Analysing Narratives in Heritage English Learning Children with Native or Foreign Speaker Parents in Barcelona, Spain

Nom i Cognoms: *Jacqueline Ama Murray*

Màster: *Lingüística Teòrica i Aplicada*

Edició: 2022-2023

Director o directora: *Dra. Sílvia Perpiñán*

**Any de Defensa*:* 2023

Col.lecció: Treballs de fi de màster

Departament de Traducció i Ciències del Llenguatge

Acknowledgements

First and foremost, I would like to express my deepest gratitude to Dra. Sílvia Perpiñán, my thesis director, for her unwavering and invaluable support of me from the beginning of this program and throughout the Master's thesis. Your expertise, patience, elevated standards, and dedication to your field, inspire me at every step to keep pursuing my future with fervor.

I would also like to thank all of the members of *Adquisició de Llengües des de la Catalunya Multilingüe* (ALLENCAM) research group for their warm welcome and willingness to share their plentiful knowledge.

Thank you to PhD Candidate Katrina Blong for allowing me to be a part of her own research career and being a leader who leads by example. Thank you for being a source of wisdom and encouragement for me throughout this year.

To the UBC Linguistics Department, I thank every one of you for the role you've played in where I am today. Seeing your individual and collective passion for linguistics continues to fuel my own to this day. To the members of the Interdisciplinary Speech Research Lab (ISRL) and Infant Studies Centre, thank you for each opportunity that you afforded me and a safe network of support for academic growth.

Last but not least, thank you to all my friends and family for your constant and continual support and guidance over the many years.

Abstract

Heritage speakers are those whose home language differs from the language of their inhabited region. This can include native speakers who immigrate, or parents who chose to use their non-native language at home for various reasons. One understudied area is the impact of these two environments on language development. This study uses the MAIN *cat/dog* storytelling task to examine the narrative abilities of 2 children from each experimental condition: receiving native or non-native input. We analyse macro- and microstructure, where macrostructure refers to larger story elements such as: setting, complexity, and internal state terms, and microstructure refers to the language-specific uses of formal linguistic features. The results indicate that speakers with a native parent demonstrate a more advanced stage of acquisition in most measures, even when seemingly similar errors are produced. These results support the need to further investigate the impact of the various linguistic environments heritage speakers face.

Key words: Heritage English, linguistic outcomes, narratives, discourse-pragmatics, child acquisition, MAIN

Table of Contents

1. Introduction

1.1. Heritage Speakers

Heritage speakers are those who are learning a language in the home that is not a majority language of the region in which they live (Montrul, 2018). They are a growing area of interest in linguistic research because of their unique language outcomes and increasing prevalence. While natural exposure during critical periods of language learning should afford them native-like competence (Polinsky & Scontras, 2020) they have also been shown to perform differently from age-matched monolinguals (Rothman & Treffers-Daller, 2014). In some language outcomes they have been shown to pattern more like L2 speakers (Benmamoun et al., 2013), and in other ways they resemble a more advanced stage of attrition (Polinsky, 2018).

One trait of heritage speakers is that they typically receive significantly lower variability in sources of input and tend to use the heritage language only with parents and extended family. The role of input quantity and quality are known to play an even greater role in the context of multilingual acquisition (Unsworth, 2013). This is evident in heritage speakers as input quantity and quality are much more limited and by nature less diverse.

Hoff and Place (2011) examined 29 Spanish-English 2 year-olds' bilingual input from parents or primary care providers. They found that not only the amount of exposure to each language affects language outcomes, but also the variety of different speakers and the nativeness of input providers. In the study, children with a native English speaking mother had higher vocabulary scores in English than families where the father was the native English speaker, or where neither parent was a native English speaker. This shows us that nativeness of the English provider or sources of input may have a large impact on the linguistic outcomes of the child. This allows us to use nativeness as a measure of input quality as some linguistic outcomes can be correlated with the nativeness of the input.

While young heritage speakers are often the result of one or both parents immigrating to a new country with a different majority language, sometimes it is the case that caregivers use their foreign language at home. One such situation might be if two caregivers with different L1s only have L2 as a common language and must use it to communicate with each other. Another might be when parents who share an L1 choose to use L2 at home for the sake of facilitating the child's early learning. In these circumstances, the quality of input provided to the child must be considered. This is not an uncommon occurrence in Barcelona, Spain, and other places in the world where parents may choose to use English at home with the hopes of giving their children an advantage in acquisition (Lewin, 1987).

The majority languages in Barcelona are Catalan and Spanish, though both are used to different extents. While school is taught primarily in Catalan, children and the broader community are known to have a complete command of both and may choose to use one over the other situationally. English is also taught as a foreign language at school for a couple of hours a week, sometimes beginning as early as 3 years old, and often by teachers who are foreign learners themselves.

Native speakers (NS) and foreign speakers (FS) of English have well-studied differences in acquisition/learning. In L2 speakers, we know that outcomes are greatly affected by input quantity and quality, age of acquisition, motivation, and more. Typically developing children on the other hand successfully achieve complete acquisition of their native language. What this research aims to answer is how these differences in speakers compound when it comes to providing minority language input to children at home.

Language outcomes in heritage speakers are still being studied and there is still much to learn, particularly regarding their semantic and pragmatic development. While grammar has clearer evidence of development and mastery in speakers (typically around age 5 in monolingual speakers), pragmatics continue developing over the course of many years and

exposure to different linguistic environments (Cekaite, 2013). Development of pragmatics plays a role in access to culture and more broadly, the formation of relationships with a range of interlocutors. This paper will explore some features of pragmatic development in heritage learners from two different linguistic environmental conditions, by use of narratives through the lens of speakers' morphological and syntactic development. While some elements of pragmatics include conversation skills, verbal and non-verbal cues, and discourse features, we will focus mainly on narrative structure and the discourse feature 'referentiality'.

1.2. Narratives

Narratives are a useful tool in the assessment of child development. Not only do they have a link to reading comprehension abilities in children (Barton-Hulsey et al., 2017), but they also enable tracking of language-specific development. These language specific elements are referred to as microstructural elements of narratives (Petersen et al., 2010; Fichman et al., 2022). They include morphological and syntactic structures, as well as pragmatic structures. Since they are language-specific, each element can be analysed in multilinguals separately or in comparison with one another.

In addition to linguistic development, narratives can tell us about the cognitive development of children. Explaining narratives requires one to plan and organise events and information to give. These elements are referred to as macrostructure and are highly culturally dependent (Petersen et al., 2010). Elements of macrostructure in narratives include: setting, initiating events, goals, attempts, and outcomes. These elements combine to determine the level of completeness in a narrative's episode.

Conveyance of a narrative also requires a complex speaker-listener relationship and for this reason it is also used in clinical practice to assess the likelihood of developmental and communicative disorders (Lorusso et al., 2007). For a complex and appropriate narrative, children must have knowledge of the perspective of the characters, the listener, and must be

able to communicate accordingly. This type of knowledge will affect the type of linguistic features that can be observed, particularly in terms of discourse functions (Berman & Katzenberger, 2004).

1.3. Measuring Language Development

1.3.1. Morphology

Unlike Spanish, English is not typically characterised by its morphological richness, but morphology is still considered a first stage in the building of lexical organization and diversity (Frost & Grainger, 2000). Brown (1973) proposed a hierarchy of morphological development in monolingual children that deviates in some ways from L2 acquisition as proposed by Krashen (1982). For instance, monolingual children on average learn irregular past before articles (*a, the*), but Krashen proposed the opposite in L2 learning of children and adults. It is not yet known if morphological acquisition in heritage speaking children patterns more like L1 monolinguals or L2 learners. By comparing the number of correct uses to the total number of uses of a morpheme, we are able to determine to what extent it is acquired.

Another way of measuring morphological development is through the type-token ratio of morphemes (TTRmor). By dividing the number of novel morphemes by the total number of morphemes in a string of utterances, we generate a ratio that represents morphological diversity. This ratio can be useful in comparing various speakers at different ages or in different conditions to give us a picture of development.

1.3.2. Morphosyntax

Agreement is a feature of morphosyntax where knowledge of the morphology meets the syntactic elements of the utterance. Though English agreement structure is not as rich as other morphologically rich languages, agreement is still something that must be learned by L1 and L2 speakers. One study by Castilla-Earls and colleagues (2014) found that in

Spanish-English bilingual children, proficiency was a predictor of accuracy in production of direct object pronouns and articles. Balanced bilinguals performed significantly better than the asymmetrical bilinguals in elicitation tasks. Another study by Rispoli (1999) investigated the relationship between case and agreement development in English monolingual children. These findings suggest a co-development between subject pronoun case and verbal agreement, further exemplifying the matrix within which morphosyntax develops in speakers.

