a bunny* simply labels the character without referring to a specific bunny. The example in (9) is similar to the one in (8), since the DP *a rabbit* does not refer to a particular character:

- (8) And her see a buying balloon people. (meaning *a balloon-seller*)
It's **a bunny**.
(participant 138, L1 Chinese, age 5;11, 8 months of exposure)
- (9) The monster make hisself **a rabbit** and scared the rabbit away.
(meaning *the monster turned into a rabbit*)
(participant 066, L1 Arabic, age 5;0, 2 months of exposure)

All non-specific DPs in the stories were indefinite. Non-specific definite articles would be generic uses, as in *The giraffe is a protected species*. Such generic nouns did not occur in the stories. Indefinite specific and non-specific contexts were first analyzed together, but were separated for one analysis given in the results. Utterances included in the analysis were coded for correct use of definite and indefinite articles in their obligatory contexts, followed by analyses of substitution and omission errors.

In sum, for the nouns that met the inclusion criteria described in this section, there were two kinds of obligatory contexts, definite and indefinite, and three possible codes for article use in each context:

- Indefinite: correct (*a+noun*)
substitution (*the+noun*)
omission (bare noun)
- Definite: correct (*the+noun*)
substitution (*a+noun*)
omission (bare noun)

The scoring procedure was developed by the two authors, and the stories were scored by the first author. Given the simplicity of the distinction between indefinite and definite contexts in storytelling, this coding procedure was straightforward and objective, as opposed to coding spontaneous speech where the coder would have to make a subjective judgment on the semantic status of most nouns in each utterance.

Results

Accuracy in the use of indefinite and definite articles in obligatory contexts

The research question to be answered in this section is the following: (1) In child L2 acquisition, is *the* acquired before *a*? In other words, are accuracy rates with *the* higher than with *a* in all children? Accuracy with *the* was calculated as a percentage of all obligatory definite contexts in which the target article *the* was supplied. Accuracy with *a* was calculated as a percentage of all obligatory indefinite contexts in which the target article *a* was supplied. We calculated a percent correct score when there were more than three contexts for an article, and we found a sufficient number of scorable contexts in each child's stories. The average number of indefinite contexts per child was 11 (ranging from 4 to 20) and the average number of definite contexts was 35 (ranging from 7 to 92).

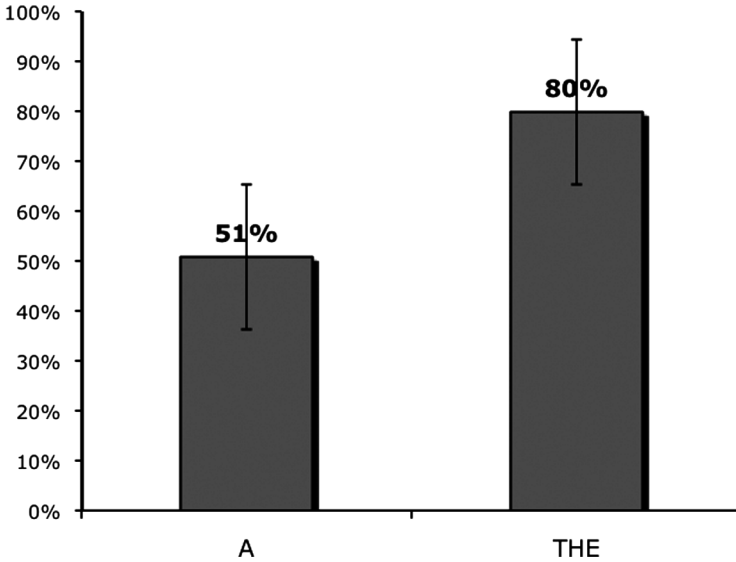


Figure 1. Mean percent correct for production of articles in obligatory contexts

A percent correct score was calculated for every child, and the resulting mean percent correct scores are given in Figure 1.

Mean percent correct scores were higher for *the* than for *a* (50% vs. 80%). To test whether this difference was significant, we conducted a paired samples *t*-test on the children's accuracy scores, which yielded a significant result. The accuracy scores with *a* were significantly lower than the accuracy scores with *the* ($t(39) = -5.190, p = .000$).

