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Spoken and Written Representation of Number in L2 Catalan Indefinite Determiner Phrases

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SPOKEN AND WRITTEN REPRESENTATION OF NUMBER IN L₂ CATALAN INDEFINITE DETERMINER PHRASES*

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ABSTRACT

The study explores the relationship that second language (L₂) learners of Catalan establish between the spoken and the written representation of number inflection within an indefinite-article Determiner Phrase (DP); and it also addresses first language (L₁) influence in this process. Five- to eight-year-olds, speakers of varieties of Chinese and Moroccan Arabic, with differing degrees of literacy instruction in their home countries – but similar time of residence in Catalonia – participated in the study. The children carried out individual semi-structured tasks designed to evaluate comprehension and production of changes in number inflections (*un cotxe* 'a car'; *uns cotxes* 'a-pl cars'). Results showed that, irrespective of children's language background, comprehension preceded production of singular and plural indefinite-article DPs; spoken representation was easier than written representation of number changes; and production of plural indefinite-article DPs was more difficult than its singular counterpart. Despite typological differences between the languages compared, both groups of L₂ learners, even the Catalan control group, underwent similar processes.

INTRODUCTION

The present study is part of a larger project that aimed at tracing the process of becoming literate in Catalan as a second language in a bilingual (Catalan/Spanish) environment. In order to become literate, children must learn the units, rules, and purpose of the writing system, as well as the way in which a particular writing system represents a language. Studies in different languages and writing systems have shown that children develop interesting ideas on the specific features of the written modality and, particularly, on its links with the spoken modality. As a rule, the participants in these studies were native speakers of a language who have grown up exposed to the writing system they were supposed to learn; but what ideas will be developed

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about the links between the spoken and the written representation by children who are learning a second language and a second writing system (WS₂)?

Similar hypotheses to those related to L₂ acquisition can be raised to answer this question. On the one hand, it can be hypothesized that L₁ knowledge and initial experience with a particular writing system (WS₁) will have a strong influence both on the learning process of the L₂ and the WS₂; alternatively, it could be assumed that there is a common learning process that is not so strongly related to one's L₁ or to previous experience with the WS₁. According to the first hypothesis, the kind of mistakes and difficulties learners will find in the L₂ will differ as a function of their L₁s and, concomitantly, will depend on the assumptions they have built about the WS₁.

In the current study, participants were Chinese and Moroccan children from five to eight years old, native speakers of varieties of Chinese and Moroccan Arabic, who have relatively recently settled in Catalonia. Children received differing degrees of literacy instruction in their home countries, but the time of school attendance in Catalonia was roughly the same for all of them. We focused on the relationship that these children establish between the spoken and the written representation of number inflection in their productions of Catalan indefinite-article Determiner Phrases (DPs). The study has four general aims: a) to characterize the utterances children produce for expressing number changes in a DP; b) to determine L₁ influence in the usage of these utterances; c) to explore how children reflect in writing the change in number in indefinite DPs; and d) to determine L₁ influence on the written representations.

NUMBER AND DEFINITENESS IN CHINESE, MOROCCAN ARABIC, AND CATALAN

Given that the participants in the study were asked to represent number changes in indefinite DPs in Catalan, we will refer briefly to the different ways in which number and definiteness are formalized in their respective L₁s and in the target language.

Both number and definiteness are grammatical categories that are realized as features of noun phrases. Definiteness grammaticalizes the semantic/pragmatic features of identifiability. Indeed, every language contains an element in interpretation that enables the hearer to *identify* the referent of a noun phrase, as well as to decide whether it refers or not to the totality of objects or to the entity as a whole, in the context which satisfies the description; however, "[...] while identifiability [...] may play a role in all languages, definiteness does

not" (Lyons 279).¹ As with many other grammatical categories (e.g. tense, mood), there is considerable variation in the expression of definiteness across languages, and only some languages use a definite article (which can be a free form, a phrasal clitic, or an affix on the noun) to mark a definite noun phrase.

The semantic feature of number is grammaticalized in most languages with very few known exceptions (e.g., Pirahã, a language of the Amazon region that seems to lack grammatical number (Corbett; Everett)). The different values that number may show in a language (e.g., singular and plural), the different types of number morphemes, as well as the expression of number agreement, differ considerably across languages (cf. Corbett; Corrêa et al.).

Moroccan Arabic

Standard Arab or *Fusha* (العربية الفصحى) is the official language of Morocco, as well as the language of instruction. It is mainly used in the written modality and in formal registers of the spoken modality. On the other hand, although *Darija* (الدرجة) is the language of everyday communication, it is not taught at school and it is used in a very restricted written context (e.g., poetry, cartoons for children, TV serials for the illiterate audience). It is essentially an oral language. Both Standard Arabic and Moroccan Arabic are inflectional languages. They are more complex than Catalan as far as nominal inflectional morphology is concerned, but simpler as regards verbal morphology.

In Moroccan Arabic, the feature of number assumes singular and plural values, and also dual and collective ones which are not productive in current uses of *Darija*. Productive number morphemes include suffixes that are added to the singular form of the noun. Plural in common nouns is obtained by the addition of the suffixes /in/ and /-a/ for masculine nouns (e.g., *beyyā* 'seller,' *beyyā'in* 'sellers'; *šaffar* 'thief,' *šaffara* 'thieves') (the latter not being very productive), and /-āy/ for feminine nouns (e.g., *lugha* 'language,' *lughat* 'languages'). There is also another form of plural formation, although it is no longer productive. Known as *broken plural*, it is obtained by a concatenation of a root and a pattern, typical of Semitic languages (e.g., *dars* 'lesson,' *dros* 'lessons'). The consonantal root (*drs*, in this example) remains invariant, and patterns (*a* and *o*, in this example) differ according to the gender and some phonological features of the noun root (e.g., vowel length or number of consonants). It is also possible to combine the

¹ "When a language acquires definiteness marking it acquires definiteness, which, formally means it acquires DP structure" (Lyons 340).

two processes (e.g., *bǧal* 'mule,' *bǧula* 'mules'). The addition of suffixes or infixes (broken plurals) depends on the morphological pattern and on the meaning of the noun. Moreover, number agreement is realized by these different processes in the noun only.