1.3.3. Vocabulary

Vocabulary is another area in which we can see differences between monolinguals and bilinguals. Allman (2005) compared the vocabulary sizes of monolingual and bilingual preschool children in Spanish and English. She found that language dominance was a predictor of vocabulary size in each respective language for production and reception but that bilingualism did not have a negative impact on the on Total Vocabulary (language A + language B) (Allman, 2005).

A correlation can be drawn between syntactic complexity and vocabulary accessibility. For this reason it can be useful to also include a measure of vocabulary and type-token ratio of words (TTRw) when performing an analysis of syntactic complexity. TTRw is the number of novel words divided by the total number of words used, which gives a measure of lexical diversity.

1.3.4. Syntax

One way speakers add complexity to their utterances is through subordination, which meaningfully alters the given information of a main clause. As a speaker develops, their ability to express complex ideas also develops (Nippold, 2017). We can quantify this increasing complexity through a *subordination index* (SI) which gives the clausal density of a speaker. This is calculated by dividing the total number of clauses (main and subordinate) by

the number of utterances. We can define an utterance as a main clause and all of its subordinates, expressing one idea or one communication unit; C-unit (Nippold, 2017). See the following examples:

(1) This is [NP a dog]. It is [AP blue and soft].

(2) This is [NP a dog [CP that is [AP blue and soft]]].

Though both (1) and (2) are both grammatical and offer the same amount of information, (2) has a greater clausal density and shows greater syntactic complexity.

1.3.5. Pragmatics and Discourse

One important element of discourse and in particular narrative telling is referential phrases or referring expressions (REs). We can refer to things by their full lexical name (e.g., *the table, the house*), using pronouns (e.g, *it, he*), or by using nothing, which is called null or empty pronouns. While Spanish and Catalan are null-subject languages which do not require overt subjects, English subjects are obligatory, except under limited and specific circumstances in which null pronouns can be used (e.g., listing actions: *She got up, brushed her teeth, and went to school*).

The concept of *common ground* in hearer-speaker relationships is helpful for understanding the rules of referential expression. In discourse planning, a speaker takes into account, at least to some extent, the listeners' perspective (Horton & Keysar, 1996). While theories of common ground are vast and still under discussion in literature, the definition from Clark (1996), [as referenced by (Rączaszek-Leonardi et al., 2014)] is adequate. Clark defines *common ground* as "a sum of mutual knowledge, beliefs and suppositions". What is believed to be held in the common ground will shape many discourse features, such as the use of definite or indefinite articles.

In narratives, use of these rules of referring expressions demonstrate discourse-pragmatic skills (Fishman et al., 2022). One rule is that a pronoun cannot be used

to refer to something that is not already in the common ground for both speaker and listener. Another rule is that when using an article with singular lexical noun phrase (NPs), the indefinite article *a* is used for the first mention, while the definite article *the* is used for subsequent mentions. According to Lindgren et al. (2022), bilingual children demonstrate appropriate use of the indefinite article in introductions for both languages by 6 years of age.

Fishman and colleagues (2020) performed an analysis of Russian-Hebrew bilingual and monolingual children's narratives with the goal of comparing typical language development to Developmental Language Disorder. They focused on the use of referring expressions in each speaker condition, dividing each use of REs into form (NP or pronoun) and function (introduction or maintenance). Through this method they were able to highlight the particular types of errors children were making in referring expressions. These errors could be a result of underdevelopment in morphosyntax or discourse-pragmatic skills. They concluded that, since under these circumstances articles are required given the morphosyntactic structure of English, it was more likely a constraint on their discourse-pragmatic representations (Fishman et al., 2020). As opposed to introducing something to the *common ground* by using the indefinite article, an assumption is made that the referent is already in the common ground by use of the definite article.

One study by Ryan (2015) analysed referent tracking in L2 speakers of English. They found evidence that L2 speakers did not pattern like native speakers in their distribution of REs. Instead, even advanced L2 speakers tended to use overexplicitness in communication regardless of target or source language (Ryan, 2015). They suggest overexplicitness could be a result of a focus on clarity, avoiding error, or difficulties in planning.

1.4. Present Study

The present study seeks to add to existing knowledge about the language outcomes of heritage speakers in various linguistic domains. Through a case study of 4 participants, I will

analyse a range of linguistic elements in the narratives of children who are learning English at home from both native and non-native English speakers. Though with the small sample size generalizations to the entire population are challenging, this study could provide the groundwork for further investigations into the way the language background of parents affect the outcomes of heritage speakers. I will use the Multilingual Assessment Instrument for Narratives (MAIN; Gagarina et al., 2012 and 2019) and elements of narrative microstructure and macrostructure to paint a broader picture of the linguistic abilities of the children as they relate to pragmatic development. Understanding what their current outcomes are in morphological and syntactic elements can give us useful context for interpreting pragmatic development as it relates to referential expressions. I will seek to answer the following research questions:

RQ: How do narrative abilities develop in heritage English learning children with native and non-native speaking parents?

a) How does nativeness affect their development in narrative macrostructure?

b) How do their narrative microstructure elements differ with respect to morphology, syntax, vocabulary, and pragmatics?

c) What factor does age play in these differences?

2. Methodology

2.1. Materials

2.1.1. Language Background Questionnaire

Parents were asked to fill out two questionnaires created by a PhD candidate and myself: one for their own information, and one for their child's. The parent questionnaire consisted of 20 questions involving their own language exposure and use, as well as education background and current occupation. They were asked to indicate what language

they use with family, friends, and at work. They were also asked how often they used English during each stage of education within, and outside of school. They rated their own abilities in oral and reading comprehension, pronunciation, writing, and speaking fluency on a 5-point scale of 'Zero-knowledge' to 'Native'. Finally, they were asked to give information on the language background and use of the parent who was not participating in the study.

The child questionnaire consisted of 49 more in-depth items about the child's language exposure and use in school, with family, and with friends. As part of the inclusion criteria (discussed in 2.2.1) they must be attending semi-private or public school in Catalonia and have lived here for at least 1 year. Thus, all children will have at least Spanish and Catalan as other highly proficient languages. Parents chose to label first, second, and third 'other languages' based on age of exposure and answered questions about the use of each. Finally, they are asked about exposure during the first 4 years of life and before moving to Spain (if applicable). In the case of siblings participating in the study, one questionnaire was required for each child, but only one parent questionnaire was needed.

Following the questionnaires, we calculated each child's input quality based on the parent's background, and input quantity based on the child's exposure. Each response in the questionnaire was given a score in .5 increments from 0 to 2. When asked "Where were you born?" +2 was given if it was an English-speaking country, +1 if they moved before the age of 6, and +0 otherwise. For example, NS6 and NS8's English-speaking parents were born and raised in English-speaking countries and so received +2 each for this question. FS6 and 8's parents were born and raised in Spain and so received +0 for this question. A percentage was calculated based on the number of points received divided by the total number of points possible (64: 32 elements with maximum 2 each).

For a thorough picture of the child's input and output, we separately quantified their input quantity, diversity, richness, and output quantity. Diversity refers to the number of different sources of English, while richness refers to the amount of hours of input from that variety of sources. For input and output quantity, a point tally of +2 was given for each 'always English' answer, +1.5 for 'mostly English', +1 for 'both equal', +0.5 for 'seldom English', and +0 for 'never English'. The percentage was calculated based on raw score x100, divided by total number of interlocutors x 2 points each. For example, NS6 hears only English from her mother (+2), never English from her father (+0), seldom English with her sister (+.5), only English from her maternal grandmother and grandfather (+2 and +2), and never English from her paternal grandparents (+0 and +0). As a result, her input quantity score is [6.5 / (7x2)] x100 = 46.43. The scores for each child are given in Table 1.

Table 1

Summary of Input and Output Measures Per Participant.

Participant	Input				Output
	Quality	Quantity	Richness	Diversity	Quantity
NS6	93.75	46.43	22.72	53.85	46.43
NS8	96.10	50.00	50.00	76.92	50.00
FS6	19.5	25.00	22.73	38.46	25.00
FS8	19.5	25.00	22.73	38.46	21.43

2.1.2. MAIN *cat/dog*

The test for the study was the Multilingual Assessment Instrument for Narratives (MAIN; Gagarina et al., 2012 and 2019). Out of 4 available MAIN stories, we used MAIN *cat* and *dog*. Both stories had a 6-panel, wordless story that was cut into a foldable picture

book. MAIN *cat* shows the story of a cat who finds a butterfly in a bush and tries to catch it while a boy attempts to fish his ball out of a nearby river. While he attains the ball, the cat eats some fish that he had left unattended. In MAIN *dog* there is a dog that chases a mouse while a boy loses his balloon in a nearby tree. While trying to reach his balloon, the dog finds and begins to eat from the boy's bag of sausages.

