Journal of Child Language (2022), 1–13
doi:10.1017/S030500092200054X

CAMBRIDGE UNIVERSITY PRESS

BRIEF RESEARCH REPORT

Children's use of demonstrative words: spatial deictics beyond infancy

Pedro GUIJARRO-FUENTES[1,*], Harmen B. GUDDE[2,3], Patricia GONZÁLEZ-PEÑA[2] and Kenny R. COVENTRY[2]

[1]Universidad de las Islas Baleares, España
[2]School of Psychology, University of East Anglia, UK
[3]Experimental Psychology, Helmholtz Institute, Utrecht University, the Netherlands
*Corresponding author: Pedro Guijarro-Fuentes Address: Departamento de Filología Española, Moderna y Clásica; Universidad de las Islas Baleares; Edifici Ramon Llull; Campus Universitari, Km. 7.5; 07122 Palma de Mallorca (Islas Baleares); España. Email: p.guijarro@uib.es

(Received 01 March 2021; revised 14 September 2022; accepted 18 September 2022)

Abstract

Demonstrative words are one of the most important ways of establishing reference in conversation. This work describes Spanish-speaking children's demonstrative production between ages 2 to 10 using data from the CHILDES corpora. Results indicate that children feature all demonstratives in their lexicon – however, the distal term is scarce throughout development. Moreover, patterns of demonstrative use are not adult-like at age 10. We compare adult and child data to conclude that children's development of demonstrative production is largely protracted. Adult use of the distal demonstrative is higher than in young children, although both older children and adults use the medial term *ese* more than any other demonstratives. In contrast, younger children use proximals relatively more frequently than older children and adults. Suggestions for future research and theoretical implications for the Spanish demonstrative system are discussed.

Keywords: demonstratives; deixis; language development; corpus linguistics; Spanish

Introduction

Demonstrative words (*this*, *that, here* and *there* in English) are words that can be found in all languages and are used to establish and direct joint attention to an object in the environment or discourse referent (Diessel and Coventry, 2020; Diessel, 1999, 2006). As spatial deictics, demonstratives form a triadic link between a speaker, an addressee, and an object in space, often accompanied with pointing – a deictic gesture (Kita, 2003). Therefore, demonstratives require the conversational and spatial contexts to be correctly interpreted (e.g., *this car* is the car near the speaker in the moment they talk). Their direct link to space and to other people's attention makes demonstratives interesting words to be studied in language development. Joint attention development in infants reaches a milestone around 14 months, when children start pointing at objects to share an interest or to request them, often using verbal means as well (Tomasello, 1999; Tomasello, Carpenter & Liszkowski, 2007). For this reason,

it has been thought that demonstratives would emerge among the child's first words (Clark, 1978). However, González-Peña, Doherty and Guijarro-Fuentes (2020) found that demonstratives typically appear later with a somewhat protracted development in the early years. These results have made evident our poor understanding of demonstratives in language development. The present paper aims to contribute to such understanding with particular reference to the Spanish language.

The most elemental dimension of the semantics of demonstratives is proximity: *this* in English may refer to an object relatively close to the speaker, and *that* relatively further. However, experimental psycholinguistic research (Coventry, Griffiths & Hamilton, 2014; Coventry, Valdés, Castillo & Guijarro-Fuentes, 2008; Gudde, Coventry & Engelhardt, 2016; Peeters & Özyürek, 2016; Rocca, Wallentin, Vesper & Tylén, 2019) has found that demonstrative use conveys not only distance, but multiple object properties and interpersonal factors, reflecting the meaningful relationships with objects and space within social interaction. For instance, demonstratives mark object visibility in some Native American languages, and object ownership in the Supyire language (Coventry et al., 2014). Interestingly, both these characteristics have been found to also affect English demonstrative production. Thus, a multitude of factors affect demonstrative use which may or may not be explicitly lexicalized in a given language.

Spanish has a three-term demonstrative system, with the determiners/pronouns *este, ese* and *aquel* (usually translated to *this, that, that* in English) and the locative adverbs *aquí, ahí* and *allí* (*here, there, there*). A three-way demonstrative system is not uncommon; approximately 38% of the world's languages have such a system, as opposed to 54% of languages that have a two-term system, according to the languages mapped at the World Atlas of Language Structures (Diessel, 2013). Spanish demonstrative terms are usually taken to convey three distances (proximal, medial, and distal) with respect to the speaker. However, it has been suggested that the Spanish system might not be entirely organised around egocentric distance. Jungbluth (2003, 2005) has argued that the three-term demonstrative system *este* (this)/*ese* (this/that)/*aquel* (that) is distance-based when the speaker and hearer are aligned, with *este* referring to objects near the speaker, *ese* operating as a middle-distance term, and *aquel* referring to objects far away from both speaker and hearer. However, the use of the three terms switches as a function of relative positions of speaker and hearer. When the speaker and hearer are facing each other, *este* applies for any location within shared space, with *aquel* used for any locations outside the shared space. Moreover, *ese* can also be used to refer to an object located in the near space of the hearer. While there is certainly evidence for the importance of the relative positions of speaker and hearer on demonstrative use in Spanish (Coventry et al., 2008; Jungbluth, 2003, 2005; Shin, Hinojosa-Cantú, Shaffer & Morford, 2020), results are by no means completely consistent across studies, suggesting changes in use across contexts. These inconsistencies may in turn lead to a shifting of the mapping between demonstrative terms and referents and make demonstratives semantically elastic but potentially opaque for children learning Spanish as a first language. Furthermore, following Pérez-Saldanya (2015), the adverb *aquí* (here) can denote the speaker's space in contrast with that of the addressee ('*Aquí donde estoy sentado*' Here, where I am sitting), but also a wider place including them both ('*Aquí, donde estamos, hace mucho calor*' Here, where we are, it's very hot'; Pérez-Saldanya, 2015: 129). The function of the flexibility of the "boundary" between what is proximal and what is distal in general and the constant remapping between deictic expressions and referents might lead to a restructuring of the deictic system itself in accordance with the parameter affecting its use, which has been, to our knowledge, understudied in terms of the acquisition of Spanish.

