The Acquisition of Concord in French and Spanish Determiner Phrases, two Elicitation Experiments

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Abstract

We present pilot studies investigating the acquisition of concord on adjectives in French- and Spanish-speaking children. We elicited the production of adjectives using puzzles. Both French and Spanish show concord between adjectives and the noun in the noun phrase (DP). Spanish exhibits regular suffixation morphology for masculine and feminine adjectives (-o and –a), while French has idiosyncratic forms involving floating consonants (e.g., [ver] ‘green.m’ vs. [vrrt], ‘green.f’). This difference could result in different acquisition patterns in French versus Spanish-speaking children. We expected French-speaking children to exhibit more difficulties than Spanish-speaking children in producing appropriate concord, due to the idiosyncratic nature of feminine adjectives in French. Results show that Spanish-speaking children master this type of concord more readily than their French-speaking counterparts and do not show difference between feminine and masculine forms, contrary to French-speaking children. Results for French-speaking children indicate that they learn distinct lexemes for feminine and masculine adjectives.

Résumé

Nous présentons deux études pilote vérifiant l'acquisition de la concordance (production d'adjectifs avec des casse-tête) chez les enfants francophones et hispanophones. Dans ces deux langues il y a concordance entre les adjectifs et le nom dans le syntagme nominal (DP); en espagnol, par le moyen d’un un suffixe régulier sur l'adjectif (o ou –a) et, en français, par la production de consonnes flottantes finales au féminin. Cette différence pourrait influencer les schémas d'acquisition des enfants. Nous pensons que les enfants francophones auront plus de difficultés que les enfants hispanophones à produire l'accord approprié dans le DP, étant donné la nature idiosyncrasique de la flexion au féminin. Nous démontrons que les enfants hispanophones maîtrisent plus rapidement la concordance que leurs homologues francophones et ne traitent pas différemment le féminin et le masculin, contrairement aux enfants francophones. De plus, les enfants francophones semblent devoir apprendre des lexèmes distincts pour les adjectifs variables.

Key words: Determiner phrase, concord, acquisition, French, Spanish

Palabras clave: Sintagmo nominal, concordancia, adquisición, francés, español
1. BACKGROUND

Concord within the determiner phrase (DP) is an early acquired process. A number of studies of the emergence of the DP in Spanish and French have focused on determiner concord (see, for example, Liceras, Diaz & Mongeon, 2000 for Spanish and Paradis & Crago, 2004, for French). However, few studies have studied adjective concord within the DP. This is probably related to the fact that even though children use adjectives at a young age, they do not see the pragmatic necessity to produce full DPs such as ‘the big blue car’ when referring to the only car in sight. Spontaneous speech corpora thus offer very little data with which to study this acquisition of adjective concord. One main aspect of our study is that it presents elicitation data for the use of concord in French and Spanish-speaking children.

Both Spanish and French show concord (underlined) between the noun and adjective in the DP.

a) [lakasatʃikaβlaŋka]  
b) [lapœtitmejzɔblʌf]  
‘the house small.f white.f’

In Spanish, regular morphemes (θ and –α) mark concord while in French, adjectives have different forms with or without final consonants (ex. vert [vɛr] ‘green.m’ vs. verte [vɛrt] ‘green.f’). This could have an effect on the timing and nature of acquisition of concord. In particular, it could be more difficult for French-speaking children to acquire adjective concord. The Lexical Learning Hypothesis (hereafter LLH), outlined by Clahsen, Eisenbeiß, & Vainikka (1994: 89-92) is based on a number of assumptions: weak continuity, head driven projections and structural economy and morphological bootstrapping. According to weak continuity, only universal properties of languages like X’-theory are present at the onset of language acquisition. Language-specific structure must be built up incrementally as linguistic knowledge increases Syntactic structures in LLH are based on the Head of the clause. The features of the head determine the features of functional projections from which all subsequent structure is projected. In the case of a DP, DET is the functional head carrying the featureGen(der) and Num(ber). In addition, structural economy is assumed to obtain, meaning that no unnecessary or unsubstantiated nodes are projected. The final important element for the learning of language in the LLH theory is morphological structure. Children are said to be sensitive to word structure and recognize recurring patterns in their input. When a morpheme like ‘masculine’ is recognised as such by the Spanish-speaking child, she hypothesises a functional projection in the tree DET. Production of closed-class categories like determiner, inflection, preposition and so on is believed to be causally linked to the development of functional projections (Morphological Bootstrapping). This hypothesis has been proposed to explain cross-linguistic variation in the acquisition of language-specific structures.

Assuming children are sensitive to word structure and are able to recognize recurring patterns in their input, we would expect Spanish-speaking children to have less difficulty producing DP concord than French children, all else being equal. However, while the analysis of spontaneous speech corpora reveals that both French and Spanish-speaking children use colour
and size adjectives at early (two-word) stages in acquisition, too few of these word combinations are produced in order to assess 1) productivity and 2) erroneous use in either linguistic group.