2.2. Participants

2.2.1. Experimenters and Inclusion Criteria

The experimenters were myself and a PhD candidate. Both experimenters are native Canadian-English speaking and monolingual to the knowledge of the participants. The inclusion criteria for all participating children were that they be between the ages of 4;0 and 9;11 with no known or suspected language or communication delays. At their schools, English must be offered as a subject and not a main language of instruction. The participants also must have been living in Catalonia for at least one year at the time of testing. Finally, English must be a primary language in the home and spoken by at least one parent most often. This includes parents who are native speakers using heritage English (NH) or parents that have learned English as a foreign language (FH). One parent participated in the study for each family. For this study, one child of 6- and 8-years-old were chosen from each of the NH and FH pools. They will be referred to as NS6, NS8, FS6, and FS8.

2.2.2 The Subjects

NS6. This study subject was 6;2 on the date of testing. She was born in Barcelona, Spain to an American-English speaking mother and a Catalan- and Spanish-speaking father. Her mother's first and primary language at home is English, and her father's first languages are Catalan and Spanish, but his primary language at home is Catalan. He was exposed to

English between 6 and 12 years of age. The family follow a one-parent-one-language policy while the parents primarily speak English between each other, and the siblings primarily speak Catalan between each other.

According to reports on the child and parent Language Background Questionnaire her parents rate her speaking and comprehension ability in English as 'average' as compared to other children (on a scale of 'poor' to 'excellent'). Her other first language is Catalan which she was exposed to from birth by her father and community, and her parents rate her ability in speaking and comprehension as 'excellent'. She reports being most comfortable expressing herself in Catalan and uses it when she is feeling nervous. Her second other language is Spanish which she was also exposed to from birth and her parents rate her as 'average' as compared to other children her age. She is reported to hear and use exclusively English with her maternal grandparents, almost exclusively Catalan with her paternal grandmother, and almost exclusively Spanish with her paternal grandfather.

NS6 attended full-time preschool in Catalan before the age of 4 and currently attends a *concertada* where the primary language of instruction is Catalan, and the children use Spanish or Catalan between each other. According to her report, the classmates never use English and have almost no knowledge of it. They receive on average 3 hours of English instruction per week from non-native teachers, and otherwise have no other English exposure at school. She does not attend any out of school care, tutoring, and has no additional exposure to English through friends or community. However, the family watches 1-3 hours of television in English per week. The family go on holiday to America 1-2 times per year, spending on average 18 days per visit. During these times, the children use and are exposed to mostly English.

NS8. This study subject was 8;9 on the date of testing. She was born in New York, USA to a British-English speaking father and a Catalan- and Spanish-speaking mother. The family lived in the United States until she was 3, and moved to Barcelona, Spain when she was 5 years old. Her father's first and primary language at home is English, and her mother's first languages are Catalan and Spanish, but she primarily uses Catalan at home. She was exposed to English between 6 and 12 years of age. The family follow a one-parent-one-language policy while the parents primarily speak English between each other, and the siblings primarily speak Catalan between each other.

According to the child and parent LBQ, her parents rate her English ability in speaking and comprehension as 'below average' as compared to other children her age. Her first other language is Catalan which she was exposed to from birth by her mother. Her parents rate her overall Catalan ability as 'excellent'. She reports being most comfortable communicating in Catalan and using it when she is nervous. Her second other language is Spanish, which she was exposed to at 5 when the family moved to Spain. Her parents rate her overall ability in Spanish as 'average' as compared to other children her age. She is reported to hear and use exclusively English with her paternal grandparents and Catalan with her maternal grandparents. Her mother used little English with her up to age 5 and never used English from 5 to present.

NS8 attended full-time preschool in English in the US for 18 months and attended 3 years of primary school in France where the languages of instruction were French and English. She currently attends a *concertada* where the primary language of instruction is Catalan, and the children use Spanish or Catalan between each other. They receive on average 4 hours of English instruction per week from non-native teachers. She does not attend any out-of-school care or tutoring in English but has a few friends with whom she speaks English

and Catalan. They report to watch between 4 and 7 hours of television in English per week and she plays English games on a tablet between 4 to 6 hours per week. The family visit the UK 1-2 times a year for an average of 10 days, where she is exposed to and uses mainly English.

FS6. This study subject was 6;7 at the time of testing. She was born and raised in Barcelona, Spain to a Basque- and Spanish-speaking Father and a Catalan- and Spanish-speaking mother. She has one 8-year-old sibling who is FS8 in this study. Both parents use a mixture of English and Spanish at home and do not follow a particular language policy. Her English exposure began at birth from her mother, and at 2-3 her father began to use English about half of the time. The parents use Spanish between each other, and the children use a mixture of Spanish and English between each other.

Her father was first exposed to English at age 11 and first felt comfortable with it at age 23. He lived in the UK for 10 years from the age of 24-34. He rates his abilities as advanced in speaking, reading, writing, and fluency, and intermediate in pronunciation. At home he uses half English and half Spanish and at work he always uses English. N6's mother uses mostly English at home and Spanish otherwise. She works in English but also uses Spanish in the community and among friends. The family reports watching more than 10 hours per week of television in English.

FS6's parents rate her speaking ability in English as 'below average' and her comprehension ability as 'average' as compared to other children her age. She reports being most comfortable in English of her 3 languages, and using it when she is nervous as well. Her first other language is Spanish, which she was exposed to from birth. Her parents rate her overall ability in speaking and comprehension as 'average'. Her second other language is Catalan, which she was first consistently exposed to at 1 year old. Her parents rate her overall

language ability as 'average' as well. She hears and uses only Spanish with her maternal and paternal grandparents.

FS6 attended full-time preschool in Spanish and Catalan before the age of 4 and currently attends a school where the language of instruction is Catalan and the main language of communication between the students is Spanish. They receive on average 5 hours of English instruction per week. Less than once a year the family go to the UK for holidays for 30 days.

FS8. This study subject was 8;6 at the time of testing. She was born in Barcelona, Spain and is the older sister of FS6 in this study. She lived in the UK until 2 years old before the family moved back to Barcelona. Her parents rate her speaking ability in English as 'below average' and her comprehension ability as 'average'. Like her sister, she reports being most comfortable communicating in English and uses it when she's nervous. Her first and second other languages are the same as FS6, and her parents rate her ability in both as 'average' overall. Her third other language is Basque which her father used with her exclusively until the age of 2/3. He rates her overall ability in Basque as 'poor' as compared to other children her age.

She attended full-time preschool in English in the UK before the age of 2 and preschool in Catalan, Spanish, and English in Barcelona before the age of 4. She currently attends a school where the language of instruction is Catalan. She reports that children use English, Spanish, and Catalan amongst each other. They receive 6-7 hours of English instruction per week. She does not attend any out of school activities or tutoring in English and speaks almost exclusively Spanish with friends.

Table 2

Summary of Main Participant Characteristics

		Participant		
Question	N6	N8	F6	F8
Age on date of testing	6;2	8;9	6;7	8;6
Birthplace	Barcelona, Spain	New York, USA	Barcelona, Spain	Barcelona, Spain
Age moved to Barcelona	n/a	5	n/a	2
Mother's first language	American English	Catalan and Spanish	Catalan and Spanish	Catalan and Spanish
Father's first language	Catalan and Spanish	British English	Basque and Spanish	Basque and Spanish
Home Language policy	OPOL	OPOL	None	None
Language spoken between parents	English	English	Spanish	Spanish
Language spoken between children	Catalan	Catalan	Spanish and English	Spanish and English
English lessons at school (hours)	3	4	5	6-7
Audiovisual English input (hours)	1-3	8-13	10+	10+

Note. See Appendix B for a more detailed summary of participant characteristics.

2.3. Procedures

During testing, the participants completed a total of 4 activities: 2 receptive tasks; TROG (Bishop, 2003) and PPVT (Dunn, 2019) and 2 productive tasks (MAIN and an English game with the parent that was participating). The order of the TROG, PPVT, and MAIN for the child and parent were random per family. Regardless of order, when siblings were also participating, both children were not present for each other's turn participating. The total time for participation was on average 1 hour per child. Testing sessions were done in the homes of the participants in a quiet room of their choosing, typically the family room.

At the beginning of the MAIN, the participants were shown both flipbooks and allowed to look through them as long as they wanted before beginning. They were not given an explanation of the story since the elicitation method was a 'tell' task in fold-out presentation mode (Gagarina et al., 2019) but were told they would be recorded and all pictures would remain visible by both myself and them. Once they were ready, they were prompted with, "tell me what's happening in this story" or, "Can you tell me this story?". N8 and F6 chose to begin with the Dog story while N6 and F8 began with the Cat story. Participants did not require further prompting during the story and when finished, the recording was stopped and they moved onto the next task.