https://doi.org/10.1017/S030500092200054X Published online by Cambridge University Press

Studies of children's demonstrative production in early development have focused on infants' deictic communication including gestures and other deictic words (Rodrigo, González, de Vega, Muñetón-Ayala & Rodríguez, 2004). One recent study has described children's demonstrative use in English and Spanish (González-Peña et al., 2020). The authors analysed data from children aged 18 to 24 months from CHILDES corpora and from parental inventories. Results showed disparities between the two corpora, particularly in English, possibly due to parents' underestimation of children's demonstrative use. Results from corpora data indicate that demonstratives appear in nearly all transcripts of children at the two-word stage and age two. In Spanish, the most frequent demonstratives were the proximal *este/aquí* followed by the medial *ese/ahí*. Interestingly, Spanish-speaking children did not use the distal term *aquel*, which appeared in only 1% of transcripts, and did not often use the locative *allí* (28% of transcripts). The absence of *aquel* in the speech of two-year-olds suggests that this term might require more complex cognitive processing than proximal and medial terms. Young children might not have the attentional capacity to speak about or attend to referents that are outside the immediate surroundings or the conversational space. This present work aims to identify when the distal demonstrative emerges in child speech.

One of the few studies that have been concerned with late demonstrative production was the work by Küntay and Özyürek (2006) in Turkish. Like Spanish, Turkish has a three-way demonstrative system, but one of the terms, *şu*, is designated to refer to an object that is not within the hearer's scope of attention. In other words, *şu* is a term used to redirect attention. The authors assessed the demonstrative production of Turkish-speaking children aged 4 and 6 by observing their demonstrative use during a cooperative block-building task. Results show that children's demonstrative production was not yet adult-like at age 6. Specifically, the term *şu* was not used as frequently by children as by adults. A recent study in English investigated children's demonstrative production within a highly controlled experimental psycholinguistic task (González-Peña, Coventry, Bayliss & Doherty, in press). Children were presented with objects at various distances within reach and out of reach. Results showed that only around age 7 did children start distinguishing distance with demonstrative choice, but even at age 11 their demonstrative production was not adult-like.

For Spanish, Shin and Morford (2021) recently published the results of a pilot study on children's demonstrative production in a structured experimental interaction. The participant and the experimenter sat at opposite sides of a table with the task of completing a jigsaw puzzle. Participants were asked to refer to the jigsaw pieces on the table, which were placed on the participant's or the experimenter's side of the table. Social or intersubjective factors were also manipulated through the experimenter's questions. Results from eight participants aged 3- to 8-years of age indicated that children's demonstrative production did not match adult production, even at age 8. Moreover, they did not find the distal term *aquel* in child speech; whereas adults used it in 4% of instances, children did not use it at all. However, the task was developed in a small space and thus did not propitiate the appearance of distal terms – therefore, it remains unclear whether children use the distal term in other circumstances.

The aforementioned studies point out that achieving a mature adult-like demonstrative production is a protracted and complex process. However, a detailed timeline of the demonstrative acquisition process and the social-cognitive mechanisms that are behind it are currently unknown. To explore children's demonstrative production in Spanish, we analysed child data from the CHILDES corpora from children aged 2 to 10 years and adult demonstrative production from the CREA corpus. We extracted the occurrence of each demonstrative term and examined how the relative frequency of demonstrative

https://doi.org/10.1017/S030500092200054X Published online by Cambridge University Press

production changes through development. We ask at which stage in development distal demonstratives emerge.

To preview the results, we find that distal demonstratives, while present in child speech at all stages in development, are rarely used, but that they are also scarce in adult speech. In the early years (ages 2-4) proximal demonstratives dominate, with a levelling off of use of proximal and medial forms in later development (after the age of 5). We will discuss the possible theoretical implications of these results for our understanding of the acquisition of demonstrative production and the Spanish demonstrative system.