The distinction [\pm definiteness] is realized in Moroccan Arabic by one definite article and two indefinite articles. The definite article is unmarked for genre and number but varies according to the initial sound of the following noun. It is realized as /əl/ for nouns starting with <b, f, q, m, h, ḥ, w, y, g, ġ, j, ' , k> (*əl-bab* 'the door'), and it is realized as /ə/ plus the initial noun sound reduplicated (*əd-dar* 'the house'). Of the two indefinite articles, *sī* is used both for singular and plural (*sī mārra* 'some time'; *sī marrāt* 'some times'). The other indefinite article, *wāḥəd*, corresponds to numeral 'one,' it is invariant for gender and number, and it is always followed by the corresponding definite article (*əl/ə*) (e.g., *wāḥəd əl-wald*, literally 'a the-boy,' i.e., 'a boy'; *wāḥəd əz-zaytona*, literally 'a the-olive-fem,' i.e., 'an olive'). Indefiniteness is also marked by the absence of an article (e.g., *wald*, 'boy,' i.e., 'a boy'; *zaytona* 'olive,' i.e., 'an olive'). According to some authors, the articles are "an invention" of the variety, and they are not used in Modern Arabic (Standard Arabic variety) (Abboud-Haggar; Herrero Muñoz-Cobo; Vicente).

Chinese

Chinese is an isolating language in which almost every word consists of a single morpheme. There is no number (or gender) agreement in the nominal system. Although it lacks declensions or morphemes for marking number distinctions, it uses particles to express the grammatical feature of number. The distinction [\pm definiteness] is realized in Chinese by demonstratives used for old/known/identifiable information, while numerals are used for new/unknown/non-identifiable information.² A set of classifiers precedes the noun, together with a demonstrative, a numeral, or some quantifier. There are three types of noun phrases (NP) in Chinese (Li and Thompson; Hickman; Rosado): (1) numerals, quantifiers, and other classifiers; (2)

² Chinese languages, such as Mandarin, Cantonese or Qing Tian Hua, are isolating, tonal languages; they are thus typologically far from Catalan and from Romance languages in general. Indeed, tone is a distinguishing feature (phonologically relevant) in Chinese as well as in Bantu languages and in most languages spoken in South-East Asia. For instance, the Chinese characters 濕, 石, 史, and 是 are pronounced in the exact same way /z/ except for the tone with which they are uttered. All four sinograms are pronounced in first, second, third, and fourth tone, respectively. 濕 means 'wet, humid'; 石, 'stone'; 史, 'history'; and, finally, 是 is the equivalent of the verb 'to be.'

demonstrative and personal pronouns; and (3) bare nouns denoting both known or unknown information. The noun determines the type of classifier in the classifier phrase (CIP). For instance, classifier *-xiē* is used for marking plurality (PL) together with numeral *yī* 'one,' meaning 'some,' (1a) or with demonstratives *nèi* 'that' or *zhèi* 'this' (1b).

- (1) a. *yī* *xiē* *wánjù*
 a PL toy
 'some toys'
- b. *nèi* *xiē* *dōngxi*
 that PL thing
 'those things'

According to Cheng and Sybesma, the CIP that Mandarin Chinese projects shares some properties with the Indo-European DP.

Within the CIP, [\pm definiteness] is determined through word order and cannot be associated to any particular element (such as the determiner in Romance languages). It is thus realized by order of elements, use of demonstratives, numerals, or the use of *men* in the expression of plurality. In general, first mention of referents appears post-verbally, whereas it would be preceded by an indefinite article in Catalan or Spanish. In a longitudinal study of elicited production of narratives in Mandarin Chinese, Hickmann found that 61% of first-mentioned referents were postverbal and only 8% referred to known information.

Catalan

In Catalan, the feature of number assumes singular and plural values. Plural nouns are obtained by the addition of suffix *-s*. Phonetic alternation occurring in nouns (like *pal/pans* and *bosc/boscós*, or *cas/a/cas/e/s* in Western varieties of Catalan) is not related to inflectional but to phonological phenomena (Mascaró 94). Unlike Moroccan Arabic and Chinese, plurality in Catalan is morphologically expressed in the determiner (or the most leftward element in the DP), marked by the inflection *-s*, and in all elements that agree with it within the DP: nouns, possessives, and adjectives.

The distinction [\pm definiteness] is realized by a set of definite (*el/els, la/les*) and indefinite articles (*un/uns, una/unes*). As in many other languages, Catalan indefinite articles derive from numeral 'one': the same form (*un*) is used both for counting (*Vull un llibre, no dos* 'I'd

like one book, not two') and for preceding an indefinite singular DP (*Fa un dia preciós* 'today is a wonderful day'). Indeed, "[...] very many instances of 'indefinite articles' derive from cardinality expressions and can be reasonably argued to be cardinal articles. True markers of indefinite are rare and may not occur at all" (Lyons 95). As in many other languages, the singular indefinite article *un* ('a') is obligatorily present in singular, indefinite, countable DPs, in the absence of other indefinite determiners, such as *qualsevol* 'any,' or *algun* 'some' (Brucart 1445-55; Brucart and Rigau 1553-60). On the other hand, in plural postverbal DPs, the use of the indefinite article *uns* is optional, with pragmatic factors usually determining its use. Compare, for example, (2a) and (2b) with (2c) and (2d). (SG = singular, PL = plural.)

- (2) a. Porto uns llibres.
 carry-1SG a-PL book-PL
 'I bring some books'
- b. Porto llibres.
 bring-1SG book-PL
 'I bring books'
- c. Uns nens corren.
 a-PL child-PL run-3PL
 'Some children run'
- d. *Nens corren.
 child-PL run-3PL

CHINESE AND ARABIC WRITING SYSTEMS

The children in the three groups involved in the study were born in places that not only use different writing systems, but also relate very differently to writing. Chinese and Moroccan children were born in communities where the languages people speak are not used in writing, while the languages that their writing systems represent are not spoken by them. In Catalonia, on the contrary, becoming literate implies having access to the written modality of the same language. It is reasonable to suppose, then, that the notion *what-you-say-can-be-written-down*, or that modifications in the spoken expression must be reflected in writing is not, necessarily, part of these children's conceptualization of writing.

Chinese script can be viewed as an "enormously large but phonetically imprecise syllabary with strong visual and semantic qualities" (De Francis, *Chinese, Visible*). However, it is not an ideographic system, since Chinese characters "function differently

from a purely phonetic script in that they have a powerful ability to carry semantic weight in and of themselves —i.e., without entering into combination, as it is necessary for the elements of phonetic script, to convey meaning” (Mair 201). Each Chinese character is composed by a group of strokes that represent the semantic radical of the word that is represented, and a group of strokes that guides pronunciation. Pronunciation of characters corresponds roughly to one syllable, which usually corresponds to a morpheme. There are very strict rules of character formation concerning location in a square frame, order, and directionality of strokes. Current Chinese dictionaries of single graphs list about 60,000 characters but, as new words are being constantly coined, the Chinese writing system is open-ended.