2.4. Transcription and Coding

2.4.1. MAIN

Following the sessions, the recordings of all 4 participants were transcribed according to the CHAT conventions by the author of this paper. Each transcription was done based on the scoring guidelines found in Gagarina et al., (2012; 2019) and consisted of 3 sections: A. Story Structure, B. Story Complexity, and C. Internal State Terms (IST). Section 'D. Story Comprehension' was not included in this study. Section A assessed the mention of the following main elements of the narratives which were worth one point each: IST as goal, attempt, outcome, and IST as reaction. Each story consisted of 3 episodes which were scored separately. Aside from item 'A1. Setting' which was out of 2 points, each item received a score of 1 or 0. A1 received 2 points if the participant referenced time and place, one point if they only mentioned place, and 0 if they mentioned neither. The total possible score for A. Story Structure is 17. Examples of responses that earn points are shown in (3-6) from N8dog.

(3) Once upon a time [1: Time] at the park [2: Place] there was a dog.

(4) "The dog **saw** a rat [1: IST initiating event] and **wanted to eat it** [1: Goal].

(5) "The dog **chased him** [1: Attempt].

(6) "The boy could **get the balloon** [1: Outcome] and **he was happy** [1: IST reaction]

Section B assessed the complexity of the narrative based on which, and how many of the narrative elements were mentioned in section 'A'. A *sequence* is when the episode does not include a goal statement. An *incomplete episode* is when either an attempt or an outcome is missing but a goal is present. Finally, a *complete episode* is when a goal, attempt, and outcome are all given for an episode.

Finally, section C takes a count of the amount of ISTs that were used throughout the stories. These include terms about perception, physiological state, consciousness, emotions, mental verbs, and verbs of saying.

2.4.2. Morphology

Morphemes and type-token ratio for morphemes (TTRmor) were calculated automatically using CLAN (MacWhinney, 2000) and again manually to check for types of errors and morphemes. TTRmor was calculated by dividing the number of novel morphemes by the total number of morphemes used in a story. For example, if a participant used 84 morphemes in total and 47 of them were novel, the TTRmor would be 47/84 = 0.560. Morphemes were counted using the classic definition of a morpheme as the smallest unit of meaning in a language. For example "walks" consists of 2 morphemes: the verb *walk* + the 3rd person singular agreement morpheme *s*. Irregular past tense verbs are considered to be one morpheme, e.g., *went* is the individual morpheme meaning *go* in the past, while *looked* consists of the root morpheme *look* plus the regular past tense suffix -*ed*).

Disfluencies such as false starts, repetitions, lexical fillers, and self-corrections were not counted, e.g., "the cat the cat runs" counts as 4 morphemes, not 6. Incorrect morphemes were also counted in the number of morphemes, e.g., "the dog wents" counts as 4 morphemes even though there is a superfluous 3rd person agreement marking. Errors were included in morpheme counts to give a more thorough picture of the morphemes present in the participants' inventory, independent of whether they reliably use them correctly. Their productions were also analysed for morphological errors including agreement and tense.

2.4.3. Vocabulary

Word count and type-token ratio for words (TTRw) were calculated automatically by CLAN (MacWhinney, 2000) by dividing the number of novel words by the total number of words used in a narrative. For example, if a participant said 112 words in total and 49 of them were novel, the TTRw would be $49/112 = 0.438$. Instances of self-repetitions, lexical fillers, and false starts were not included in the word count.

2.4.4. Syntax

Counting of clauses and C-units as well as calculations of SI were done manually by the author. Each clause was listed and identified as either main or subordinate, and a C-unit was based on one complete idea given with a main clause and all of its modifiers. For example:

(1) This is [$_{NP}$ a dog]. It is [$_{AP}$ blue and soft].

(2) This is [$_{NP}$ a dog [$_{CP}$ that is [$_{AP}$ blue and soft]]].

In (1) we see two independent clauses therefore two C-units. This would have a SI of 2 clauses/2 C-units = 1. In (2) we have one main clause and one subordinate clause within the same C-unit. This would give an SI of 2 clauses/1 C-unit = 2.

2.4.5. Pragmatics and Discourse

Referring Expressions

To analyze patterns of referential development in the participants, each use of a referring expression (RE) (lexical NP, pronoun, or null) was identified and coded for goal, appropriateness, and misuse type. Goal included introduction, re-introduction, or maintenance and applied to all REs. Misuse depended on the type of RE used.

For lexical NPs, a misuse would be definiteness/indefiniteness, or overexplicit. There was misuse in definiteness if the goal of the referent and the definiteness of the article were infelicitous. To be felicitous, an indefinite article *a* or *some* should be used in the introduction of a referent, and the definite article *the* should be used in the maintenance or reintroduction of a referent. A lexical NP was overexplicit if it was used when a pronoun or null pronoun would have been appropriate without adding ambiguity. An example is shown in (7).

(7) The cats chased it until **the cat** saw a fishingman.

Here, *the cat* would be overexplicit because using a pronoun would be appropriate and non-ambiguous.

Psychological Closeness

Whereas some languages make a distinction between animate and inanimate, or human and non-human for which pronouns are used, English rules use some combination of both. Take the following examples:

(8) This is my friend Liz **[+human, +animate]**. #It is happy.

(9) This is my friend Liz **[+human, +animate]**. She is happy.

(10) This is my fan **[-human, -animate]**. It is blue.

(11) Look at my toy soldier **[+human, -animate]**. It is 5 cm tall.

(12) Look at the eel **[-human, +animate]**. It is so slimy.

We can add one more feature to explain felicity for the following examples (13-15): psychological closeness, which I will give the feature [± close]. A case has been made that emotional proximity is what allows us to use *s/he* with non-human and/or inanimate objects that would otherwise be referred to as *it* (Gilquin & Jacobs, 2006). This is commonly the case with pets and even colloquially with objects.

(13) I like that dog **[-human, +animate, -close]**. It is so fluffy

(14) This is my dog **[-human, +animate, +close]**. She is so fluffy.

(15) This is my first car **[-human, -animate, +close]**. Isn't she beautiful?

Closeness is more of a discourse feature we can use to indicate to the listener that the referent, regardless of humanity or animacy, has emotional proximity to the speaker. It can also be used in a broader sense to indicate the referent has potential emotional proximity to people as a whole, or to someone specific. We will use this standard in the analysis of pronoun choice of the participants to see the potential development of [± close].

3. Qualitative and Quantitative Results

3.1. MAIN

3.1.1. A. Story Setting

There were a total of 17 points available in the MAIN (2 setting + 5 points x 3 episodes). It should be noted that we can tell more from the combination of items mentioned

than the raw score, and that Gagarina et al., (2012) in their pilot studies found even adults rarely achieved all 17. The summary for all MAIN findings can be found in Table 2.

NH participants had more story elements overall than FH. In A.1 setting, N6 received 1 point for both stories for mentioning time, and N8 received 2 for both stories for mentioning time and place. They regularly included IST as initiating events and attempts in their stories but were missing outcomes and goals on a few occasions. IST as reaction was only present once for all 4 participants and it was by N8 in one episode. N8 had the highest overall score with an average of 11.5 out of 17 possible points and N6 had an average of 8.5.

In FH on the other hand, we see that N6 received 1 point in A1 for mentioning time but F8 received no points in either story. Both rarely included IST as initiating event or both attempt and outcome, though one was always present. IST as reaction was never present. The average scores for N6 and N8 were 5 and 6 respectively.

Between NH and FH we see that NH had more story elements overall. We can conclude from this that NH demonstrates greater development in setting elements of a narrative. We also see a noticeable difference by age in the NH group but not in the FH group. We can posit that at least for NH, age might be a factor in the development of narrative settings.

3.1.2. B. Story Complexity

The calculations for story complexity were based on the combinations of elements present in section A. Based on the use of goal (G), attempt (A), and outcome (O), each episode received its own classification. Many of the episodes from all participants were missing goals. When both an attempt and outcome are given without a goal, it is referred to as a sequence. This is the first stage of structural complexity. The next stage of complexity is

incomplete episodes which have either a GA or GO sequence. The final level of complexity is a complete episode. This is when G, A, and O are all given for an episode.

In the NH participants we see that N6 has 2 sequences and 4 incomplete episodes, while N8 has 3 sequences and 2 incomplete episodes. The only participant to produce a complete episode was N6 who produced 1 as shown in (16). In FH, F8 produced 4 sequences but no incomplete episodes.

(16) "And then the dog was going to get him (A) then a person came then the dog, he [hurt himself with] the tree because he banged his head (O) because he wanted to eat (G) the mouse…"

The notable difference between NH and FH participants in story complexity is the level of complexity reached. This shows that while NH participants were still missing a number of elements, they still produced at least two story elements allowing them to demonstrate a greater development in structural complexity of narratives.