Methodology

Origin of the data

Data came from monolingual Spanish-speaking children aged 2 to 10 years from the CHILDES corpus (MacWhinney, 2000), excluding Beca, Fernaguado, and Hess corpora (as they do not link transcripts clearly to individual children). Data from European and American Spanish were included because no differences have been found in the demonstrative use between the varieties of Spanish (Zulaica Hernández, 2012)[1]. The total number of transcripts is 558, and they contain between 5 and 3572 target-child words ($M = 619.84$, $SD = 551.91$), see Table 1. The corpora used in this work are listed in Table 2 (Aguirre, 2000; Diez-Itza & Perez-Toral, 1996; Ravid & Tolchinsky, 2002; Jackson-Maldonado, 2012; Linaza, Sebastián & del Barrio, 1981; Cappelli, Marrero-Aguiar & Albalá, 1994; Aguado-Orea & Pine, 2015; López Ornat, 1994; Remedi, 2014; Shiro, 1997; Vila, 1990).

Notice that the number of transcripts by age is not evenly distributed; most transcripts correspond to children aged 2 and 3 (449 transcripts), and there are no transcripts from children of age 5 and 8. Moreover, 347 transcripts come from the single-case studies of 9 children under the age of 5; thus, it is likely that individual preferences or characteristics of those children might influence the tendencies in the data. The contexts of the recorded interactions vary between corpora. Generally, the single-case corpora feature interactions

Table 1. Number of transcripts per age group and mean number of words per transcript.

Age (years)	No. Children	N of transcripts	Words per transcript, Mean (*SD*)
2–3	69	362	526.67 (499.68)
3–4	56	87	672.07 (570.37)
4–5	4	17	981.12 (969.13)
6–7	18	18	848.67 (388.91)
7–8	38	38	1091.21 (427.08)
9–10	36	36	647.89 (596.34)
Total	221	558	702 (552.32)

[1]In his work, Zulaica Hernández (2012) compares Iberian Spanish to Latin American, US, Philippines Spanish (interested readers are referred to tables 3-6, for instance). However, we note that this work represents a very broad-brush approach to trying to investigating whether there are dialect differences with regards to demonstratives.

https://doi.org/10.1017/S030500092200054X Published online by Cambridge University Press

Table 2. Corpora used in the analysis.

Corpora	Children	Ages	N of transcripts	Words per transcript (M)	% Exogenous demonstratives
Aguirre	1	2;0–2;10	14	1618	98.76%
Nieva	1	2;0–2;3	14	826	98.88%
OreaPine	2	2;0–2;7	117	551	99.25%
Remedi	1	2;0–2;11	12	488	99.09%
LlinasOjea	2	2;0–3;2	65	566	98.95%
Ornat	1	2;0–3;10	76	412	98.37%
Serrasole	1	2;0–3;10	7	451	99.44%
Linaza	1	2;0–4;0	22	384	98.43%
Vila	1	2;0–4;8	20	605	98.52%
Marrero	3	2;5–4;7	12	1670	98.34%
JacksonThal	87	2;4–3;0	87	247	99.09%
DiezItza	20	3;0–3;11	20	1395	98.31%
Shiro	74	6;5–9;11	74	1036	99.10%
Grerli	18	9;0–9;11	18	189	97.50%

at home with the family, whereas the other transcripts were recorded at schools by researchers who used more or less structured prompts. Additionally, corpora differ greatly in their average transcript length (see Table 2). These differences between corpora might have affected demonstrative production unevenly across age groups.

Data on adults' demonstrative use were obtained as a reference to interpret the children's data. Demonstrative frequencies were obtained from CREA (Real Academia Española: Banco de datos, 2021).)[2]. The CREA corpus of Spanish is a very large collection of different types of texts, comprising over 160 million words. The corpus comprises a large number of written texts (e.g., newspapers, novels, emails, and so on) as well as transcribed spoken discourse (e.g., speeches, interviews, and so on). 90% of the corpus corresponds to the written language and 10% to oral language. Around 50% of the materials in the corpus come from Peninsular Spanish sources and 50% from Latin American Spanish sources. However, for the purposes of the present paper and in order to match child data, adult data were examined only from a subset of 706 transcripts corresponding to informal spoken oral face-to-face interactions[3].

[2]We opted to use the CREA data because as it gives a comprehensive picture about the frequencies of the forms in adult Spanish in general.

[3]We acknowledge that the vast majority of the data in CREA correspond to written language; thus, in order to avoid any serious confound (e.g., written corpora will contain fewer proximal demonstratives than spoken) in relation to the different data sets used to model adult versus children's demonstrative use, we only made use of a subset of the CREA data corresponding to informal spoken oral data.

https://doi.org/10.1017/S030500092200054X Published online by Cambridge University Press

Table 3. Demonstrative words in Spanish.

		Proximal		Medial		Distal	
		Det/pro	Locative	Det/pro	Locative	Det/pro	Locative
Singular	Male	este	aquí/acá	ese	ahí	aquel	Allí/allá
	Female	esta		esa		aquella	
	Neutral	esto		eso		aquello	
Plural	Male	estos		esos		aquellos	
	Female	estas		esas		aquellas	

Note: Det=determiner; Pro=pronoun.

Data processing and analysis

Data were extracted and processed using CLAN (MacWhinney, 2000) in November 2020. The number of occurrences of each demonstrative term in child speech was computed. We extracted singular and plural tokens of the proximal, medial, and distal pronouns/determiners[4] (namely, *este*/*esta*/*esto*, *ese*/*esa*/*eso* and *aquel*/*aquella*/*aquello*). In this study we collapse over gender and number and use the terms este, *ese*, *aquel* to refer to all forms in each demonstrative set. Table 3 displays the full list of demonstrative terms. Notice that there are two words for the proximal (*aquí, acá*) and the distal (*allí, allá*) locatives. Those word pairs were treated as synonymous and counted jointly, and we will refer to them only as *aquí* and *allí* for brevity.