There are many differences in China with respect to the beginning of literacy instruction. Hong Kong is famous for being one place in China (including Taiwan, Singapore, and Mainland China) where school starts relatively early. In the rest of the country, formal education does not normally begin until the age of 5 or 6 years old. Traditionally, Chinese teachers and parents have emphasized the importance of rote learning of Chinese characters to ensure adequate word-learning in children (e.g., Packard et al.).

Arabic *abjad* includes 28 letters, each representing one consonant of the Modern Standard Arabic language. In addition to the phonetically “rather flat” representation of consonants and long vowels, there are some devices for morphology (Bauer 569). The definite article, which is prefixed to the noun, has fixed orthography, independently of phonetic changes; and it consists of the addition of a letter equivalent to *a* for third person plural, again with no phonetic value.

The Arabic script runs from right to left. It is a cursive script, but not all the letters in the word are joined. Words are set apart by greater spaces, though lexical units which are represented by only one letter are joined to the following word. The position of the letter in the word affects letter shape.

The orthographies of Modern Standard Arabic (considered the only valid form of expression although it is no one’s L₁) and that of Classic Arabic are essentially the same, as they did not suffer changes after the first centuries of Islam. In Morocco, children begin formal literacy instruction between the ages of 4 and 6, but many families send their children to religious schools to learn the Koran. Most participants in the study come from rural, rather deprived environments and have attended *M’sid* or the Koranic school usually found next to the mosque in all villages of rural Morocco.

DEVELOPMENTAL PERSPECTIVES IN L1 ACQUISITION
AND HYPOTHESES REGARDING L1 INFLUENCE ON L2 LEARNING

Children are conceptually aware of and sensitive to number distinctions from very early on (e.g., Gallistel and Gelman, and references cited therein); and thus, the way children older than 5 years of age opt for expressing number distinctions must reflect either linguistic processing or other problem-solving processes that are not solely related to number marking.

Studies on the acquisition of plural marking in L1 Spanish have shown that it is initially absent from children's productions until the age of 2, approximately, and that it becomes productive/generalized by the age of 30 months (Fantini; Marrero and Aguirre; Aparici, Díaz and Cortés). In addition, no omission period of plural has been observed for L2 Spanish. Zobl and Liceras suggest that this is so because functional categories are at learners' disposal, either directly from their L1 or through Universal Grammar. In their view, the order of acquisition is a function of the distinction between lexical and functional categories. Functional categories, such as number, are acquired later than lexical ones (e.g., nouns, verbs, or adjectives), but in Zobl and Liceras' view plural is a lexical morpheme and that explains its early appearance in L2 learning. However, many L2 English speakers, particularly those who immigrated to the United States as adults, did not achieve native-like mastery of the plural morpheme, even after many years of exposure to the target language. In particular, speakers of Asian languages such as Mandarin Chinese (which lacks number inflectional morphology) have found plural morpheme use to be among the hardest grammatical errors to detect (e.g., Jia). Unlike typically-developing L1 learners who uniformly attain mastery of plural marking, L2 learners have a very fluctuating acquisition rate (Jia).

As for DP acquisition, studies show that children are sensitive to determiners and that they parse DPs by the age of 12-14 months (Höhle and Weissenborn; Höhle; Name and Corrêa, *Young*; Shi).³ Both in Spanish and Catalan, articles are initially undistinguished from nouns and realized by a *schwa* element; nevertheless, by age 2, approximately, children show a productive use of definite articles, although indefinite articles appear later on. In both languages, indefinite and cardinal values are indistinguishable from each other in the use of the singular indefinite article.

³ There is also evidence that children are sensitive to the morphological marking of gender in the determiner, and that they ascribe the gender identified in the determiner to the noun, in which gender is an intrinsic feature (Name and Corrêa, *Young children, Delimitação*).

Hypotheses regarding L1 influence on L2 learning range from those assuming that learners can achieve full competence in the L2, because, although the L1 is the initial state of the learner, L2 functional categories are accessible to the learner (Schwartz and Sprouse, *Word order, Cognitive*), to those that assume that full acquisition of an L2 is impossible, since access to L2 functional categories is extremely difficult (Hawkins and Chan; Hawkins). This last position is shared by Tsimpli and collaborators, and also Liceras (Tsimpli and Roussou; Smith and Tsimpli; Liceras), who assume that interlanguage grammar is restricted to the functional categories of the L1. Therefore, native speakers of Chinese and Moroccan Arabic should find difficult the functioning of the Catalan DP. Finally, others (e.g., Goad, White, and Steele) defend that there is transfer of L1 prosodic features, particularly at the initial stages of acquisition.

Although these hypotheses lead to differing predictions with respect to the ultimate level of attainment, they coincide in that we should find differences in children's responses according to their L1s, since all the participants in the current study are at the initial stages of learning the L2. An exception to that kind of reasoning is Liceras' approach to plural marking as a lexical category. If this is the case, we should not find differences between languages in plural marking.

A more functionalist perspective suggests that interlanguage and the transition from one state of knowledge to the other is basically systematic, but not strictly dependent on structural characteristics of the L1 (Perdue). All learners initially use a pre-basic variety of interlanguage, a variety lacking "relational terms" (functional categories) but move, almost inevitably, toward a basic variety in which there is abundant, though not always systematic, use of relational terms. It would be possible, then, to establish an order of acquisition of functional elements. However, the acquisition of plural marking in an L2 has not been approached exhaustively, perhaps because it does not posit a problem (Bruhn de Garavito and White). Thus, given that the children in our study were still making their first steps in the acquisition of the target language, we do not expect to find great differences between learners due to their L1s, although we should observe difficulties with the use of the determiner, because they are predicted by the different perspectives on the learning process of an L2.

STUDY

Method

Participants

Seventy-one children constituted the sample that was analyzed for the present paper (Table 1). All the participants in the control (Spanish/Catalan) group were born in Catalonia, whereas all of the children in the experimental groups had been born outside of Spain. Newcomers had been attending Catalan public schools in Barcelona and its metropolitan area for 18 months approximately.

TABLE 1
DESCRIPTION OF PARTICIPANTS IN THE STUDY
(ORIGIN, AGE, AND FIRST LANGUAGE)

	Chinese	Moroccan	Catalan
N	22	19	30
Origin	Zhejiang (south of Shanghai)	North of Morocco	Barcelona and metropolitan area
Age	5-6 (6 children, mean age: 5;6)	5-6 (13 children, mean age: 5;3)	5-6 (9 children, mean age: 5;3)
	7-8 (10 children, mean age: 7;6)	7-8 (16 children, mean age: 7;7)	7-8 (17 children, mean age: 7;4)
L1	<i>Qing Tian Hua</i>	<i>Dariya</i> (Moroccan Arabic)	Catalan/Spanish

Literacy-experience assessment

Teachers provided information about the children's previous schooling experience and family background but, in addition to that, children were asked to fulfill a sociolinguistic questionnaire with the help of the interviewer, to establish the language(s) spoken at home, their time of residence in Catalonia, and the socio-educational background of their parents or caretakers (profession, composition of the family, etc.). The interviewer also asked the children about their contact with books, newspapers, if they used to visit libraries, and so

on. In sum, we inquired about the overall presence of written material in the child's closest environment.