3.1.3. C. Internal State Terms

Internal state terms allow us to look at the specific type of vocabulary important for perspectives or feelings. It is important to mention that children not using certain vocabulary terms does not mean they do not have them, but in such an elicitation task, we are still able to compare use between the two different pairs of children. Though these terms play more of a role in clinical assessments, their presence or absence could give us insight into the accessibility of internal state vocabulary.

Data demonstrate NH also produced more ISTs than FH in both stories. N6 produced 6, with most being perceptual state terms. N8 produced 11 including those of perceptual state (4), physiological state (1), emotion (3) and mental verbs (3). There is not only a greater

number but also a greater variety in terms produced by N8 than N6. In FH we see 4 terms produced by F6 and 2 produced by F8. Both produced 2 perceptual state terms.

In relating the use of ISTs with the elements of story setting in A, we can see a correlation between the number of terms used and narrative development. We see that N8, who had the most setting elements, also had the greatest amount of internal state items. Further, F6 and F8 had the fewest amount of setting elements and also the fewest number of internal state items.

Outcomes in narratives are noticeably different between the NH and FH participants. Not only do the NH have more narrative elements and more story complexity, but they also use more internal state terms when describing the stories. As is expected for the age of the children, we do not see complete episodes except for once from N6, but both FH participants have narratives that are more akin to description than storytelling. Because of the complexities that go into storytelling, one of which is linguistic, we must look further to see how these two groups diverge.

Table 3

Summary of MAIN Macrostructure Outcomes Per Participant

Factor	Participant			
	N6	N8	F6	F8
A. Story Setting				
Cat Story	8	11	5	5
Dog Story	9	12	5	7
B. Story Complexity				
Sequence				
(A & O)	2	3	0	4
Incomplete episode				
(GA or GO)	4	2	0	0
Complete episode				
(GOA)	1	0	0	0
C. Internal State Terms (IST)	6	11	4	2

3.2. Morphology

3.2.1. Type-token Ratio Morphemes

Table 4 shows a summary of the morphosyntactic findings for each participant. There was a noticeable difference between the total number of morphemes for the NH and FH participants. NH produced between 94 and 125 total morphemes with a group average of 109.75. On average, only 47.75 nobel morphemes were produced. The average type-token ratio for morphemes (TTRmor) for all 4 productions was 0.406. The FH produced between 61 and 89 total morphemes with a group average of 73.25. The novel morphemes averaged at 38.5, giving an average TTRmor of 0.526.

Overall, the range of TTRmor among participants is not very large, but when we average by group we are able to see a different picture. The largest difference between the groups is found in total morphemes, which has a large effect on the TTRmor score despite the number of novel morphemes being higher for NH. It seems that the biggest difference between them is related to how many words they actually use (since over 90% of the words they use are monomorphemic).

3.2.2. Agreement errors

Agreement errors were few among the participants. There was 1 in N6 and 3 in F8. N6 made a disagreeing plural marking on a singular reflexive pronoun, "he hurts *himselves" in reference to the dog crashing into the tree. F8 made an agreement error twice using the possessive pronoun 'its' when referring to items belonging to the boy. Since *the boy* has features [+human, +animate, +male] the correct possessive pronoun would be 'his'. However, s does refer to the boy as 'he' in the nominative case, showing evidence that she has established the humanness representation of 'the boy'. The use of 'its' in the place of all three uses of possessive pronouns could demonstrate either a lack of the masculine possessive pronoun, or the lack of a solidified distinction between the features of the referent with regard to he/it. Overall, all participants demonstrated a strong knowledge of agreement in English.

3.2.3. Tense errors

N8 and F8 made tense errors where they mixed the past and present tense within their dog stories, and sometimes within one sentence. See the following examples from N8dog:

(17) There <u>was</u> a hole in the tree that the rat <u>can</u> fit and the dog <u>couldn't</u>…

(18) There <u>was</u> a boy that <u>has </u>a balloon and the balloon <u>went</u> flying…

(19) The dog saw a rat and he wanted to eat it.

A case cannot be made for a lack of knowledge of the past tense forms of the verbs that both participants used in present tense (i.e. (17)). We also see from their respective cat stories that they are familiar with the convention that narratives are told in past tense. One possible explanation for discrepancies in use is to consider structures within which they use the present tense. In (19) we see two appropriately used past tense verbs. Here we have a

coordinated phrase made up of [[NP VP NP] [$_{coor}$ and] [NP VP NP]]. In the utterances where we see past and present mixed, we also see the present tense verb appearing as the first verb in the embedded clause. This tells us the error could be in the representation of tense in embedded clauses rather than in use of tense in narratives.

In the case of F8, she does not have any embedded clauses and her mixing of past and present tense changes throughout the story. She begins the narrative in present tense and finishes in past tense. Since this was the first story she told, we can conclude that she began the task as more of a description task than a storytelling task. This conclusion would also be consistent with her score on the MAIN in 3.1. Her first few sentences are simple clauses in present tense, simply describing what is happening in each picture. As she continues into the second story, she begins using past tense and it more resembles storytelling.

Though both girls have a mix of present and past tense in their stories, for N8 it appears to be more of a complex syntax error, while for F8 it appears to be more of a discourse-pragmatic error. Both sets of participants have similar uses of morphology in their narratives, and of the few mistakes that they make, they represent more of a higher stage of development in acquisition than a lower one.

Another time we see tense errors is in F8cat, where we see the utterances:

(20) The cat look at the yellow butterfly.

(21) The cat go out of the bush.

One explanation of this could be root infinitives, where the bare infinitive verb is being used without appropriate past tense inflection (Guasti, 2002). It is a particularly common occurrence in early L1 child speech across languages and arguably stems from an

incomplete knowledge level, the cause of which has different theories (Guasti, 2002). In N8 we see the utterances:

(22) The rat <u>hide</u>.

(23) He<u> hide</u> in the tree and the dog chased him.

(24) The dog saw the bag with sausages and he <u>eat</u> it.

It is a little more difficult to deduce whether the error is borne of a root infinitive, not knowing the irregular past tense verbs, or an omitted 3rd person singular -s marking. A case for root infinitives could be that if she had not yet acquired these irregulars, she might have over-regularised to *hided* or *eated* rather than using the bare verb. A more likely case for omitted 3rd person singular -s is that, as we have seen, N8 often mixes the present tense and past tense within the same sentence, but she typically does so in complex clauses.

If both N8 and F8 are indeed producing root infinitives, the question must be posed as to why it's present in the 8-year-old's but not the 6-year-old's speech, since we expect to see root infinitives at lower stages of development. A possible explanation is that they could be on a route of U-shaped development that is not uncommon in verb acquisition (Carlucci & Case, 2013; Williams et al., 2022)

Table 4

Summary of Morphological findings.

	N6		N8		F6		F8	
Factor	Dog	Cat	Dog	Cat	Dog	Cat	Dog	Cat
Total morphemes	117	103	94	125	89	61	64	79
Novel Morphemes	49	37	39	58	50	35	32	37
TTRmor	0.419	0.329	0.415	0.464	0.562	0.572	0.500	0.468
Errors	3	0	2	0	1	1	3	1

3.3. Vocabulary

The summary of the vocabulary findings can be found in Table 5. Similar to the findings of TTRmor, the largest difference between the participants is in the total number of words. NH word count ranged from 94 to 125 with a group average of 107.75 after lexical disfluencies were removed, while FH ranged from 58 to 81 words with a group average of 73.25. The number of novel words by group was an average of 46 for NH and 38.25 for FH. Since the majority of the words the participants used were monomorphemic, it is not surprising that the lexical diversity is similar to the morphological diversity. The greatest TTRw was found in F6 and the least was found to be in N6. Even though the number of novel words between the two was not greatly different, N6 produced almost twice the amount of words as N6, lowering her TTRw.

To correlate the results from 3.1, we see that NH, who produce the greatest number of story elements, also produced significantly more words than FH. Though NH did not produce

significantly more novel words, we see a greater quantity of them, which is likely a result of including more narrative elements. In this way we can see that their increased development in narrative telling likely results in their increased word count.

3.4. Syntax

A summary of results pertaining to syntax and clause elements can be found in Table 5. NH had more clauses overall than FH. The number of total clauses for NH were between 14 and 20, with both girls exhibiting an average of 17 clauses per story. Of those clauses, N6 produced more subordinate clauses (6-7) than N8 (0-2). Though the number of C-units were higher in N8 than in N6 with 14-17 and 10-11 respectively, N6's higher number of subordinate clauses resulted in a higher SI (average 1.6). FH on the other hand had between 9 and 10 total clauses per story. F6 had more dependent clauses with 4 and 3, while N8 had none in either story. As with NH, F8 had more C-units overall, resulting in a lower SI than her 6-year-old counterpart.