Given the small number of occurrences of *aquel*¸ each case was examined in its context to determine if it was a real demonstrative use. In three cases, the word *aquel* was produced as part of singing a song ("…*y aquel barquito navegó.*") or reading a book, and they were not included in the analyses.

Transcripts were clustered per child using multi-level modelling. Age was included as a continuous variable.

Results

First, we describe the percentage of children within each age group using specific demonstrative terms. Then, we present an analysis using multi-level modelling to assess how the frequency of use (per 1000 words) of different word types (2 levels: determiners/pronouns, locatives), marking different distances (3 levels: proximal, medial, and distal) varies over age. Lastly, we compare children's and adults' relative demonstrative frequencies.

Most common demonstrative terms in child lexicon

The percentage of children using specific terms by age group is displayed in Table 4. As can be seen in Table 4, for determiners/pronouns, the proximal term is used by a higher

[4]An alternative spelling of demonstratives in Spanish, now obsolete, features a written accent on the demonstrative pronouns (éste, ése…) to differentiate them from the determiners. Both spelling forms were included in our search. The sensitivity to written accents allowed distinction of the verb form *está* (is) from the proximal, female demonstrative *esta*/*ésta*.

https://doi.org/10.1017/S030500092200054X Published online by Cambridge University Press

Table 4. Percentage of children using specific terms by age

Age	No. Children (no. transcripts)	Este	Ese	Aquel	Aquí	Ahí	Allí
2–3	69 (362)	95.65%	71.01%	8.70%	97.10%	56.52%	52.17%
3–4	56 (87)	100.00%	76.79%	1.79%	94.64%	62.50%	44.64%
4–5	4 (17)	100.00%	100.00%	50.00%	100.00%	75.00%	100.00%
6–7	18 (18)	88.89%	88.89%	0.00%	83.33%	77.78%	61.11%
7–8	38 (38)	86.84%	89.47%	2.63%	97.37%	94.74%	68.42%
9–10	36 (36)	41.67%	61.11%	0.00%	47.22%	47.22%	41.67%

Note: Each row includes all transcripts of children in that age range, such that longitudinally studied individual children may have transcripts included across multiple age-ranges.

percentage of children than the medial or distal term at ages 2-4, with an increasing use of the medial term after age 5 (while the distal term is used by the fewest children across age groups). For locatives, the distal form is used by more children than the demonstrative distal form, with the proximal locative again used more than medial and distal forms for ages 2-4.

Frequency of use of demonstratives throughout language development

The number of demonstratives per thousand words was computed for each demonstrative term and child. Multi-level modelling was used to analyse the data, allowing the clustering of transcripts per child. The effect of frequency of use (per 1000 words) was analysed by word type (2: determiner/pronoun, locative) and distance (3: proximal, medial, distal) (baselines were locative and distal), as well as how frequency of use changed as a function of age. The mean frequencies (per 1000 words) are shown in Figure 1 and the results of the analyses are displayed in Tables 5 and 6.

Fixed effects show that overall, determiners/pronouns are more frequent than locatives, and the overall use of demonstratives and locatives per 1000 words decreases with age in line with vocabulary growth. There was also a main effect of distance, with proximals overall used more than distals. However, the pattern of interactions shows that relative frequency of use of specific terms varies as a function of age and word type. While the distal forms *aquel* and *allí* are both very infrequent throughout development, the proximal forms *este* and *aquí* are by far the most frequent terms in the early years, with less frequent use of medial terms *ese* and *ahí*. However, over the age of 5 the dominance of proximal terms over medial terms disappears, with a slightly higher use of medials over proximals in the oldest children. Furthermore, the random effect (testing inter-participant variability) was significant (Parameter Estimate = 37.729, SE = 6.408, Wald Z = 5.888, $p < .001$, *95% CI* (27.046, 52.631), which means that there is a significant difference in how individual children used demonstratives.

Frequency of use of demonstratives and comparison with adults

Adults' (summed) demonstrative frequency was calculated for each term. The relative frequency per 100,000 words could not be calculated because the total number of words

https://doi.org/10.1017/S030500092200054X Published online by Cambridge University Press

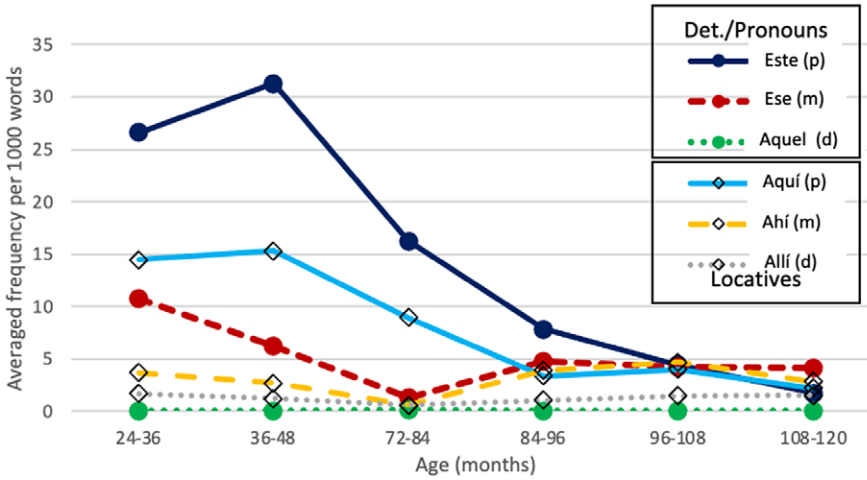

Figure 1. Mean frequency (per 1000 words) for determiners/pronouns and locatives by age