In addition, and in order to get a fuller picture of children's literacy experience, we used two kinds of evaluations. The youngest children had to participate in a semi-structured interview, designed to determine their familiarity with children's books; the extent to which they were aware of the function of socially-meaningful texts (such as supermarket tickets, calendars, timetables, etc.); and the vocabulary they had to refer to these items.

The questionnaire and all the materials used in the interview were in Catalan but one of the interviewers was a speaker of Mandarin Chinese and Moroccan Arabic, so that when children were unable to respond in Catalan they could do it in their language. We did not formally assess children's literacy level in their WSIs, but teachers informed us about each child's previous literacy experience. As a rule, newcomers in the oldest age groups had had literacy instruction in their home countries, whereas younger kids were illiterate in their WSIs.

All responses were given a separate scoring, and a T-test for non-related samples was conducted to check if there was any language effect. Results indicated that there were no language-related differences in the participants' familiarity with children's books (in any age group) or with participants' grasping of the function of everyday written material. There were, however, significant language-related differences ($t(13) = 2.95, p < .01$) in participants' knowledge of the name of socially meaningful texts, with Chinese children ($M = 0.64; SD = 0.16$) showing a better performance than Moroccan Arabs ($M = 0.45; SD = 0.09$).

The group of 7- to 8-year-olds, on the other hand, got a standardized test for reading comprehension in Catalan (Canals et al.). Results showed significant differences as a function of language: Chinese children performed better ($M = 5.0, SD = 2.97$) than Moroccan Arabs ($M = 3.38; SD = 1.07$), while Catalans obtained better results than the two experimental groups ($M = 8.0; SD = 1.91$).

These data indicate that at preschool level general literacy experience is rather similar among the three groups but, naturally, when more language-specific reading abilities are required, the gap between Catalan and newcomer students increases.

Tasks and materials

The children carried out a number of individual, semi-structured tasks designed to evaluate spoken and written production, as well as comprehension of number changes within Catalan indefinite-article

DPs. Derivational morphology was also addressed in the study, but in this paper we only provide data from the inflectional tasks.

In the production task, children were presented with an initial picture with one object (singular condition) or many identical objects (plural condition) with a written caption below (e.g., <UN COTXE> 'a car'). They were required to say what was there in the picture according to the following instruction *Què és això? Què veus aquí?* 'What's this? What do you see here?' No indications were given, at this point, on the part of the interviewer. Afterwards, however, regardless of the description that the children provided, the interviewer told them what was written on the picture caption (e.g., *un cotxe* 'a car'). Children were then presented with a *target picture* with the same object, but differing in number (plurality of objects, if the initial picture had been a singular presentation, or one object, if the initial picture had been a plural presentation). The target picture contained an empty label below the depicted object. Children were then asked to name the target picture (e.g., *uns cotxes* 'a-PL cars') and, subsequently, to write a *caption* for the target picture on the empty label. The initial picture with the written caption on it remained all the time in front of the child so that they could use it at their convenience. The list of indefinite-article DPs used in the inflectional task was the following: *un cotxe* ('a car'), *una casa* ('a house'), *un quadre* ('a picture'), *una poma* ('an apple'), *un llibre* ('a book'), *una taula* ('a table'), *un arbre* ('a tree'), *una porta* ('a door') and their plural counterparts. All the selected words were concrete, countable nouns with rather simple disyllabic structure (consonant clusters of a maximum of two elements), stressed in the penultimate syllable (i.e., the most common stress pattern for Catalan). The eight words appear in level 1 and 2 of difficulty in basic Catalan vocabularies (Rafel i Fontanals).

Each child was presented with four DPs in the singular condition, and they were asked to provide the corresponding plural DPs; and another four in the plural condition, from which they were expected to produce the singular DPs.

In the comprehension task, children were presented with all the pictures used in the production task (those showing one object and their plural counterpart), but none of the pictures in this task contained a written label. The interviewer asked the children to identify a particular picture that corresponded to their description (e.g., *Aquí hi ha moltes fotos. Jo et diré el nom d'una cosa i tu me la dones* 'Here there are many pictures. I'll say the name of one of them and you must hand it in to me').

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In the comprehension task, children were presented with all the pictures used in the production task (those showing one object and their plural counterpart), but none of the pictures in this task contained a written label. The interviewer asked the children to identify a particular picture that corresponded to their description (e.g., *Aquí hi ha moltes fotos. Jo et diré el nom d'una cosa i tu me la dones* 'Here there are many pictures. I'll say the name of one of them and you must hand it in to me').

Productions showing appropriate number inflections and agreement, but including a determiner other than the indefinite article, such as a numeral or a quantifier (e.g., *molts cotxes* 'many cars'). These utterances were not necessarily wrong from a grammatical or a pragmatic point of view, but differed from those that had been targeted. If a child said or wrote *vuit cotxes* 'eight cars' instead of the indefinite, plural DP *uns cotxes* 'a-PL cars', their description would be grammatically correct and pragmatically adequate, but we did not count it as accurate, because only by maintaining the determiner provided by the experimenter — which is moreover written in the initial caption and, thus, in front of the child during the entire process — was it possible to determine the children's competence to mark number changes through the morphological means available in the target language.

Productions modifying the determiner only, leaving the noun unchanged (e.g., **vuit cotxe* 'eight car').

Productions including a target-like noun, but omitting the determiner or leaving it unchanged (e.g., **unes casa* 'a-PL house').

Productions in which only the noun is reproduced in its initial form (e.g., *arbre* 'tree' in the context of the plural target *uns arbres* 'a-PL trees').

Productions that were a full repetition of the input provided by the experimenter (e.g., *un arbre* 'a tree') in the context of the corresponding plural target. In addition, this category also included non-responses (when the child refused to provide an utterance or to write a caption for the target picture) and instances of newcomers resorting to their L1s, as well as to languages other than Catalan (in general, Spanish).

One category was exclusive of the written productions, and it included responses showing a full copy of the initial caption (the label that appeared below the initial picture) with some addition, such as <8 UN COTXE> '8 a car', instead of the plural target.

Children had to produce four utterances for each condition (singular and plural), together with the corresponding written captions. Therefore, in order to calculate the mean number of accurate responses, each child received a score ranging from 0 to 4, according to the number of indefinite-article DPs that they produced for each condition of the *initial picture*, the *target picture*, and the *written caption*. Due to the lack of homogeneity in the distribution of children's responses, non-parametric tests had to be applied to these scores to establish levels of significance to the differences observed.