To complement this analysis, we calculated Pearson correlations between children's MOE (months of exposure) and accuracy scores. The size of the group (40 participants) permitted us to use a parametric test. It was decided not to split the participants into groups based on MOE, as there was no independent criterion for a cut-off point. Thus, children's amount of exposure was included in this statistical analysis as a continuous variable. The correlation between the amount of exposure and percent correct score with *the* was significant at the .05 level ($r = .364, p = .021$). There was no significant correlation between amount of exposure and percent correct scores with *a* ($r = .055, p = .738$). In other words, for the children in this study, the suppliance of *the* in obligatory contexts significantly improved along with their length of exposure, but the suppliance of *a* in obligatory contexts did not.

Definiteness and specificity

Regarding the article acquisition sequence, in the discussion of our research question (1) we also predicted that, in indefinite contexts in particular, L2 children would be more

accurate in non-specific contexts than in specific contexts, since this difference was found in L1 acquisition.

Non-specific uses of indefinite DPs were discussed earlier. We repeat one of the examples of a specific indefinite DP (8) and a non-specific indefinite DP (9) below:

(10) The girl rabbit was making **a castle**.

(11) And then he, the other rabbit said, can we have **a balloon**?

Since children's stories differed to some extent, not all the children used non-specific DPs, and when they did, they used them fewer than three times in total. For this reason, it was not possible to compare mean accuracy scores in specific and non-specific contexts. Instead, the total percentage of correct uses of *a* was calculated from the total number of non-specific indefinite contexts across all children. In Table 2, this percentage is compared with the proportion of correct uses of *a* in all other (i.e., indefinite specific) obligatory contexts.

In the non-specific contexts, there were only seven errors in total, which were comprised of three omission errors and four *the* overuse errors. Thus, our prediction was borne out. L2 children were more accurate with supplying the indefinite article in non-specific contexts than in specific contexts, similar to L1 children.

Error type distribution in indefinite and definite contexts

In this section, we address research question (2): Is *the* substitution in indefinite contexts the most common error in child L2?

The error scores were calculated as follows. In obligatory indefinite contexts, the proportion of definite articles (substitution error) and the number of bare nouns (omission error) was calculated. In obligatory definite contexts, the proportion of indefinite articles (substitution error) and the number of bare nouns (omission error) was calculated (recall that we excluded plural nouns and names from the analysis, thus bare nouns were always omission errors). Thus, we calculated four error scores for each child: percent substitution of *the* in indefinite contexts, percent omission of *a* in indefinite contexts, percent substitution of *a* in definite contexts, and percent omission of *the* in definite contexts. The mean error scores over all 40 participants are presented in Figure 2.

In order to test whether the differences between mean error rates in indefinite and definite contexts observable in Figure 2 were significant, we conducted paired samples

Table 2. Total percentage of correct use of the indefinite article in indefinite specific and non-specific contexts

Specific contexts	Non-specific contexts
54% (220/408)	83% (35/42)

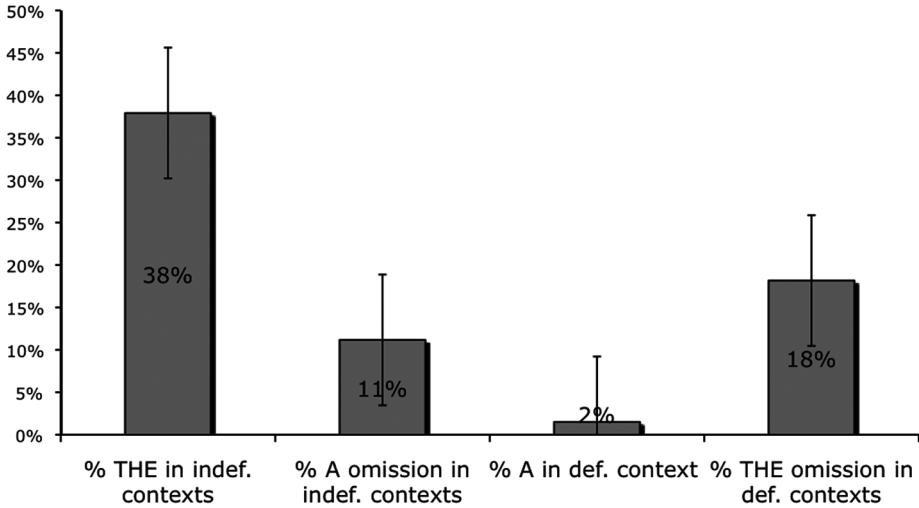


Figure 2. Mean percent substitution and omission errors in indefinite and definite contexts