Table 5. Fixed effects in multi-level model

Wordtype	$F(5, 3151.092) = 79.187$, $p < .001$, $\eta p^2 = .025$
Distance	$F(2, 3151.092) = 308.915$, $p < .001$, $\eta p^2 = 0.164$
Age	$F(1, 269.726) = 114.046$, $p < .001$, $\eta p^2 = 0.297$
Wordtype * Distance	$F(2, 3151.092) = 35.742$, $p < .001$, $\eta p^2 = 0.022$
Wordtype* Age	$F(1, 3151.092) = 19.227$, $p < .001$, $\eta p^2 = 0.006$
Distance* Age	$F(2, 3151.092) = 63.101$, $p < .001$, $\eta p^2 = 0.039$
Wordtype* Distance* Age	$F(2, 3151.092) = 6.617$, $p = 0.001$, $\eta p^2 = 0.004$

was unavailable. The term *este* appeared in 98% of transcripts and *ese* in 99% of transcripts. The words *aquí* and *ahí* appeared in 94% and 90% of transcripts respectively. The distal *aquel* appeared only in 64% of transcripts, and the locative *allí* in 84%[5].

The total (summed) frequency of each demonstrative term in child and adult speech is represented in Figure 2. For both adults and children, it is apparent that distal forms are seldom used. The pattern of determiner/pronoun – locative frequency is also similar for children and adults; the proximal and medial determiners/pronouns are more frequent than the locatives, and the distal locative *allí* is more frequent than the determiner/pronoun *aquel*, which is the least frequent word in both children and adults. The most salient difference between children's and adults' demonstrative use is that the most frequent demonstrative for children is the proximal *este*, whereas adults' and older children's most frequent demonstrative is the medial *ese,* driven by younger children using proximals much more than medials.

[5]Note that Zulaica Hernández (2012) also reports on scarcity of the distal term *aquel/aquella* in oral data in line with the oral data from the CREA reported herein. We thank one of the reviewers for bringing this to our attention.

https://doi.org/10.1017/S030500092200054X Published online by Cambridge University Press

Table 6. Estimates of Fixed Effects

Parameter	Estimates	Standard Error	*df*	*t*	95% Confidence interval
Intercept	9.593***	1.53	757.73	6.271	(6.59, 12.596)
Demonstrative	−1.695	1.619	3151.092	−1.047	(−4.869, 1.479)
Proximal	17.791***	1.619	3151.092	10.99	(14.617, 20.965)
Medial	1.884	1.619	3151.092	1.164	(−1.289, 5.058)
Age	−.078**	.027	1523.87	−2.942	(−.13, −.026)
Demonstrative*Proximal	19.317***	2.289	3151.092	8.438	(14.828, 23.805)
Demonstrative*Medial	10.718***	2.289	3151.092	4.682	(6.229, 15.206)
Demonstrative*Age	.005	.033	3151.092	.15	(−.059, .069)
Proximal*Age	−.161***	.033	3151.092	−4.917	(−.225, −.097)
Medial*Age	.001	.033	3151.092	.031	(−.063, .065)
Demonstrative*Proximal*Age	−.168***	.046	3151.092	−3.627	(−.258, −.077)
Demonstrative*Medial*Age	−.095*	.046	3151.092	−2.063	(−.186, −.005)

Baseline: Distal, Locative

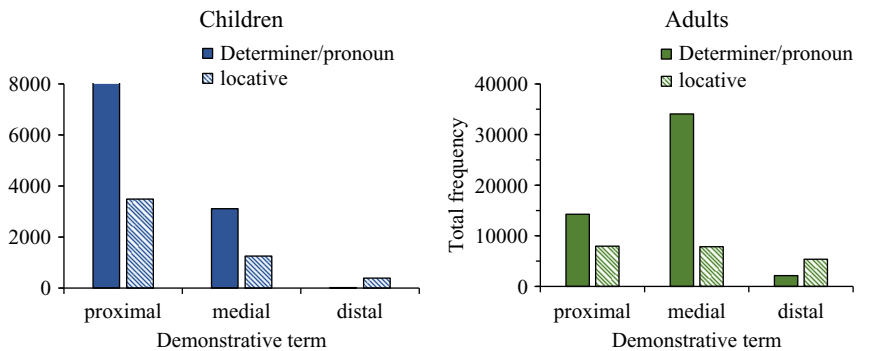

Figure 2. Total (summed) frequency of each demonstrative term in adults and children. (Note that the summed data for children are skewed to the youngest age ranges.)