Results

Spoken representation of number distinctions in Catalan DPs

Initial picture

Our first analysis focused on the utterances used by participants to describe the initial picture before any input on the part of the interviewer. Table 2 shows the mean number of indefinite-article DPs (singular, for a single object such as *un cotxe* 'a car', and plural, for a plurality of objects such as *uns quadres* 'a-PL pictures') for each language group and age.

TABLE 2
MEAN OF INDEFINITE-ARTICLE DPs
PRODUCED FOR INITIAL-PICTURES NAMING

	Chinese		Moroccan		Catalan	
	5-6 years n = 6	7-8 years n = 16	5-6 years n = 9	7-8 years n = 10	5-6 years n = 13	7-8 years n = 17
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Singular presentation	1.33 (1.37)	1.63 (1.67)	2.11 (1.27)	2.10 (1.20)	3.77 (.44)	3.71 (.69)
Plural presentation	.17 (.41)	.94 (1.18)	.33 (.71)	1.50 (1.84)	1.92 (1.71)	3.53 (.72)

Note. Range: 0-4.

These data show that the Moroccan group performed better than the Chinese one, and that controls were almost at ceiling. However, only the difference between the experimental language groups and the control group was found to be significant; i.e., between Chinese and Catalan (Mann-Whitney U 96,000, $Z = -4.784$, $p < .001$), and between Moroccan and Catalan (Mann-Whitney U 65,000, $Z = -4.929$, $p < .001$). Differences between the Chinese and the Moroccan group were not significant. This means that Chinese and Moroccan children showed a similar capacity to produce indefinite-article DPs in Catalan. Note that, for singular presentations, children in the youngest group were able to produce at least one indefinite-article DP, whereas older kids produced at least two. As for developmental patterns, we observed a slight, though not significant increase, in the use of indefinite-article DPs with age in

every language group. The mean number of indefinite-article DPs decreased dramatically for referring to pictures with a plurality of objects, in all languages and age groups. The differences between the use of indefinite-article DPs in the singular compared to plural presentations were found to be significant in the Moroccan group (Wilcoxon Signed-Rank ($Z = -3.114, p < .002$), the Chinese group ($Z = -2.504, p < .01$), and controls ($Z = -2.993, p < .003$). These results show a recurring phenomenon that will reappear throughout the tasks; namely, that the production of a singular, indefinite-article DP differs qualitatively from the production of a plural one.

Target picture

We later examined the utterances used by the participants to describe the target picture (the picture for which they must write a caption). This picture was presented once the interviewer had described the initial picture (using an indefinite-article DP), and read the caption under it. When the initial picture showed a singular object, the target picture showed a plurality of the same object and vice versa. In terms of linguistic production, this means that after hearing the interviewer utter a singular, indefinite-article DP, children were asked to produce a plural one and, conversely, that after hearing a plural, indefinite-article DP, they were required to produce a singular one. Table 3 shows the mean number of indefinite-article DPs showing appropriate changes in number inflections, according to age group, for each language and condition.

TABLE 3
MEAN OF INDEFINITE-ARTICLE DPs PRODUCED FOR TARGET-PICTURES NAMING

	Chinese		Moroccan		Catalan	
	5-6 years n = 6	7-8 years n = 16	5-6 years n = 9	7-8 years n = 10	5-6 years n = 13	7-8 years n = 17
	Mean (<i>SD</i>)	Mean (<i>SD</i>)	Mean (<i>SD</i>)	Mean (<i>SD</i>)	Mean (<i>SD</i>)	Mean (<i>SD</i>)
Singular target	1.00 (1.67)	1.75 (1.24)	1.89 (1.36)	2.50 (1.08)	3.92 (.28)	3.88 (.33)
Plural target	.00 (.00)	.38 (1.02)	.22 (.44)	.70 (1.49)	.23 (.83)	1.18 (1.42)

Note. Range: 0-4.

The data show that the Chinese children were less prone to produce singular, indefinite-article DPs than the Moroccan children, and much less than controls. However, only the difference between the experimental language groups and the controls was found to be significant: Chinese vs. Catalan (Mann-Whitney U 52.500, $Z = -5.734$, $p < .001$), and Moroccan vs. Catalan (Mann-Whitney U 70.500, $Z = -5.108$, $p < .000$). Differences between the Chinese group and the Moroccan group were not significant.

The tendency to produce singular, indefinite-article DPs increased with age in every language group. Older Chinese, Moroccan, and Catalan children almost doubled the production of singular, indefinite descriptions of their younger counterparts. However, the differences were not statistically significant.

The same trends were found for referring to the plural target picture, as far as language and age differences are concerned. Chinese children were less prone to produce plural, indefinite-article DPs than Moroccan children, and much less than controls. However, only the difference between Chinese and Catalan (Mann-Whitney U 254.000, $Z = -1.908$, $p < .05$) was found to be significant, whereas the difference between Moroccan vs. Chinese, or Moroccan vs. Catalan was not significant. This was due to the fact that Catalan children were as reluctant as newcomers to produce plural, indefinite-article DPs (note that the level of significance is at the limit). There is also a crucial difference regarding the amount of plural, indefinite-article DPs. Not a single Chinese child produced a plural, indefinite-article DP, and the mean number of this expression was less than 1 for the other groups, except for the oldest Catalan children. Only this latter group of children produced a mean of at least one plural, indefinite-article DP.

The differences between singular and plural realizations were found to be significant in the Moroccan group (Wilcoxon Signed-Rank $Z = -3.439$, $p < .001$), in the Chinese group ($Z = -.580$, $p < .000$), and in the control group ($Z = -4.756$, $p < .001$). Table 4 shows the different utterances children produced to name the target picture and their distribution according to language group and age.