Table 3. Paired samples *t*-tests for mean percentage of error types

Error types	Mean	<i>t</i> -value	<i>p</i> -value
<i>the</i> in indef. contexts – <i>a</i> in def. contexts	38% 15%	$t(39) = 8.304$	$p = .000$
<i>the</i> in indef. contexts – omission of <i>the</i>	38% 18%	$t(39) = 2.738$	$p = .009$
omission of <i>a</i> – <i>a</i> in def. contexts	11% 2%	$t(39) = 3.159$	$p = .003$
omission of <i>a</i> – omission of <i>the</i>	11% 18%	$t(39) = -2.110$	$p = .041$

t-tests comparing percent substitution and omission in definite contexts and indefinite contexts. The results of the *t*-tests are summarized in Table 3.

Applying a Bonferroni correction to the α -level to control for type I error ($\alpha = .0125$), we found that the difference between the mean percent of errors was significant in the first three pairs of error types. Thus, the statistical test indicated that when using *the*, the children were more likely to substitute *the* in the wrong context than omit *the* in its target context (38% vs. 18%), so *the* misuse was indeed the predominant error, as predicted. The children substituted *the* in the wrong context more often than *a* in the wrong context (38% vs. 2%). When using *a*, the children showed the reverse pattern – they were more likely to omit *a* than substitute it in the wrong context (11% vs. 2%). Finally, there was no significant difference in the proportion of omissions of *a* and *the* (11% vs. 18%).

Error type distribution in indefinite and definite contexts and L1 influence

The research question to be addressed in this section is our research question (3): Are L2 children influenced by the knowledge of L1 in the acquisition of the English article system?

In order to check for L1 influence effects in the data, we divided the participants into four groups by L1 background and calculated a mean score, as described in the previous section, for each error type for each L1 group. The error patterns are given in Figure 3.

This distributional analysis demonstrated that the rate of *the* substitution in indefinite contexts was high in each L1 group. In other words, it was not the case that the high rate of *the* substitution we saw in Figure 2 originated only from one L1 group. Instead, all L1 groups contributed to the score. The profiles of error distributions are clearly similar in the first two groups (Chinese and Hindi/Urdu/Punjabi), and in the third and the fourth groups (Spanish and Arabic). The difference in the patterns across the groups is due to the relatively high proportion of omission errors in the Chinese and Hindi/Urdu/Punjabi groups, both in indefinite and definite contexts, which was predicted. Also as predicted, there were very few omissions in the Spanish and Arabic L1 groups, and the two groups showed a very similar error pattern in general. In fact, in these two groups, the rate of *the* substitution was the same (*the* was erroneously supplied in 45% of all indefinite contexts). The rate of omissions in these two groups was

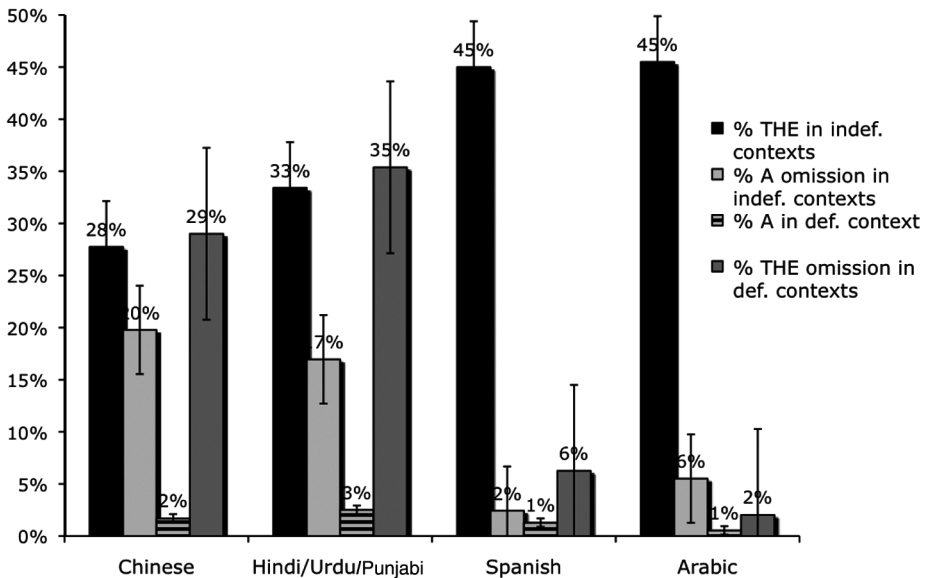


Figure 3. Mean percent error types for each L1 group

very low (up to 6%), especially compared with omissions in the Chinese and Hindi/Urdu/Punjabi groups (up to 35%).