One possible reason for the differences in relative frequency of proximal and medial terms in younger children versus older children/adults could be changes in how terms are used in development. Specifically, it is possible that grammatical/endogenous forms of demonstratives are more frequent in older children and adults, and this could possibly account for changes in the frequencies of use of specific terms in development. We therefore returned to the corpora used in the analyses (Table 2), to identify the extent of endogenous demonstrative use by both the children and adults in the spoken corpora. As can be seen in Table 2, for all ages the production of endogenous uses was very low. In fact, we found no examples of endogenous uses of distal terms at all for any of the children or adults in the corpora. For proximal and medial terms, a 2 (group: children, adults) x 2 (terms: proximal, medial) ANOVA revealed that adults overall produced slightly more

https://doi.org/10.1017/S030500092200054X Published online by Cambridge University Press

endogenous uses of demonstratives than children, $F(1, 13) = 16.329$, $p < .005$, $\eta p^2 = .557$ (M = 4.82% for adults; M = 2.27% for children). However, there was no overall difference between the percentage endogenous use for proximal versus medial terms, $F(1, 13) = 0.460$, $p > .05$, $\eta p^2 = .034$, and the interaction between group and term was not significant, $F(1, 13) = 0.727$, $p > .05$, $\eta p^2 = .053$. Therefore, the developmental changes in the use of proximal and medial terms reported above cannot be accounted for in term of increases in the use of endogenous terms by adults (and older children).

Discussion

In the present study we have explored Spanish-speaking children's use of demonstratives through language development. We asked when in development distal demonstratives might emerge and how demonstrative frequency changes over development. In relation to distal terms, our analyses show that distal demonstratives are infrequent, and in particular the determiner/pronoun *aquel* was rarely used at any age point, even in adulthood. In contrast, the frequency of use of other demonstratives did change with age. In particular, the frequency of use of the proximal *este/aquí* decreased with age (per 1000 words), with the medial *ese/ahí* also decreasing, but overtaking proximals.

The most striking finding from our study is that the distal determiner/pronoun *aquel* has a marginal frequency of use throughout development. While young children are capable of using *aquel,* they do not employ it often. Nor is it frequently used in adulthood. Why this is the case requires further analyses of contexts of use and tokens. It could be the case that most conversations refer to object/entities within conversation space, thus not requiring (far) distal terms to be used. To that end, it would be interesting to examine whether and how children use *aquel/aquella* spontaneously and unprimed, and specifically the nature of the spatial setting in which communication takes place. The low frequency could also be explained by the input received; indeed, *aquel* appeared as the lowest frequency demonstrative in adult speech.

The low frequency of *aquel* in adult and child speech could indicate that *aquel* is becoming a redundant term and might be absorbed by the medial *ese.* Indeed, *ese* is by far the highest frequency term in adult speech. We argue that the medial term *ese* would be marked with respect to distance (non-proximal distance), which is supported by the fact that medial term *ese*/*ahí* is the most frequently used demonstrative pronoun in Spanish across all varieties. This main finding allows us to speculate a reduction of the tripartite system of Spanish demonstratives into a basic binary system. That is, *ese* and *aquel* might be grouped together as non-proximal terms, with *ese* being the term most frequently used in Spanish language to also mark non-proximal distance in the spatio-temporal axis. As suggested in previous sections, and in Shin et al. (2020), there are reasons other than spatial/temporal distance for using *ese* rather than *este.* These observations allow us to argue in favour of a reduction of the Spanish tripartite demonstrative system into a basic binary opposition with *este* occupying one of the poles and *ese* and *aquel*, as one single element, occupying the other pole of the opposition. However, a complete explanation for the phenomenon of abstract discourse anaphora is still far from being completed.

Although the distal determiner/pronoun *aquel* had a very low frequency in our child speech data, the distal locative *allí* appeared more frequently. A closer look into the uses of *allí* reveals a dimension of direction as opposed to location. We hypothesize that if the origo is reallocated, the oscillation between proximal and distal terms is defined by the target of the projection rather than the speaker's body or location. For example, in "*tú*

https://doi.org/10.1017/S030500092200054X Published online by Cambridge University Press

mueves allí a este" (you move this one there), the child is indicating the intention of placing a proximal object further. A clearer example is in "*¿por qué la flecha apunta para allá?*" (why does the arrow point there?), where it seems that the object (the arrow) might be nearby and the word *allá* is used to simply indicate *away*. These observations suggest, in contrast to previous assumptions, that the locative and demonstrative terms might not be equivalent in terms of the distance they refer to. Future experimental or observational studies may investigate this issue further.

The second aim of our research was to describe the developmental course of demonstrative use. As suggested, we find a decrease in demonstrative frequency (per 1000 words) through language development. This might be explained by children's vocabulary growth: young children could be employing demonstratives to avoid using words that they do not know yet. However, this conclusion should be taken with caution, because: (a) the conversation contexts might also explain this finding, and (b) some of our data are cross-sectional which impede us from detecting any clear developmental patterns. In our sample, young children's interactions revolved around toys and other objects, whereas older children often talked about past experiences or other topics not directly involving present objects. Thus, young children's interactions might have naturally elicited greater demonstrative use. However, demonstratives do not require physical referents. For example, in "[you suggested going to the beach] – *that is a great idea*", the demonstrative *that* plays an indirect/endogenous role. We note that adults do indeed produce a higher percentage of endogenous uses of demonstratives compared to younger children. However, our analyses also show that the higher use of endogenous terms applies equally to proximal and medial terms, a pattern that therefore does not explain changes in relative frequency of these terms in development.