Most of the descriptions Chinese children produced for referring to a picture with a plurality of objects (plural target) consisted of repeating the utterance used by the interviewer to describe the initial picture, saying the name of the depicted object in their L₁, or remaining silent. This trend decreased in the Moroccan group and disappeared among the controls; additionally, it became less marked as a function of age: 5- to 6-year-olds tended to produce a full repetition of the input, or to turn to their L₁s, more than children in the oldest age group, in every language. The second most common category of

TABLE 4
DISTRIBUTION OF UTTERANCES THAT DIFFERED
FROM TARGET-LIKE UTTERANCES (IN PERCENTAGES)

	Chinese		Moroccan				Catalan					
	5-6 years n = 6	7-8 years n = 16	5-6 years n = 9	7-8 years n = 10	5-6 years n = 9	7-8 years n = 8	5-6 years n = 9	7-8 years n = 1	5-6 years n = 13	7-8 years n = 2	5-6 years n = 15	
Inaccurate utterances	SG	PL	SG	PL	SG	PL	SG	PL	SG	PL	SG	PL
Changes in D and N	5.6	0.0	2.8	3.4	0.0	26.5	6.7	12.1	0.0	77.6	0.0	72.9
Changes only in D	5.6	16.7	11.1	22.4	0.0	0.0	6.7	6.1	0.0	0.0	0.0	0.0
Changes only in N	11.1	16.7	47.2	12.1	52.6	41.2	46.7	48.5	100.0	20.4	100.0	27.1
Repetition of N input	0.0	8.3	16.7	20.7	0.0	11.8	13.3	15.2	0.0	0.0	0.0	0.0
Full Repetition of input or use of LI	77.8	58.3	22.2	41.4	47.4	20.6	26.7	18.2	0.0	2.0	0.0	0.0

Note. N = noun, D = determiner.

response were utterances with target-like production of the noun by itself without the determiner (e.g., *cotxes* 'Ø cars' instead of *uns cotxes* 'a-PL cars'). This type of response accounted for almost half the utterances in the Moroccan group, some of the answers of the Chinese group, and only a few in the control group. The control group participants tended to produce utterances that included the appropriate number inflection in the noun and in a determiner other than an indefinite article (e.g., *molts cotxes* 'many cars').

Similar — though less marked — trends appeared for referring to a picture depicting a singular object (singular target). In the Chinese group, most descriptions consisted of repeating the utterance used by the interviewer to refer to the initial picture, or turning to their LI for completing the task. This kind of descriptions decreased in the Moroccan group and was inexistent among the controls. Verbatim

repetition of input decreased also as a function of age: 5- to 6-year-olds tended to repeat verbatim more than 7- to 8-year-olds in every language. We would argue that this behavior was a means of *saving the situation* posited by the task, rather than a linguistically motivated strategy.

Changing only the noun in a target-like manner (e.g., saying just *cotxe* 'Ø car' for the singular-target condition, or just *cotxes* 'Ø cars' for the plural-target condition) was the second most frequently used description, whereas changing just the determiner or modifying both determiner and noun was the less preferred way of description for the experimental language groups. In this case, however, the strategy seems to have a linguistic motivation; it might be the case that, in order to reflect a change in number, a modification of the name of the objects is enough, particularly for the Moroccan children. The noun seems to be conceived of, therefore, as the category that accounts for the semantic feature of number.

Comprehension

The next analysis focused on the results of the comprehension task, in which children were asked to identify the picture that the interviewer was saying. Table 5 presents the mean number of successful identification responses by language and age group.

TABLE 5
DISTRIBUTION OF RESPONSES IN COMPREHENSION TASK

	Chinese		Moroccan		Catalan	
	5-6 years n = 6	7-8 years n = 16	5-6 years n = 9	7-8 years n = 10	5-6 years n = 13	7-8 years n = 17
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Singular	2.83 (1.17)	2.88 (1.45)	2.44 (1.59)	3.30 (1.06)	4.00 (.00)	4.00 (.00)
Plural	.67 (.82)	1.63 (1.54)	1.89 (1.69)	2.90 (1.29)	3.92 (.28)	3.94 (.24)

Chinese children were slightly better than Moroccan children at the comprehension task, although there was an improvement among the latter with age, which was not found among the former. However, the same pattern of difficulty found in oral and written productions was also found in the comprehension task: understanding plural indefinite-article DPs seemed to be more difficult than understanding

singular ones. Differences as a function of participants' L1 were assessed by a series of non-parametric tests. In the singular condition, the two experimental groups did not differ significantly from each other, although they did differ from the controls (Mann-Whitney U 150.000, $Z = -4.521$, $p < .001$, for the Catalan/Chinese contrast; Mann-Whitney U 135.000, $Z = -4.374$, $p < .001$, for the Catalan/Moroccan contrast). Results on the comprehension of plural indefinite-article DPs, on the other hand, revealed statistically significant differences in all possible pairings: Catalan vs. Chinese (Mann-Whitney U 50.000, $Z = -5.862$, $p < .001$), Catalan vs. Moroccan Arabic (Mann-Whitney U 115.000, $Z = -4.381$, $p < .001$), and Moroccan Arabic vs. Chinese (Mann-Whitney U 129.000, $Z = -2.145$, $p < .05$). Finally, age-related differences were not statistically significant for any language group.

Written representation of number distinctions

In the written representation of singular indefinite-article DPs, the Chinese children obtained lower mean scores than the Moroccan children or the children in the control group. Both the differences between Chinese and Catalan (Mann-Whitney U 92.000, $Z = -4.874$, $p < .000$), and between Moroccan and Catalan (Mann-Whitney U 76.500, $Z = -4.690$, $p < .000$) were found to be significant. Children's performance improved with age in every language group, though not significantly so (Table 6).

TABLE 6
MEAN OF INDEFINITE-ARTICLE DPs FOR TARGET-PICTURE
WRITTEN PRODUCTIONS

	Chinese		Moroccan		Catalan	
	5-6 years n = 6	7-8 years n = 16	5-6 years n = 9	7-8 years n = 10	5-6 years n = 13	7-8 years n = 17
	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Singular target	.67 (1.63)	.75 (1.44)	.78 (1.39)	.80 (1.48)	2.69 (1.80)	3.76 (.75)
Plural target	.17 (.41)	.50 (1.37)	.00 (.00)	.80 (1.69)	.23 (.83)	1.06 (1.34)

Note. Range: 0-4.

Similarly, for the written representation of plural indefinite-article DPs, the Chinese children obtained lower mean scores than the Moroccan children and the controls, with the exception of the youngest age group of Moroccan children. Moreover, children's performance improved with age. Nonetheless, these differences were not statistically significant. Both native and non-native Catalan-speaking children were reluctant to represent a plurality of objects in writing using a plural indefinite-article DP. In addition, differences between singular and plural written representations were found to be significant only in the control group ($Z = -4.548$ $p < .000$).

In sum, similar trends to those encountered in the spoken descriptions were found in the writing tasks: Moroccan-speaking children performed better than Chinese-speaking ones, whereas the control participants were closer to target descriptions than the two groups of newcomers (with the exception of the youngest age group of Moroccan children); furthermore, there was an improvement in performance with age. The written representation of singular indefinite-article DPs proved themselves easier than the written representation of plurality by means of a plural indefinite-article DP, but the general level of performance was lower in writing than in oral language.

As regards to the types of inaccurate written responses, more than half of them were full copies of the caption that appeared under the initial picture, but this strategy was slightly more frequent among the Moroccans than among the Chinese participants (Table 7).