In comparing the SI by age, we find that both ages pattern similarly, and that both 6-year-olds have higher clausal densities than the 8-year-olds. In the case of NH, N8 had more clauses overall, the vast majority of which were independent. In the case of FH, though both girls had the same number of clauses, F8 used no subordinate clauses and therefore demonstrated a lower clausal density. This is an interesting finding because, based on the increasing complexity that we should find with age, we would expect the 8-year-olds to have greater clausal densities than the 6-year-olds.

Table 5

Summary of Vocabulary and Syntactic Findings.

	N6		N8		F6		F8	
Factor	Dog	Cat	Dog	Cat	Dog	Cat	Dog	Cat
Raw total words	120	117	138	102	83	61	69	81
Total words edited	109	103	125	94	81	58	64	79
Novel words	46	39	58	41	48	34	33	38
TTRw	0.422	0.379	0.464	0.436	0.593	0.586	0.516	0.481
Total Clauses	17	17	20	14	10	9	9	10
Subordinate Clauses	7	6	2	0	4	3	0	0
C-units	10	11	17	14	6	5	9	10
SI	1.7	1.5	1.2	1.0	1.7	1.8	1.0	1.0

3.5. Pragmatics and Discourse

3.5.1. Referring Expressions

The total number of referring expressions was fairly different between the NH and FH participants. NH produced between 29 and 35 REs, of which a combined average of 62.9% were lexical NPs while the other 37.1% were pronouns and none were null pronouns. FH, however, produced between 16 and 23 referring expressions with a combined average of 85.7% lexical NPs. Only two null pronouns occurred, with one per participant in the dog story. While NH used significantly more referring expressions overall, patterns of use

between the two groups have notable differences. See Table 6 for a summary of RE types and misses produced.

3.5.2. Lexical NPs

Overexplicitness

The total number of overexplicit REs was not significantly different between participants, but made up one of the most frequent types of errors produced by both groups. NH produced between 3 and 4 while FH produced between 3 and 5. Given that FH produced a greater proportion of lexical NPs overall, the occurrence of overexplicit REs was higher overall. The study by Ryan (2015) showed that overexplicit REs might be expected in L2 speech because of the desire to maintain communicative clarity. An interesting production by both N6 and N8 was the use of the lexical NP *and* the pronoun in sequence. This makes up most of the cases of overexplicitness in both N6 and N8's productions. See the following statements as examples.

(25) … the dog he hurts [himself]…

(26) … and then he the boy climbed up…

Examples (25) and (26) appear to have different functions. In (25) we see N6 first introducing the character, then immediately referring to him, which is similar to topicalization. In (26) we see N8 first using the pronoun then clarifying who it refers to by using the lexical NP. In both cases, the participant is being overexplicit about the referent. One possible explanation is a lack of confidence in the use of the pronouns. This could fall into the category of avoiding error as mentioned in Ryan (2015). Alternatively, it could be a focus on clarity and their way of trying to avoid supposed ambiguity.

Another possibility is that using both together is linked to the markedness of Spanish overt pronouns. Spanish and Catalan, the other two languages of all 4 children, are null-subject languages in which overt subjects are not only optional but marked in certain cases. It is not uncommon for bilingual children of one null-subject and one non null-subject language to overuse explicit subjects when they are optional (Polinsky, 2018). This would be a case of overexplicitness in null-subject languages, and it could be the case that when transferred into an obligatory subject language, two subsequent subjects are produced.

The fact that we see this particular kind of overexplicitness in NH but not FH could also speak to a developmental difference between the two groups. Overall FH used just a few pronouns and so the possibility of this double reference is lower already. If it is the case that the double reference is an artifact of also speaking 2 other null-subject languages, it's possible that as the FH children develop in their use of pronouns, they might also begin to produce this double referencing before appropriately explicit productions.

Definiteness

The second most common misuse of lexical NPs was in definiteness. NH had more errors overall in definiteness than FH, but they pattern differently. Out of 4 occurrences, N6 used the definite article to introduce something 3 times. Two of those times with *balloon* and *food*, she is just *mentioning* it for the first time. It is not the first time she is seeing them. She mentions the balloon escaping and the dog seeing the food at panels 3 and 4 respectively, but the fist time they appear are in panel 2. Similarly, with N8, most of the time when she is introducing a referent with a definite article, it is while narrating a panel that comes after the referent's first appearance.

Since these occurrences are not ungrammatical, we must explain the infelicity in terms of discourse features of speaker-listener relationships and common ground. In the cases

described above, we could argue that an assumption is being made that these items are already in the common ground of both the listener and speaker. Even if this is the case, we can still argue that both children show a relatively high level of discourse-pragmatic competence in this area since the occurrences are few. They both show an overall awareness of the felicitous uses of *a* versus *the*.

F6 once maintained a referent using the indefinite article and once introduced a referent with a definite article. F8 on the other hand, who misused definiteness 4 times in each story, began both by referring to the characters with definite articles. She also used the definite article when introducing the ball and the lake. Though the number of misuses are not significantly different from N8, the context of producing them was. F8 could be relying more on shared knowledge between herself and the interlocutor, or could have a less developed representation of the functions of definite and indefinite articles and therefore a less developed discourse-pragmatic ability.

Pronouns and articles are of particular interest in child speech because of how much insight they can give us into the discourse development of children. Though the majority of the time participants made appropriate use of article definiteness, there were patterns to when they would use the infelicitous article. These cases might be making more of a comment on the recognised shared knowledge of the speaker and interlocutor than the linguistic function of these words.

3.5.3. Pronouns

Closeness

When we take into account the feature of [±close], we see that N6 and F8 both have misuses in this area. With N6dog we see her refer to a mouse once as 'him'. Since its features would be [-human, +animate, -close], the more appropriate option would be to use

'it'. The second time, she uses 'him' in reference to the food [-human, -animate, -close]. We do however see that throughout the story she refers to the dog as 'he' which would be felicitous as dogs are most often psychologically close to humans (whether or not she personally has one).

In N6's cat story, we see her refer to the cat by both 'he' and 'it' shown in (27). The error here is not attached to the feature of closeness, but rather for the mixing of the two pronouns. This, as well as using 'him' when referring to the mouse and food, might demonstrate a lack of solidified distinction between choice of pronouns and the humanness or closeness features.

(27) And then it jumped for to take it … and then it, the cat, he was stuck into the plant.

On comparing the marking of closeness in choice of pronoun between NH and FH, we do not have enough pronoun use in FH to know whether or not they make this distinction. N8 on the other hand uses enough pronouns for us to see that she understands a distinction in this feature of closeness. In this regard we can see an age effect between the NH.

Ambiguity and Accessibility

N6 is the only participant with ambiguous misuse in her stories. She is also the only participant with pronoun references that are too distant from their referent. Neither N8 nor bothFH participants have these misuses. This suggests N6's overall level of development in pronoun use is noticeably below N8's. In comparison to FH however, similarly to overexplicitness by double referencing, the lack of ambiguity or distance misuses in their stories is most likely related to the lack of use of pronouns.

We could make the case that avoidance shows a lower level of linguistic development than errors in a particular feature. Though in the misuses that we have discussed we come to the conclusion that FH have a lower percentage of appropriate REs than NH, we can gain even more insight into their linguistic development through *the lack* of occurrences of elements that *can* produce inappropriate productions and require a stronger development of discourse-pragmatic skills.

Table 6

Summary of Referring Expressions

Factor	N6 Dog	N6 Cat	N8 Dog	N8 Cat	F6 Dog	F6 Cat	F8 Dog	F8 Cat
Total REs	29	30	35	30	20	16	19	23
Lexical NPs	15	19	23	21	17	14	15	21
% lexical NPs	51.7%	63.3%	67.7%	70.0%	85.0%	87.5%	78.9%	91.3%
Overexplicit	4	3	4	4	3	5	5	4
Definiteness misuses	4	0	4	3	1	1	4	4
Pronouns	14	11	12	9	2	2	3	2
%pronouns	48.3%	36.7%	32.2%	32.2%	32.2%	32.2%	32.2%	32.2%
Null pronouns	0	0	0	0	1	0	1	0
Ambiguous	1	3	0	0	0	0	0	0
Other	5	1	0	0	0	0	0	2
Total Appropriate REs	15	23	27	23	15	10	9	13
	51.7%	76.73%	77.1%	76.7%	75.0%	62.5%	47.4%	56.5%

Note. 'Other' includes accessibility misuse and referent infelicity. N6 had 3 pronouns that were inaccessible - too distant from the referent, and 3 that were infelicitous for pronoun choice. F8 had 2 pronouns that were infelicitous with the referent.