In the analysis of error types by L1 background, it was not possible to apply a parametric statistical test due to a large number of categories between subjects and small numbers of subjects in each group (10 for each L1 background). Thus, we performed non-parametric Wilcoxon signed rank tests on the main trends in the error distribution, comparing selected pairs of proportions for omission and substitution of *the*. These tests supported the observations we made using the descriptive data in Figure 3. In the Chinese and Hindi/Urdu/Punjabi group, there was no significant difference between the rate of *the* omission in definite contexts and *the* substitution in indefinite contexts ($z(\text{Chinese}) = -0.306, p = .760$; $z(\text{Hindi/Urdu/Punjabi}) = -0.153, p = .878$). In the Spanish and Arabic L1 groups, the rate of *the* omission was significantly lower than the rate of *the* substitution ($z(\text{Spanish}) = -2.599, p = .009$; $z(\text{Arabic}) = -2.803, p = .005$). Thus, the Spanish and Arabic L1 children were more likely to substitute *the* in indefinite contexts than commit any other type of error.

We found above that there was a significant correlation between the amount of exposure and percent correct score with *the* but not with *a*, partially supporting our prediction. To follow up on the findings regarding error patterns that brought out significant rates of omission in the Chinese L1 group and the Hindi/Urdu/Punjabi L1 group, we wanted to further investigate the L1 influence in these two groups and see whether the correlations between the amount of exposure to English and children's accuracy were significant in each L1 group. Non-parametric Spearman correlations were calculated between MOE and percent correct in indefinite and definite contexts. Accuracy with *the* was significantly correlated with MOE only in the Chinese L1 group ($r = .758, p = .011$) and the Hindi/Urdu/Punjabi L1 group ($r = .652, p = .041$). Accuracy with *a* was not significantly correlated with MOE in any of the L1 groups. This finding is not surprising if we recall from the previous analysis that the Chinese and Hindi/Urdu/Punjabi L1 groups frequently omitted *the* in obligatory contexts, thus having room for improvement, while the Spanish and Arabic L1 groups committed very few errors in definite contexts.

Discussion

Our findings revealed a complex picture of acquisition for a target structure at the interface of syntax and semantics. We found patterns previously reported for child L1 acquisition, as well as for L2 acquisition. In this section, we compare our findings with the patterns found in the previous studies of L1 and L2 acquisition of articles and interpret the findings in terms of the feature-assembly approach to L2 acquisition.

Child L2 acquisition – L1 acquisition: Acquisition sequence and error types

The main finding of the study is that the predominant patterns of article acquisition in L2 children were developmental in nature, i.e., similar to the patterns reported in previous studies of L1 acquisition of English. The similarity was instantiated in two general trends: a higher accuracy with *the* than with *a* and the predominance of *the* substitution

error, confirming our predictions. Furthermore, the similarity with the accuracy patterns in child L1 was supported by L2 children's higher accuracy in non-specific indefinite contexts than in specific indefinite contexts.