Full copies slightly decreased with age in the Chinese group, but remained stable among the Moroccan children. However, almost 30% of Chinese children's written representations were partial copies of the initial caption (they copied only the noun and omitted the determiner). In a few cases, especially among the Chinese children (but also among the Moroccan-Arabic speaking ones), the written representation was a full copy of the initial caption, together with some additions (e.g. <8 UNA CASA> instead of the plural target <UNES CASES>, 'a-PL houses').

Modifications to the determiner only, which aimed at representing a change from plural to singular, accounted for almost 30% of the inaccurate written representations of the oldest children in the Chinese group, but this kind of representation was very scarce among the youngest Chinese and Moroccan children. In contrast, Moroccans tended to prefer changing or modifying the noun only, in order to reflect a change from plural to singular. Neither the Chinese nor the Moroccan children produced a change in both determiner and noun in the written representations of the target pictures, whereas this strategy accounted for almost 50% and 75% of the written representations of the youngest and oldest groups of Catalans, respectively. As for the

TABLE 7
DISTRIBUTION OF INACCURATE WRITTEN CAPTIONS (IN PERCENTAGES)

	Chinese				Moroccan				Catalan			
	5-6 years n = 6		7-8 years n = 16		5-6 years n = 9		7-8 years n = 10		5-6 years n = 13		7-8 years n = 17	
Inaccurate written captions	n = 5	n = 5	n = 14	n = 14	n = 7	n = 9	n = 8	n = 8	n = 5	n = 13	n = 2	n = 16
	SG	PL	SG	PL	SG	PL	SG	PL	SG	PL	SG	PL
Changes in D and N	0.0	15.8	0.0	3.6	0.0	11.4	0.0	0.0	47.1	63.3	75.0	72.0
Changes only in D	5.6	0.0	26.9	20.0	3.8	2.9	0.0	3.1	29.4	12.2	0.0	0.0
Changes only in N	0.0	21.1	17.3	9.1	26.9	34.3	25.8	25.0	17.6	20.4	25.0	28.0
Copy of N input	27.8	26.3	17.3	25.5	0.0	2.9	0.0	3.1	0.0	2.0	0.0	0.0
Copy DP input + modification	11.1	0.0	0.0	1.8	3.8	0.0	6.5	9.4	0.0	0.0	0.0	0.0
Full copy of input or refusal	55.6	36.8	38.5	40.0	65.4	48.6	67.7	59.4	5.9	2.0	0.0	0.0

Note. N = noun, D = determiner.

modification of one of the elements, there were a few written captions showing a change only in the determiner among Catalan 5- to 6-year-olds, and a few others modifying only the noun among the oldest controls.

As with the representation of singular targets, almost half of the inaccurate written representations were full copies of the initial caption; and this type of production was slightly more frequent among the Moroccan than among the Chinese participants. Full copy slightly decreased with age in the Chinese group, but increased among the Moroccan group. Again, almost 30% of the written representations of Chinese children were a copy of the noun in the initial caption. Written representations showing a full copy of the initial written caption with additions were almost non-existent to represent plural targets.

The modification of only the determiner in order to represent a change from singular to plural accounted for 20% of the inaccurate written representations in the oldest Chinese group, but this kind of representation was rare among 5- to 6-year-olds, both in the Chinese and in the Moroccan group. On the contrary, Moroccans tended to prefer changes or modifications on the noun to represent a change from singular to plural. Only 10% of the written representations of changes from singular to plural among the Chinese and the Moroccan children showed a change in both determiner and noun. However, this type of written representation accounted for the majority of the inaccurate responses of the control group, whereas almost 30% of their written representations showed a change just in the noun, and only 10% a change in the determiner. Partial or full copies of the initial caption were non-existent among Catalan control participants.

When the spoken representation of changes in number were assessed, we distinguished between problem-solving responses and linguistically-motivated strategies. Does such a distinction suit the analysis of written representations? Are the children resorting to copying because it is a way to save the situation, or because they are unaware of the need to reflect in writing the changes that occur in oral language? We should take into account that there was no decrease in this behavior as a function of age: older (and, thus, more literate) children did not resort less to copying, whereas there was a decrease in full repetition of spoken utterances.

Discussion

The first finding of the study concerns the lack of significant differences in the performance of Chinese and Moroccan children in their spoken and written representations of changes in number. Despite the structural differences between their L1s, we did not find differences in the frequency with which they produced singular indefinite-article DPs to describe pictures showing singular objects, or plural indefinite-article DPs for a plurality of objects. This finding is in line with Perdue's views, suggesting that the initial stages of learning a new language are not strictly dependent on the structural characteristics of the L1. Children do find difficulties with the use of indefinite articles, as predicted by Tsimpli and Liceras (Tsimpli and Roussou; Smith and Tsimpli; Liceras), but the kind of difficulties were similar for the two L1s in spite of the typological distance between them.

There were similar trends not only in the rate of occurrence of indefinite-article DPs, but also in the kind of strategies children deployed when they did not produce them. Most children repeated

what the interviewer had said to describe the initial picture when they were expected to provide a description of the target picture. Alternatively, if they did not produce a verbatim repetition, they repeated the noun only, omitting the determiner. One possible interpretation of such behavior is that repeating the utterance saves the situation, that is, it is a *problem-solving* strategy. Confronted with a situation that surpasses their level of knowledge, the child resorts to this strategy while recognizing, perhaps, that this is not the appropriate one. We should take into account, however, that the task, as it was presented, allowed (if not provoked) this strategy, because the same objects in different number were presented. Thus, lacking precise knowledge of the grammatical elements that realize number differences in the L2, children may resort to a *meaning-preserving strategy*, (i.e., "repeat what you have heard, the objects are the same") disregarding nuances of number change. They might also apply what could be called a *lexical strategy* (i.e., "repeat the item that the objects denote, since objects are the same"). Both strategies are allowed by the task design.

The different behaviors just described — both the distribution of indefinite-article DPs and other types of utterances — were not only found in spoken representations, but also in written ones: children wrote singular indefinite-article DPs much more frequently than plural ones. Repetition of the utterances used by the experimenter in spoken productions can be paralleled to the copying strategy, in which children reproduced the initial written caption in full or, partially, preserving only the noun. In other words, in both modalities, resorting to some form of replica was the most frequently used approach to the task in the absence of appropriate responses.

Simultaneous modification of determiner and noun when attempting to reflect number changes within a DP was rare both in the spoken and in the written modality, but particularly in the latter. It seems that the idea that one must modify both determiner and noun so that they agree in the number feature is absent at the initial stages of the acquisition of Catalan as an L2, at least for native speakers of Chinese and Moroccan Arabic.