4. General Discussion

The aim of this study was to analyse the macrostructure and microstructure of heritage speakers of English learning from either a native English speaking parent or non-native speaking parents. The case-study design and quasi-spontaneous story elicitation task allowed us to have a controlled context for analysing the differences in outcomes of narrative structure as well as linguistic features of morphology, vocabulary, syntactic complexity, and pragmatics and discourse features. The data illustrate that NH had a noticeably higher stage of narrative development than FH in story setting, complexity, and use of internal state items. This responds to part (a) of our research question as evidence that nativeness provides an advantage in the development of narrative structure at these ages.

The data also show that they had a higher average of novel morphemes and vocabulary items, as well as more clauses and C-units per story. We saw that NH had on average more appropriate uses of referring expressions than FH as well. This responds to part (b) of our research question to show that there is a noticeable difference in these linguistic features between the two experimental conditions. The findings were that not only did the NH have greater outcomes in these areas, but even the types of errors/misuses they made indicated a higher level of language development than the FH participants.

We found that though participants may make the same error, said errors could be caused by different stages in development. For instance, though two participants might mix past and present tense within one narrative, one might be doing it because they're developing embedded clauses and knowledge of how verb tense is carried through, while the other might do it because of underdeveloped narrative skills leading to producing a descriptive task instead.

To the question of the role of age, the data only show a potential positive age effect for NH in the MAIN scores, and closeness marking in pronouns, where the 8-year-old

performed better than the 6-year-old. We also saw a difference by age in the syntactic complexity measures but it was the 6-year-olds who showed greater complexity than the 8-year-olds. While this could be due to a methodological limitation, it could also be related to language attrition. Some studies have shown that attrition can happen in children who do not yet have a secure linguistic system, which can be related to their type and stage of bilingualism (Köpke & Schmid, 2004). If there is a shift in dominance (or balance), for instance immigration, beginning school, or a change in family/community structure, it can lead to attrition in the newly non-dominant language.

As we gather from the responses in the language background questionnaires, nativeness plays an important role in most of the input and output metrics. Nativeness of the parent unsurprisingly brings with it a network of other native speakers, albeit physically distant, such as grandparents, extended family, friends, an automatic inclination to consume English content, and more. Even in monolinguals, input by parents is only one part of the story, but they can be facilitators for the other sources of input, especially in school-age children. In the context of this study, we must consider that the nativeness of the parent and the extra-parental sources they facilitate, will directly impact the input quality and quantity that are so important for understanding their linguistic outcomes.

In the case of the participants of this study, the greatest input diversity was found in NS8 with 76.92% and followed by N6 53.85%. In terms of their development with respect to narrative ability, we can posit that this correlates to their greater number of story elements, narrative complexity, syntactic complexity, and also their use of discourse elements discussed. N8 and N6 also have greater output quantity as reported by parents than F6 and F8. We can posit this to correlate to their measures of TTRmor and TTRw.

On the use of pronouns 'it' and 'he/she' in telling a narrative, I also investigated productions of the parents on the MAIN task to see how the L2 and L1 speakers might

compare. An interesting finding is that both NS parents consistently used 'he/she' to refer to the cat and dog, and 'it' to refer to all other animals and items. The FS parent on the other hand used a mixture of 'it' and 'he' when referring to the cats and dogs, and like the NS, 'it' for all other animals. This could be related to the error in pronouns seen in F8 but also those in N6. While N6 has a native speaking mother, a portion of her input might still be coming from non-native sources. As Spanish and Catalan do not require overt subject pronouns, this could be an area where errors often occur in L2 speakers of English. This could have a greater impact on the development of the children than a single native parent's input has overcome to date.

One limitation of this study is that the productions used in analysis are very short. While we can still glean a wealth of information from them, generalisations would be more possible given longer narratives or different stories to narrate. Another limitation is that the 4 children have different languages outside of English, Catalan, and Spanish. N8 spent 3 years in France where she was exposed to and used a large proportion of French, and F8 was spoken to in Basque for the first 2 years of life. We cannot at this point assess what inhibitory/facilitatory effects these other language exposures might have on them today.

Further studies should seek to elucidate more ways heritage speakers might differ in their development of discourse-pragmatic skills from age-matched monolinguals. As pragmatics develops both with age and variety in language exposure/use, heritage speakers might be expected to lag behind monolinguals. Studies should also investigate whether using *psychological closeness* in choice of pronouns for animals is more consistent in native speakers than non-native speakers, and whether this case is mitigated by language level.

5. Conclusion

The goal of this paper is not to determine whether or not it is valuable to speak to children in a non-native language at home. While it is true that errors may be passed on, or that development likely follows a different trajectory than in age-matched monolinguals in that language, it is also true that communicative competence can go beyond some errors and still allow access to an additional culture. Instead, it is valuable for us to be aware of the differences in acquisition that heritage speakers are prone to to know what outcomes might need particular targeting for improvement if this is a route we chose to take.

Bibliography

Allman, B. (2005). Vocabulary size and accuracy of monolingual and bilingual preschool children. In *ISB4: Proceedings of the 4th International Symposium on Bilingualism* (Vol. 5, pp. 58-77). Somerville, MA: Cascadilla Press.

Barton-Hulsey, A., Sevcik, R. A., & Romski, M. (2017). Narrative language and reading comprehension in students with mild intellectual disabilities. *American Journal on Intellectual and Developmental Disabilities, 122(5)*, 392-408. https://doi.org/10.1352/1944-7558-122.5.392

Berman, R. A., & Katzenberger, I. (2004). Form and function in introducing narrative and expository texts: A developmental perspective. *Discourse Processes, 38(1)*, 57-94. https://doi.org/10.1207/s15326950dp3801_3

Benmamoun, E., Montrul, S., & Polinsky, M. (2013). Heritage languages and their speakers: Opportunities and challenges for linguistics. *Theoretical Linguistics*, *39*(3–4), 129–181. https://doi.org/10.1515/tl-2013- 0009

Bishop, D. (2003). *Test for Reception of Grammar* (TROG-2). London:Psychological Corporation

Castilla-Earls, A. P., Restrepo, M. A., Perez-Leroux, A. T., Gray, S., Holmes, P., Gail, D., & Chen, Z. (2016). Interactions between Bilingual Effects and Language Impairment: Exploring Grammatical Markers in Spanish-Speaking Bilingual Children. *Applied psycholinguistics, 37(5)*, 1147–1173. https://doi.org/10.1017/S0142716415000521

Cekaite, A. (2012). Child pragmatic development. *The Encyclopedia of Applied Linguistics.* https://doi.org/10.1002/9781405198431.wbeal0127

Carlucci, L., & Case, J. (2013). On the Necessity of U‑Shaped Learning. *Topics in Cognitive Science, 5(1)*, 56-88. https://doi.org/10.1111/tops.12002

Dunn, D. (2019). *Peabody Picture Vocabulary Test* (5th ed.). NCS Pearson.

Fichman, S., Walters, J., Armon-Lotem, S., & Altman, C. (2022). The impact of language dominance on Russian-Hebrew bilingual children's narrative production: Microstructure, macrostructure, and Internal State Terms. *Linguistic Approaches to Bilingualism, 12(4)*, 509-539.

Fichman, S., Walters, J., Melamed, R., & Altman, C. (2020). Reference to characters in narratives of Russian-Hebrew bilingual and Russian and Hebrew monolingual children with Developmental Language Disorder and typical language development. *First Language, 42(2)*, 263–291. https://doi.org/10.1177/0142723720962938

Gagarina, N. V., Klop, D., Kunnari, S., Tantele, K., Välimaa, T., Balčiūnienė, I., ... & Walters, J. (2012). MAIN: Multilingual assessment instrument for narratives. *ZAS papers in linguistics*, *56*, 155-155.

Gagarina, N. V., Klop, D., Kunnari, S., Tantele, K., Välimaa, T., Balčiūnienė, I., Bohnacker, U., & Walters, J. (2019). Main: Multilingual assessment instrument for narratives. *ZAS Papers in Linguistics, 56,* 155. https://doi.org/10.21248/zaspil.56.2019.414

Gilquin, G., & Jacobs, G. (2006). Elephants who marry mice are very unusual: The use of the relative pronoun who with nonhuman animals. Society & Animals, 14(1), 79-105.

Guasti, M. T. (2002). *Language acquisition : the growth of grammar.* MIT Press.

Hoff, E., Core, C., Place, S., Rumiche, R., Señor, M., & Parra, M. (2012). Dual language exposure and early bilingual development. *Journal of child language, 39(1)*, 1-27. https://doi.org/10.1017/S0305000910000759

Horton, W. S., & Keysar, B. (1996). When do speakers take into account common ground?. *Cognition, 59(1)*, 91–117. https://doi.org/10.1016/0010-0277(96)81418-1

Köpke, B., & Schmid, M. S. (2004). Language attrition. *Studies in Bilingualism*, 1. https://doi.org/10.1075/sibil.28.02kop

Lewin, B. A. (1987). Attitudinal aspects of immigrants' choice of home language. *Journal of Multilingual & Multicultural Development, 8(4)*, 361-378.