The amount of *the* substitution in indefinite contexts in L2 children might be surprising, given that this error has been explained in terms of the 'egocentricity' of very young children, i.e., their failure to take the listener's perspective into account. On accounts such as Schaeffer and Matthewson's (2005) Concept of Non-Shared Assumptions, 'egocentric errors' disappear by the age of 4;0, which then does not explain the findings in our study. On the other hand, some other studies reported *the* overuse errors in monolingual children who were the same age or older than the children in this study. For instance, Warden (1976) found that *the* was substituted in 39% of indefinite contexts by seven-year-old children, and in 18% of contexts by nine-year-old children, in a similar storytelling task. It is possible that the egocentric period extends for a longer time than Schaeffer and Matthewson (2005) assume, i.e., until nine years of age. The similarity between monolingual and L2 children indeed points in this direction, so it could be a possible explanation. A slightly different account was suggested for *the* substitution errors in monolingual children by Krämer (2005) and De Cat (in press). Krämer and De Cat suggested that over the age of four, the underlying knowledge of information structure is in place, but children fail to mark some referents as new to the hearer because they continue to rely on deixis, especially in the presence of visual stimuli. This approach considers *the* substitution to be not a cognitive error, but a discourse error. For example, the children in our study were five or six years old, so they were certainly able to understand that the listener could not see the pictures, but they still failed to monitor the extent of mutual knowledge in a small proportion of contexts. Hickmann and Hendriks (1999), Krämer (2005) and Stenning and Mitchell (1985), among others, found that integrating sentences into coherent discourse was a difficult task for monolingual children below age five or six. Building a coherent discourse is possibly difficult even for children above the age of five or six when they have to carry out this task in an L2. Thus, it is unlikely that *the* overuse was due to egocentricity given the age of the children, but it could be due to cognitive immaturity of another kind. Interestingly, Ionin et al. (2009) found *the* substitution errors in L2 children who were 10–12 years old and for whom egocentricity definitely cannot be the reason. However, the purpose of Ionin et al.'s and our study was not to find a definitive solution to this issue because we were not assessing children's cognitive capacity, but rather to provide a description of patterns of article suppliance in L2 acquisition. Thus, we can generalize over the research done so far and say that the pattern in child L1, child L2, and adult L2 appears to be uniform, namely that all learners tend to overextend the use of the definite article to indefinite contexts. As we mentioned in the introduction, one possible reason for the overuse could be that the definite article is less complex than the indefinite article, at least with respect to its featural makeup and contexts of insertion. If featural complexity is the underlying reason for the acquisition order of *the* and *a*, then L1 children are expected to display this pattern and L2 learners are expected to display this pattern as well, regardless of L1 background, which was the case in the child L2 learners in the study.

The overall similarity of article acquisition patterns in child L1 and child L2 was also borne out with respect to the acquisition of the definiteness/specificity distinction. L2

children appeared to have less difficulty with the acquisition of the specificity distinction, supplying an indefinite article correctly in 83% of non-specific contexts. This observation is consistent with the findings of previous studies (Brown, 1973; Maratsos, 1974; Schafer & de Villiers, 2000). We can point out, in addition, that the prevalence of *the* overuse error falls within the overall tendency of L2 children to make more morpheme substitution errors with grammatical morphology compared to L1 children (e.g., Paradis, 2005). Possible reasons underlying *the* substitution in indefinite contexts in child L2 acquisition were mentioned above, but whether they are similar to the reasons for this error in L1 acquisition would be an interesting issue for further research, because the number of child L2 acquisition studies on this topic is still very small in comparison with L1 acquisition studies.

L1 influence in child L2

Evidence for L1 influence was found in the Chinese and Hindi/Urdu/Punjabi L1 groups in the form of article omission errors. At the same time, all children had difficulty in choosing the correct article form in indefinite contexts, even the Spanish-speaking children. This finding contrasts with the results of adult L2 acquisition studies, in which speakers of languages with article systems similar to English tended to perform like native speakers with respect to article choice. Given the status of articles as a morpho-syntax–semantics interface phenomenon, it appears that the Spanish L1 children were supported by L1 transfer only in learning the DP structure, but not in mastering the semantic distinctions between indefinite and definite contexts. Limited L1 support in the structural domain of DP can be further confirmed by the patterns in L1 Arabic children. The Arabic L1 group did not perform worse than L1 Spanish children, despite the nature of their L1, which only has a definite article and no indefinite article. As the rate of indefinite article omissions was negligible in the Arabic and Spanish groups (with the totals of 6/115 and 4/113 omitted articles respectively), it is very unlikely that any differences between them were due to L1 influence. For instance, omissions of *a* in the Arabic group cannot be attributed to the fact that Arabic has no indefinite article, because there was approximately the same (very low) rate of omissions in the Spanish group, and Spanish has both an indefinite and a definite article. This finding again indicates that what is transferred appears to be merely the knowledge of the functional projection D, but not the particular mappings of feature clusters onto morphological forms. It appears that specific transfer of the mapping of the feature [–definite] did not take place in the Arabic L1 group. This is perhaps not surprising if we compare this finding with the finding that the Spanish L1 group did not transfer their knowledge of the indefinite article into English either. We have already suggested that the indefinite feature mapping is inherently harder to acquire in both L1 and L2 acquisition. If the Spanish and Arabic children did not have a stabilized knowledge of this mapping in their L1, they had no pre-assembled feature-morpheme mapping to transfer to their L2. Hence, at the onset of acquisition they were similar to L1 children in this aspect of morphosyntax.