Another question to be addressed is how representative spontaneous speech corpora are of the acquisition of rules. A number of authors have claimed that concord is acquired at very young ages, however, most present evidence only for determiners and provide anecdotal details on adjective concord (see, for example, Hernández Pina, 1984). It is not clear that when a child produces a few tokens of a specific structure (viz. in a spontaneous speech corpus), that she has mastered it linguistically. Although we believe that comprehension precedes production in language acquisition, it has been argued that children uttering their first tokens of complex structures are producing frozen “chunks” that cannot be extended to new lexical items using the same structure (Tomasello, 2000: 213). We must therefore verify whether children are able to produce multiple instances of complex DPs at the moment when they are able to produce at least one.

Finally, it is not clear that all types of concord are acquired at the same time during acquisition. A longitudinal study of a Spanish-speaking child reveals concord errors on adjectives up to age 2;8 and beyond (ex. tiene volante roja ‘(it) has a red frill’ [2;4] or máquina redondo ‘round machine’ [2;7]), well after article concord is acquired (Hernández Pina, 1984:). Hernández Pina also observes overgeneralization of gender marking in cases such as tierra azul ‘earth blue’ (azul is invariable) after 21 months. However no details are given as to the ages or frequency of such productions. That is, we do not know if these are rare production errors or characteristic of Spanish-speaking children at this age. We must therefore establish when mastery of this aspect of concord emerges in children speaking French and Spanish.

2. Experiment

Because DPs are rare in spontaneous speech corpora of child language, we verified linguistic ability to produce these forms using elicitation tasks in the form of puzzles. The puzzles were constructed to oblige the participants to specify colour or size in addition to the noun, in order to receive the piece they wanted. Puzzles were staggered by level of complexity and were constructed using early acquired nouns and adjectives (size and colour).

2.1. Participants

Sixteen French-speaking children between the ages of 24 to 50 months and thirteen Spanish-speaking children between the ages of 24 and 59 months were recruited for these experiments. All the children came from monolingual families where both parents were native speakers of the language studied. All children lived in the greater Montréal region (Québec, Canada) but some of the Spanish children were born in other American countries (all Spanish-speaking). Participants were tested in a quiet room at the Research Centre and were recorded using a closed-circuit camera. Experimenters were native speakers of the language being elicited.

2.2. Stimuli

Two size (small and big) and three variable colour adjectives were used in both French and Spanish (in French: vert ‘green’, brun ‘brown’ and blanc ‘white’; in Spanish: negro ‘black’,
blanco ‘white’ and rojo ‘red’). Stimuli frequencies for Spanish were verified using the 21st Century Spanish oral lemma frequency from the Corpus del Espagnol (Davies, 2002) while French stimuli frequencies were verified using Lexique (New et al., 2001). Corpora were also verified for age of acquisition. In French, we searched a local database on the acquisition of vocabulary items (Trudeau et al., ongoing). All adjectives were found to be acquired (86 percent of children, N=30) at the age of 30 months in French, excepting brun, which was attested in 50% of the children. All noun stimuli were used by over 80% (N=21) of children aged 24 months and by 100% of those aged 30 months. For Spanish, we used the Hernández Pina (1984) data list for lexical production in one child. All adjectives and nouns were produced by the child before the age of 24 months, except chiquitito ‘small.DIM.m’ (26 months) and rana ‘frog’ (29 months).

2.3. MATERIALS

Four puzzles were constructed for each language. The first verified colour adjective vocabulary; the second DPs with size adjectives; the third DPs with colour adjectives and the fourth DPs with both colour and size adjectives.

2.4. PROCEDURE

Children were shown the puzzles one at a time. Their attention was focused on the variables of interest and they were instructed to ask for the puzzle pieces one by one (e.g., ‘look, some of the animals are big and some are small. So if you want the big duck, you must say “give me the big duck”.’). If the child was unable to do the first (colour) task, they were not asked to do other (third and fourth) puzzles involving colours. If the child was unable to do the second (size DP) puzzle, they would not proceed to the fourth one which also involved size distinctions.

3. RESULTS AND DISCUSSION

3.1. TASK 1: COLOURS

Spanish-speaking participants showed no differences between their ability to produce variable (53.85%) and invariable (50%) adjectives (p, ns two-tailed), one item was not well recognized (gris, 15.38%) but was not subsequently used. A comparison of variable adjectives revealed no significant differences in children’s ability to produce them (p > .1). French-speaking children showed similar patterns between their ability to produce variable (62,5%) and invariable (71.25%) adjectives (p ns, two-tailed). However, a comparison of results for different variable adjectives revealed a significant item effect (p < .05), caused mainly by the fact that results were lowest on the low-frequency item brun ‘brown’ (43.75% correct) versus blanc ‘white’ (75%) and vert ‘green’ (68.75%). Both groups exhibited emerging ability to use these adjectives, at age 29 months in Spanish and 26 months in French participants.