Apart from a general decrease of demonstrative frequency, we specifically see an important reduction of the relative frequency of *este/aquí* with age. We might interpret this in conjunction with the adult data, and data from older children in which the most frequent term is *ese* instead of *este*. Children's use of *este* might keep decreasing after age 10 into adulthood, when *ese* becomes the most frequent term. This shows a protracted developmental course of demonstrative production. As in previous works (González-Peña, 2020; Küntay & Özyürek, 2006), children appear to have all demonstrative terms in their lexicon, but their use is not adult-like until later in development. To that end, we would like to highlight that Clark's (1978) claim (that demonstratives are among the earliest words to emerge) is not necessarily incompatible with our observation: that patterns of demonstrative use are not yet adult-like at the age of 10. It is important to make a distinction between emergence and full mastery. The spatial and social development that might underlie this late development is currently unknown.

One can speculate regarding reasons for the reversal of frequency of proximal and medial terms in development. One possibility is that younger children may be more likely to talk about objects that are in their close proximity than objects that are outside their immediate physical and attentional space. As conversational skills develop, children may be more likely to consider objects in someone else's space, outside the immediate space of the child, or outside of the joint attention of both child and conversational partner. Thus, changes in demonstrative may be in line with developmental understanding of the importance of making conversation informative (Grice, 1975). Further work is needed to explore whether such explanations have merit.

To conclude, this study is the first to our knowledge describing children's demonstrative use in Spanish throughout childhood. Results revealed that children feature all demonstratives in their lexicon, but do not use them in an adult-like fashion until after the age of 10. Developmental changes in demonstrative production are slow and

https://doi.org/10.1017/S030500092200054X Published online by Cambridge University Press

protracted, and changes are not attributable to any developmental milestone. More research is needed to investigate the acquisition of demonstratives and the alternation between proximal and distal terms in relation to referent and addressee location in Spanish child language. Specifically, manipulative control provided by experimental tasks, in conjunction with a conversation sample, could potentially provide a robust examination of demonstrative production in Spanish child language.

Acknowledgements. The authors would like to thank Prof. Ginny Gathercole for her helpful feedback on the first draft of the manuscript and Prof. Cristina Suárez-Gómez for her generous guidance for the corpora analysis. We are also very thankful to the Journal of Child Language Action Editor together with the two external reviewers for their very helpful and encouraging comments during the reviewing process. Any remaining errors are solely ours. This paper is part of the research project on deictic communication funded by the European Commission: Deictic Communication—A Multidisciplinary Training (DCOMM), Project Number: 676063.

Competing interests. The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

References

Aguado-Orea, J., & **Pine, J. M.** (2015). Comparing different models of the development of verb inflection in early child Spanish. *PloS one*, **10**(3), e0119613.

Aguirre, C. (2000). *La adquisición de las categorías gramaticales en español*. Ediciones de la Universidad Autónoma de Madrid.

Cappelli, G., **Marrero-Aguiar, V.**, and **Albalá, M. J.** (1994). Aplicación del sistema MORFO a una muestra de lenguaje infantil. *Procesamiento del Lenguaje Natural*. **14**, pp. 23– 32.

Clark, E. V. (1978). From gesture to word: on the natural history of deixis in language acquisition. In J.S. Bruner, A. Garton (Eds.), *Human growth and development* (pp. 85–120). Oxford: Oxford University Press.

Coventry, K. R., **Griffiths, D.**, & **Hamilton, C. J.** (2014). Spatial demonstratives and perceptual space: Describing and remembering object location. *Cognitive Psychology*, **69**, 46–70.

Coventry, K. R., **Valdés, B.**, **Castillo, A.**, & **Guijarro-Fuentes, P.** (2008). Language within your reach: Near-far perceptual space and spatial demonstratives. *Cognition*, **108**(3), 889–898.

Diessel, H. (1999). *Demonstratives: Form, function and grammaticalization* (Vol. 42). John Benjamins Publishing.

Diessel, H. (2006). Demonstratives, joint attention, and the emergence of grammar. *Cognitive Linguistics*, **17**(4), 463–489.

Diessel, H. (2013). Distance Contrasts in Demonstratives. In: M. S. Dryer & M. Haspelmath (eds.) The World Atlas of Language Structures Online. Leipzig: Max Planck Institute for Evolutionary Anthropology. (Available online at http://wals.info/chapter/41, Accessed on 2021-01-02.)

Diessel, H., & **Coventry, K.** (2020). Demonstratives in Spatial language and social interaction. An interdisciplinary review. *Frontiers in Psychology*. **11**: 555265.

Diez-Itza, E., & **Perez-Toral, M.** (1996). El desarrollo temprano de funciones discursivas. In M. Perez-Pereira (Ed.), Estudios sobre la adquisicion del castellano, catalan, euskera y gallego. Santiago de Compostela: Universidade de Santiago de Compostela.

González-Peña, P. (2020). *Spatial Deixis in Child Development*. Unpublished PhD Doctoral dissertation. University of East Anglia.