Lindgren, J., Reichardt, V., & Bohnacker, U. (2022). Character introductions in oral narratives of Swedish–German bilingual preschoolers. *First Language, 42(2)*, 234-262.https://doi.org/10.1177/0142723719897440

Lorusso, M. L., Galli, R., Libera, L., Gagliardi, C., Borgatti, R., & Hollebrandse, B. (2007). Indicators of theory of mind in narrative production: a comparison between individuals with genetic syndromes and typically developing children. *Clinical linguistics & Phonetics, 21(1)*, 37-53. https://doi.org/10.1080/02699200600565871

MacWhinney, B. (2000). The CHILDES Project: Tools for analyzing talk. Third Edition. Mahwah, NJ: Lawrence Erlbaum Associates.

Montrul, S. (2018). Heritage language development: Connecting the dots. International *Journal of Bilingualism, 22(5)*, 530–546. https://doi.org/10.1177/1367006916654368

Nippold, M. A., Vigeland, L. M., & Frantz-Kaspar, M. W. (2017). Metacognitive verb production in adolescents: The link to complex syntax. *Clinical Linguistics & Phonetics, 31(10),* 761-776. https://doi.org/10.1080/02699206.2017.1318953

Petersen, D. B., Gillam, S. L., Spencer, T., & Gillam, R. B. (2010). The effects of literate narrative intervention on children with neurologically based language impairments: an early stage study. *Journal of speech, language, and hearing research : JSLHR, 53(4)*, 961–981. https://doi.org/10.1044/1092-4388(2009/09-0001)

Polinsky, M. (2018). Heritage languages and their speakers (Vol. 159). Cambridge University Press.

Polinsky, M., & Scontras, G. (2020). Understanding heritage languages. *Bilingualism: Language and Cognition, 23(1), 4–20*. https://doi.org/10.1017/S1366728919000245

Rączaszek-Leonardi, J., Dębska, A., & Sochanowicz, A. (2014). Pooling the ground: Understanding and coordination in collective sense making. *Frontiers in Psychology, 5*. https://www.frontiersin.org/articles/10.3389/fpsyg.2014.01233

Rispoli, M. (1999). Case and agreement in English language development. *Journal of Child Language, 26(2),* 357-372. https://doi.org/10.1017/S0305000999003761

Rothman, J., & Treffers-Daller, J. (2014). A Prolegomenon to the Construct of the Native Speaker: Heritage Speaker Bilinguals are Natives Too! *Applied Linguistics, 35(1)*, 93–98. https://doi.org/10.1093/applin/amt049

Ryan, J. (2015). Overexplicit Referent Tracking in L2 English: Strategy, Avoidance, or Myth? *Language Learning, 65(4)*, 824–859. https://doi.org/10.1111/lang.12139

Unsworth, S. (2013). Current issues in multilingual first language acquisition. *Annual Review of Applied Linguistics, 33*, 21–50. https://doi.org/10.1017/s0267190513000044

Williams, S., Guijarro-Fuentes, P., & Vulchanova, M. (2022). U-shaped trajectories in an L2 context: Evidence from the acquisition of Verb Morphology. *Vigo International Journal of Applied Linguistics*, (19), 223–266. https://doi.org/10.35869/vial.v0i19.3764

49

Appendix A

Raw transcriptions of participants productions

N6dog

"One day there was a dog that saw the mouse and then the mouse went into a tree. And then he and the dog was going to get him then a per- then a person came then the dog, he hurts himselves and with the tree because he banged his head because he wanted to eat the mouse and then the then the um the the boy that was walking over there, the balloon escaped and the it was trapped in a tree, and the dog saw the food that he was bring and then he went to eat it and then he when the boy was checking his balloon and then he ate him when he had the balloon."

N6cat

"One day there was a cat that saw a butterfly and it was on a um plant that had spikes on it. And then it jumped for to take it and then it flew and then it the cat stuck into the he was stuck into the plant and then a boy came that was that had a ball and he had some fish that he caught and then he the ball went into the water then the cat saw the um the fish then when he was when the boy was checking the ball the cat um was checking the fish then when he got the ball the kid he uh the cat ate the fish."

N8dog

"Once upon a time at the park there was a dog. The dog saw the the a rat and he wanted to eat it. The rat hide, he hide in the tree and the dog chased him. And there was a hole in the tree that the rat can fit and the dog couldn't so he so he he he bumped his head in the tree. The boy came, there was a boy that has a balloon and the balloon went flying away to the tree and and he didn't know how to get it, get it out of the tree. And then he, the boy climbed up from the tree and the dog saw the bag with the bag with sausages and he eat it. And the boy could get the the balloon and he was happy."

N8cat

"Once upon a time by the river there was a cat. The cat saw a butterfly and he chased the butterfly. Then a boy came and the boy came with fish and the cat jumped the cat jumped… the bush and the prickles and he hurt himself. And the ball of the boy went in the river so and then the cat saw the fish and he wanted to eat it. And the boy, he got the the he got the ball with the fishing rod and he got it and he was happy and the cat was happy eating the fish."

F6dog

"Once upon a time there was a dog that had found a rat. Then the dog chased the rat until it went inside some woods of a tree. Then the dog had had tried to fit in but he couldn't. Then someone came with a bag full of sausages his and a balloon. Then the balloon flew up and got stuck in some branches of a tree. And when the person was trying to get the balloon, the dog ate the sausages up."

F6cat

"Once upon a time there was a cat had, that had found a butterfly. The cats chased it until the cat saw a fishingman. Then the cat saw that the fishingman had a ball. The ball bounced into the river. When the fishingman was trying to get the ball, the cat the cat got the fish and ate it all up."

F8dog

"The dog is looking at the gray little mouse. The dog is chasing the gray mouse. The dog crashed into a tree. Then a boy passed and the and its balloon got stuck in the tree. And then he got up the tree, got the balloon, and the dog wents into his bag. And the boy got the balloon and the boy and the dog was eating the food."

F8cat

"The cat um look at the yellow butterfly. Um, the cat jumped to chase the butterfly. And then the cat got stuck in a bush. Then a boy passed with fish and the ball. The cat go out of the bush but the ball went into the lake. Then the boy got its ball out with a fishing cane and the cat got the fish. Then the boy had the ball in its hand and the cat was eating the fish."

Appendix B
Summary of Participant Characteristics

	Participant			
Question	N6	N8	F6	F8
Age at testing	6;2	8;9	6;7	8;6
Birthplace	Barcelona, Spain	New York, USA	Barcelona, Spain	Barcelona, Spain
Age of English exposure	Birth	Birth	Birth	Birth
Age moved to Barcelona	n/a	5	n/a	2
Mother's first language	American English	Catalan and Spanish	Catalan & Spanish	Catalan and Spanish
Age of English exposure	Birth	6-12	6-12	6-12
Primary language spoken at child	English	Catalan	English	English
Father's first language	Catalan and Spanish	British English	Basque and Spanish	Basque and Spanish
Age of English exposure	6-12	Birth	11	11
Primary language spoken to child	Catalan	English	English & Spanish	English & Spanish
Home Language policy	OPOL	OPOL	None	None
Language spoken between parents	English	English	Spanish	Spanish
Language spoken between children	Catalan	Catalan	Spanish and English	Spanish and English
Parent rating of English comprehension	Average	Below average	Average	Average
Parent rating of English speaking	Average	Below average	Below average	Below average
Parental rating of Catalan	Excellent	Excellent	Average	Average
Parental rating of Spanish	Average	Average	Average	Average
Current schooling	Catalan	Catalan	Catalan	Catalan
Hours of English lessons at school	3	4	5	6-7
Hours of audiovisual English input	1-3	8-13	10+	10+
Preschool in English before 4;0	n/a	18 months	n/a	2 years bilingual

Appendix C

Summary of Feature Averages by Participant Group

Factor	NH	FH
MAIN (Totals)		
Story Setting	40	22
Story Complexity	12	4
Internal state terms	17	6
Morphology		
Total morphemes	109.75	73.25
Novel morphemes	45.75	38.5
TTRmor	0.406	0.526
Vocabulary		
Total words	107.75	70.5
Novel words	46	38.25
TTRword	0.425	0.544
Syntax		
Total clauses	17	9,5
Subordinate clauses	3.75	1.75
C-units	13	7.5
Subordination index	1.35	1.38
Discourse		
Total REs	31	19.5
Total pronouns	11.5	2.25
Percentage appropriate	70.6	60.35