3.2. TASK 2: SIZE AND NOUN DPs

In Spanish, only ‘small’ adjectives chico, chiquito, pequeño ‘small.m’) agreed in gender with the adjective. Spanish-speaking participants did not show differences between their ability to produce feminine and masculine adjectives (both 42.31%), nor did they exhibit any significant differences between their ability to produce variable (42.31%) and invariable (38.46%) adjectives.
(p ns, two-tailed). All French adjectives were variable. French-speaking children exhibited a significant difference between their ability to produce feminine (37.5%) and masculine (68.75%) forms (p < .01, two-tailed).

3.3. TASK 3: COLOUR AND NOUN DPs

No significant differences were observed between Spanish-speaking children’s ability to produce feminine (36.35%) versus masculine adjectives (39.38%) (p ns, two-tailed), all of which were variable. However, one child (aged 52 months) did make a number of errors on feminine targets, producing masculine instead (e.g., la rana rojo ‘the.f frog red.m’). This child had generally poor results overall, producing only one target response in the masculine (el caballo blanco ‘the.f horse white.m’) and using the adjective café ‘brown’ for both red and black. A 2 by 3 Anova using gender and adjective as within factors revealed no effect of gender (F(1) .01, p > .1) nor for adjective (F(2) 2.43, p = .1) and no interaction between factors (p > .1). Spanish-speaking children again exhibited better performance on masculine (66.15%) versus feminine targets (28.21%) (p < .01, two-tailed), often replacing feminine with masculine forms (e.g., la tortue vert ‘the.f turtle green.m’). A 2 by 3 Anova using gender and adjective as within factors revealed a significant effect of gender (F(1) 5.43, p < .05) and a trend toward significance for adjective (F(2) 3.22, p = .06) with no interaction between factors (p > .1). with the less frequent brun ‘brown’ resulting in less correct responses (27%) than blanc ‘white’ (41%) and vert ‘green’ (50%).

3.4. TASK 4: COLOUR, SIZE AND NOUN DPs

In this task, we observed a slight advantage of masculine (63.89%) over feminine (50%) targets for Spanish-speaking children, however, this difference was not significant (p > 1, two tailed). One child (29 months) who had been able to produce some size-noun DPs and colour-noun DPs was unable to produce any responses on these stimuli. However, this child had not yet reached mastery of DP production in the less syntactically involved structures. An Anova using gender (2), size adjective (2) and colour adjective (3) as within factors revealed no significant effect for any of these variables (all p > .1) and no interactions of the same (all p > .09).

French-speaking children presented the now expected difficulties on feminine (22.22%) versus masculine targets (64.17%). A number of children who had showed ability to produce less syntactically complex forms in preceding puzzles, such as la maison blanche the.f house white.f and la grosse maison ‘the.f big.f house’, were unable to correctly produce the more complex structure incorporating these two adjectives la grosse maison blanche the.f big.f house white.f without error. An Anova using gender (2), size adjective (2) and colour adjective (3) as within factors revealed a significant effect of gender (F(1) 6.89, p < .05), and of colour adjective (F(2) 3.27, p = .05), but not of size adjective (F(1) .07, p ns). French-speaking children showed lower correct responses on targets with brun ‘brown’ (31.8%) versus blanc ‘white’ (45%) and vert ‘green’ (48%). No interactions of these factors were observed (all, p > .1).

4. DISCUSSION

Spanish-speaking children did not exhibit any significant differences between their ability to produce feminine and masculine forms. In addition, it seems that once they have acquired
productive use of concord, they can produce DPs of different levels of syntactic complexity. The pattern observed over all tasks for French-speaking participants was a better production of masculine versus feminine targets. They also showed frequency effects on their production of colour adjectives. A discontinuity was observed between the ability to produce less and more syntactically complex structures in some of the children. Their linguistic behaviour was thus more variable than that of Spanish-speaking children.

5. Conclusion

Results reported here support the Lexical Learning Hypothesis (Clahsen et al, 1996: 85) in that Spanish-speaking children seem to rapidly master the ability to produce DP concord with size and colour adjectives, even in structures involving two adjectives, while French-speaking children show variable ability to produce masculine and feminine adjectives, mastering the masculine before the feminine. Results seem to indicate that French-speaking children have to learn different lexemes for variable adjectives, and that this impacts negatively on their ability to produce appropriate responses. This extra processing effect can be observed on line, as a breakdown seems to occur when French-speaking children produce structures involving more than one adjective.
References

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