González-Peña, P., **Coventry, K. R.**, **Bayliss, A. P.**, & **Doherty, M. J.** (in press). The extended development of mapping spatial demonstratives onto space. *Journal of Experimental Child Psychology*.

González-Peña, P., **Doherty, M. J.**, & **Guijarro-Fuentes, P.** (2020). Acquisition of Demonstratives in English and Spanish. *Frontiers in Psychology*. **11**:1778.

Grice, H. P. (1975). "Logic and Conversation". In P. Cole and J. Morgan (eds), Speech Acts [Syntax and Semantics 3]. New York: Academic Press, pp 41–58.

Gudde, H. B., **Coventry, K. R.**, & **Engelhardt, P. E.** (2016). Language and memory for object location. *Cognition*, **153**, 99–107. Elsevier.

Jackson-Maldonado, D. (2012). Verb morphology and vocabulary in monolinguals, emerging bilinguals, and monolingual children with Primary Language Impairment. In Goldstein, B. (Ed.), Bilingual Language Development and Disorders in Spanish-English Speakers. 2nd edition. Baltimore: Brookes, pp 153–173.

Jungbluth, K. (2003). Deictics in the conversational dyad: findings in Spanish and some cross-linguistic outlines, in *Deictic conceptualisation of Space, Time and Person*, ed F. Lenz. Amsterdam: John Benjamins, 13–40.

Jungbluth, K. (2005). *Die Pragmatik der Demonstrativepronomina in den Iberoromanischen Sprachen*. Berlin: Mouton de Gruyter.

Kita, S. (ed). (2003). *Pointing: where language, culture, and cognition meet*. Psychology Press.

Küntay, A., & **Özyürek, A.** (2006). Learning to use demonstratives in conversation: what do language specific strategies in Turkish reveal? *Journal of Child Language*, **33**, 303–320.

Linaza, J., **Sebastián, M. E.**, & **del Barrio, C.** (1981). Lenguaje, comunicación y comprensión. La adquisición del lenguaje. *Monografía de Infancia y Aprendizaje*, 195-198.

López Ornat, S. (1994). *La adquisición de la lengua Española*. Madrid: Siglo XXI.

MacWhinney, B. (2000). The CHILDES Project: Tools for Analyzing Talk. 3rd Edition. Mahwah, NJ: Lawrence Erlbaum Associates.

Peeters, D., & **Özyürek, A.** (2016). This and that revisited: A social and multimodal approach to spatial demonstratives. *Frontiers in Psychology*, **7**, 222.

Pérez-Saldanya, M. (2015). Paradigms as triggers of semantic change: Demonstrative adverbs in Catalan and Spanish. *Catalan journal of linguistics*, **14**, 113–135.

Ravid, D., & **Tolchinsky, L.** (2002). Developing linguistic literacy: a comprehensive model. *Journal of Child Language*, **29**, 417–447.

Real Academia Española: Banco de datos (CREA) (2021). Corpus de referencia del español actual. <http://www.rae.es> [17/01/2021]

Remedi, V. (2014). Creación de corpus de datos sobre estudio longitudinal de adquisición de lenguaje de una niña de la región central de Argentina. Licenciate thesis. University of Córdoba, Psychology

Rocca, R., **Wallentin, M.**, **Vesper, C.**, & **Tylén, K.** (2019). This is for you: Social modulations of proximal vs. distal space in collaborative interaction. *Scientific reports*, **9**(1), 1–14.

Rodrigo, M. J., **González, A.**, **de Vega, M.**, **Muñetón-Ayala, M.**, & **Rodríguez, G.** (2004). From gestural to verbal deixis: a longitudinal study with Spanish infants and toddlers. *First Language*, **24**(1), 71–90.

Shin, N., **Hinojosa-Cantú, L. Shaffer, B.**, & **Morford, J.** (2020). Demonstratives as indicators of interactional focus: Spatial and social dimensions of Spanish este/esta and ese/esa. *Cognitive Linguistics* **31**(3): 485–514.

Shin, N. L., & **Morford, J. P.** (2021). Demonstratives in Spanish: Children's developing conceptualization of interactive space. In *Language Patterns in Spanish and Beyond* (pp. 285–301). New York: Routledge.

Shiro, M. (1997). *Getting the story across: A discourse analysis approach to evaluative stance in Venezuelan children's narratives*. Unpublished Doctoral Dissertation. Harvard University.

Tomasello, M. (1999). *The cultural origins of human cognition*. Harvard University Press.

Tomasello, M., **Carpenter, M.**, & **Liszkowski, U.** (2007). A new look at infant pointing. *Child development*, **78**(3), 705–722.

Vila, I. (1990). Adquisición y desarrollo del lenguaje. Barcelona: Graó.

Zulaica Hernández, I. (2012). Temporal Constraints in the Use of Demonstratives in Iberian Spanish. *Borealis: An International Journal of Hispanic Linguistics* **1**/2. 195–234.

Cite this article: Guijarro-Fuentes P., Gudde H.B., González-Peña P., & Coventry K.R. (2022). Children's use of demonstrative words: spatial deictics beyond infancy. *Journal of Child Language* 1–13, https://doi.org/10.1017/S030500092200054X