The second main finding of the study concerns the large difference found in the use of singular indefinite-article DPs versus plural indefinite-article DPs. Both Chinese and Moroccan and, to some extent, Catalan children, were reluctant to produce plural indefinite-article DPs, while being prone to produce singular ones when required to do so. The explanation of this difference is expressed in a nutshell in Lyons' observation that "very many instances of 'indefinite articles' derive from cardinality expressions and can be reasonably argued to be cardinal articles" (95). The cardinal article *un* ('a') is considered essential for describing singular objects and, as such, it is included in

children's utterances when they are asked to reflect a change from plural to singular. This element, as any cardinal number, has lexical meaning, its use is compulsory, and there are no alternatives to it. However, the change from singular to plural looked quite different. Although *un* ('a') alternates with *uns* ('a-PL'), the cardinal function of *uns* can be fulfilled by any numeral or through quantifiers (e.g., *molts* 'many'). Moreover, *uns* ('a-PL'), has no independent lexical meaning, its use is not compulsory and, even in the absence of a modifier, the plural morpheme suffixed to the noun accomplishes the representation of plurality. These reasons converge to explain the children's preference for the use of [indefinite/cardinal article + N] for describing singular objects and [\emptyset + N(PL)] or [quantifier/cardinal + N(PL)] for a plurality of objects.

The third and, in our view, major finding of the study is related to the difference between singular and plural marking of indefiniteness. It concerns the similar trends found at every phase of the production tasks (when referring to the initial and the target picture, and when writing the caption) and at the comprehension task, but also when comparing the two target groups with the control group.

Certainly, Catalan children performed significantly better in every aspect of the task, but the pattern of responses and the nature of the strategies they employed were strikingly alike to those of the experimental groups of languages. The Catalan participants behaved similarly to the Chinese and Moroccan children with respect to the difference in difficulty between the production of singular and plural indefinite-article DPs. This finding hints at a sort of core phenomenon that expresses itself, with differing degrees of intensity, in the four contexts we have explored (spoken descriptions of the initial and the target pictures, written productions, and comprehension) and at different levels of knowledge of Catalan: the overlapping of cardinality and indefiniteness (Tolchinsky and Perera 196). The fact that this overlapping is so frequent across languages (Lyons) may account for the similarities among the groups and the recurrence of trends in all four contexts. It may also explain why controls' and newcomers' strategies are so alike. Younger Catalan children behaved like Chinese and Moroccan ones in their refusal to use plural indefinite-article DPs, whereas older Catalans were less reluctant. However, this difference between young and older Catalans cannot be attributed to an increase in their knowledge of the language, because number distinctions and use of articles at phrase level is part of children's linguistic knowledge before age 3 (Höhle and Weissenborn; Höhle; Name and Corrêa, *Delimitação*). Rather, we would argue that, with age, children become increasingly aware of the pragmatic constraints of the task. It should be recalled that the use of indefinite/cardinal articles is compulsory in

the singular, whereas in the plural there are many options available (numerals, other quantifiers) and, of course, the plural morpheme. Thus, the use of plural indefinite articles is not compulsory unless, for some particular reason, your interlocutor (in our case, the interviewer) decides to use it and you, if you know the language and if you accept the rules of the situation, agree to follow the interlocutor's model. Younger children's responses, and many of the initial responses of older children, follow the core phenomenon just described. That is, they use [indefinite/cardinal article + N] to describe singular objects and [\emptyset + N(PL)] or [quantifier/cardinal + N (PL)] for a plurality of objects. However, older children, who are sensitive to the pragmatic rules of the task and have at their disposal the linguistic resources of a native speaker, change this spontaneous disposition, and they start using indefinite articles also for plural DPs. As the Chinese and the Moroccan children still lack these resources, they were unable to adapt themselves to the rules of the task.

The literacy-experience assessment showed that younger Chinese, Moroccan, and Catalan children were equally sensitive to the contexts of use and to the function of socially-meaningful texts. They found themselves at ease with children's books and were able to discriminate numbers, letters, and other signs. Nevertheless, many children were still unaware of the basic representational feature of alphabetic writing systems; namely, that whenever a spoken utterance gets a written representation, the changes this utterance suffers should be reflected in writing as well. From the way children use the written caption for representing the spoken utterances they had produced we conclude that many children were not clear about this principle of writing. They copied the written caption while changing the verbal description or, alternatively, they produced a different caption while repeating the verbalization. A similar behavior was also found among the older children, who were already literate in their respective WSs. The number of replication of input captions for the target picture (Table 7) was still very high among the oldest age groups. It is hard to interpret this finding, and more research is needed to determine the extent to which this behavior is a result of the diglossic situation of the countries of origin, or whether it is just a strategy to save the situation posited by the task.

CONCLUDING REMARKS

Children who start the L2 learning process after age 4, as were most of the* participants in the present study, profit from being exposed to spoken and printed information of different kinds in their environment.

In the situation that we designed for the study, the interviewer provided spoken information when the children described the initial picture, and written information was at the children's disposal in the written caption below this picture. By examining the way in which children modified or repeated the input in order to describe the target pictures, we were able to appreciate their sensitivity to the morphological mechanisms of the L₂. By assessing the modifications or replications children performed in the written captions we were able to infer children's degree of awareness of the links between speech and writing in a WS₂. Sensitivity to morphological marking is crucial in the process of becoming a proficient Catalan speaker. Similarly, being aware of the links between speech and writing is crucial for learning an alphabetic system. We were originally interested in determining the extent to which typological differences between the learners' L₁s and the multilingual environment in which they lived affected their sensitivity to these two crucial aspects.

Our findings, however, did not provide a clear-cut answer as to the influence of the L₁s on any of these two topics. There are some critical issues that seem to reappear in all studied groups, irrespective of their L₁. Cardinal interpretation of indefinite articles — which explains both children's unproblematic use of the singular indefinite article and their reluctance to use the plural indefinite one in the three languages involved— is an example of a core issue that prevails over typological differences. More studies are needed in different domains of nominal and verbal morphology to provide a more satisfactory answer to this issue. Likewise, it is necessary to explore more carefully children's literacy level in their WS₁s and in other domains of the WS₂, so as to improve our understanding of the effect of early literacy experience and of WS₁ features on the learning process of a WS₂. We assume that children are active learners of a language and its writing system, whether it is an L₁ or an L₂. They select and, probably, transform the information provided by the environment as a function of their previous knowledge and ways of understanding; hence, the need to assess not just the characteristics of the target language and the WS₂, but also the nature of the learners' previous knowledge and experience. As a consequence, research on the process of simultaneously learning an L₂ and a WS₂ reveals itself as a very complex undertaking, but, certainly, a fundamental one in multilingual Catalonia.

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