Recall that, in a study of Arabic-speaking adults learning L2 English, Sarko (2008) found more omission errors with the indefinite article in Arabic speakers, suggesting that there was L1 transfer in the form of mapping the feature [–definite] onto a null article.

Compared with the findings in adult L2 acquisition, our results further confirm the findings of prior work that L1 transfer in child L2 acquisition is more limited compared to adult L2.

L1 influence and the amount of exposure to English

The increase in the months of exposure was associated with improvement in the accuracy with *the*, but there was no significant association between months of exposure and the accuracy with *a*. In other words, the indefinite article use proved so problematic for children that in the first 1.5 years of acquisition there was no significant improvement in their accuracy in indefinite contexts. This difference was not expected, but it ties in with the finding that children had more difficulty acquiring *a* than *the*. Generally speaking, in indefinite contexts, accuracy scores were low for two reasons, *the* overuse and omission. In definite contexts, the only considerable source of error was omission. Children's accuracy in definite contexts significantly improved because *the* overuse error was more protracted than the omission error.

Furthermore, the improvement in *the* suppliance was significant only in the Chinese and Hindi/Urdu/Punjabi L1 groups. This finding is not surprising, if we take into account that there were many more article omission errors in these two groups than in the Spanish and Arabic L1 groups, as already discussed. Thus, the finding that the improvement in *the* suppliance was significant only in the Chinese and Hindi/Urdu/Punjabi L1 groups can be interpreted as a reflection of L1 influence in these children: the Spanish and Arabic speakers were already over 90% accurate in definite contexts and simply did not have much room for improvement, whereas the other two groups were initially 'slowed down' by having to acquire the functional category D. This finding is consistent with Lardiere's feature-assembly account according to which the learning process is expected to be more difficult for learners whose L1s do not assemble the relevant features into functional categories or assemble them in a way that is different from the L2. However, bearing in mind that we found significant improvement over 18 months of exposure, our study further demonstrated just how short-lived L1 effects are in child L2 acquisition, in line with the previous studies that also found transient L1 effects in child L2 acquisition of the DP structure (Chondrogianni, 2008; Zdorenko & Paradis, 2008).

Conclusion

L2 children's acquisition of the semantic contrast of definiteness appeared to follow a developmental route partially similar to the one in L1 acquisition. We found the following patterns to be similar to those documented in L1 English: (1) all learners appeared to identify the wrong feature, [specificity], as being relevant for the contrast between the definite and indefinite article; and (2) all learners were more accurate supplying *the* than supplying *a* in obligatory contexts. Suppliance of *the* improved significantly with more exposure, but the suppliance of *a* did not. In other words, the definite article was acquired earlier than the indefinite article, which seems to be a common pattern in all research on L2 learners, as well as previous work on L1 acquisition. We also found an L1-transfer effect indicating some similarity with adult L2 acquisition patterns: learners from no-article L1 backgrounds omitted definite and indefinite articles, which

clearly indicated L1 influence. Interestingly, L1 transfer was limited in the sense that it did not facilitate the acquisition of the indefinite article in Spanish-speaking children, who performed similarly to the Arabic L1 speakers. It is possible that due to the interface nature of the phenomenon, child L2 acquisition can display properties similar to both adult L2 and child L1 acquisition for different domains pertaining to one target structure at the same time.

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Notes

1. We acknowledge that the syntactic structure of nominals in the Chinese languages is a matter of debate. For instance, Li (1998, 1999) argues that nouns in Chinese are DPs, while Cheng and Sybesma (1999) argue that they are rather classifier phrases or numeral phrases and that the functional category D is not projected. In our study, similarly to Snape et al. (2006), we follow the latter account, since it found support in Chen's (2004) analysis of the semantics of the Chinese determiners.
2. Due to this wide range, we might expect the children's performance to be influenced by the amount of exposure. This possibility is analyzed in the results section.
3. We are aware that there are ways of making the experimental conditions more stringent to ensure that there is absolutely no mutual knowledge (e.g., see the storytelling experiments in Warden, 1976, and Hickmann & Hendriks, 1999). The advantage of our experiment was that the storytelling situation was much more natural and closer to spontaneous speech in an everyday situation.

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