

Sparkle in the Narratives of Kindergarteners

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A Thesis in the Department of Education
Presented in Partial Fulfillment of the Requirements
for the Degree of Master of Arts (Child Studies) at
Concordia University
Montreal, Quebec, Canada

August 2021

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CONCORDIA UNIVERSITY

School of Graduate Studies

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ABSTRACT

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Narratives play a significant role in communication and social interaction starting in early childhood. Narrative skills are also expected of children beginning in kindergarten and predict later literacy skills and academic outcomes. While much research has been devoted to the structure of children's stories, less attention has been devoted to their artfulness: the features of stories that make them sparkle and engage listeners. This study investigates how French-speaking children use artfulness in their narratives and how artfulness relates to language skill. Children ($N = 91$) in Quebec from two different kindergarten levels (K4 and K5, reflecting the age of kindergarten entry) were asked to tell a story using picture prompts from a published assessment tool. The stories were audiorecorded and transcribed, then coded for artfulness features (namely evaluation, appendages, and orientations), using a coding system adapted from Ukrainetz et al. (2005). The results showed that artfulness features, particularly evaluations, were used by all children. The older children (K5) included more artfulness features than the younger ones (K4), overall and within the subcategories of evaluation and appendages. The types of evaluations were also more varied in the older group. General language measures (the number and mean length of T-units, and the number of total and different words) were strongly correlated with the total number of artfulness features in the children's stories and the number and diversity of evaluations they included. I situate my results in relation to the rare studies of artfulness to date, discuss the implications of the findings, and outline directions for future research.

Acknowledgements

As the famous proverb goes, “it takes a village to raise a child” and, in many ways, writing this thesis felt like caring for one. I have the following people to thank for helping bring this thesis to fruition:

Firstly, my supervisor, Dr. Diane Pesco. My thesis would not have been possible without her continued guidance, and unwavering faith in me. Her understanding, patience, and encouragement were fundamental to my success as a graduate student, motivated me on my toughest days, and pulled me through to the end of this process. For this she has my utmost gratitude.

Dr. Nina Howe and Dr. Elsa Lo, both as my committee members and instructors, for their invaluable feedback, knowledge, and suggestions on how to improve my work.

The research assistants and students in Dr. Pesco’s lab: Anna Saint-Martin for her assistance in data collection, coding reliability, and other contributions to the project, and Dima Tajrine for helping with coding the data.

My mother, for being my first and greatest role model, for teaching me the value of an education. I also have her and my siblings, Edil, Eman, and Yussuf to thank for their love and support.

And finally, my friends, both near and far, who provided sympathetic ears, warm company, and welcomed distractions: In particular, Shannon and Auréliane, for their advice and assistance on matters both academic and personal; Meghan, for her sweet, thoughtful, and encouraging letters all the way from Calgary. They never failed to lift my spirits; and Pétéla, Lauren, Sarah, Ranbir, Radin, Alexandra, Cindy, Peter, Léa, Gabe, Benjamin, Alison, Elizabeth, and Nisha, for being genuinely good people to me.

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Introduction

The Importance of Narratives

Narratives have been described as an important means of communicating "lived or imagined events to others" (Schick & Melzi, 2010, p. 293). Scholars have shown that narratives play a significant role in communication and social interaction starting in early childhood. By the age of three years, most children can produce rudimentary accounts of their day-to-day experiences and relate their personal experiences in conversations with parents, siblings, and extended family members (Schick & Melzi, 2010; Wang et al., 2018). They also spontaneously tell short personal narratives to their peers (Stone, 1992). Furthermore, children of preschool age integrate narratives into sociodramatic play with other children as they enact scenarios and roles. Indeed, there is evidence that pretend or sociodramatic play enhances narrative skills (Nicolopoulou, 2007; Pesco & Gagné, 2017) as well as evidence that narrative skills predict the quality of preschool-age children's sociodramatic play (Malloy, 2020).

In addition to being relevant for social exchanges and play, oral narrative skills are often expected of children in the early years of schooling. In Quebec's Education Program, for instance, kindergarteners are expected to express themselves "orally in different ways" (Ministère de l'Éducation, 2017, p.12), and by the elementary years, they are expected to "write self-expressive, narrative and information-based texts" (Ministère de l'Éducation, 2012, p. 82). Additionally, the ability to tell a story is a component of large-scale assessments such as the Early Development Instrument (EDI) implemented with children 3.5 to 6.5 years (Janus & Offord, 2007) internationally and in Quebec (Institut de la statistique du Québec, 2017); when children lack the assessed skills they have been described as vulnerable. Finally, the availability of several narrative instruments (some of which are discussed later in the thesis) suggests that

narratives are often included in individual assessments aimed at detecting delays in language and communication during and beyond early childhood. On an individual level, teachers have used children's story retelling in the preschool context to form an idea of a child's literacy and language abilities (Shepard, 1997).

Narrative abilities also relate to later literacy and academic outcomes. In a longitudinal study, Griffin et al. (2004) examined the effects of oral narrative skills at age 5 years on written narrative comprehension and production at age 8. These ages were chosen for the developmental comparison because age 5 is an age where children typically begin formal education and are exposed to more explicit literacy instruction, and by age 8, most children are able to "produce and comprehend extended written texts" (Griffin et al., 2004, p. 126).

When the children were aged 5, Griffin et al. (2004) asked them to produce a play narrative involving toy animals. The play narratives were then analyzed for the number of narrative clauses, presence of *textual evaluations* such as adjectives and adverbs (e.g., great or bad); *performed evaluations* (such as onomatopoeia, stress, or repetition) which transmit the storyteller's judgments and feelings about what is being described; *character states* which illustrate what characters are thinking, feeling, or experiencing; presence of a climax or *high point*; resolution following the high point; and number of plot events.

At age 8, the same children were assessed for abilities in reading comprehension and writing. For the writing assessment, children wrote a story based on a series of three photographs and these were scored for quality using a system devised by the authors based on the stories of other 8-year-olds. The results showed that high points, resolutions, and plot events in the children's oral narratives at age 5 correlated with their written narrative scores at age 8. Additionally, textual evaluations and character states were highly correlated with one another as

were number of narrative clauses, textual evaluations, performed evaluations, and character states. Narrative clauses and number of plot elements were also correlated with one another. Furthermore, regression analysis revealed that textual evaluation and character states predicted reading comprehension skills. This study reveals that the creative choices children make in storytelling might foreshadow their academic future.

Given the role of narratives in children's social and academic lives and later outcomes, they have received a good deal of research attention. Much of this work has focused on the temporal order and plot structure of children's narratives (Schick & Melzi, 2010). There is less information available, however, about the features of children's narratives that might serve to engage listeners, make stories interesting and pleasing for listeners, and enjoyable for the narrator to tell: features that researchers have referred to collectively as "sparkle" (Glenn-Applegate et al., 2010, p. 469), "artfulness" or "expressive elaboration" (Ukrainetz et al., 2005, p. 1363). In this study, I explored these features in French-speaking children's stories in the preschool years, building on the limited number of studies in English described below. The terms artfulness and expressive elaboration will be used interchangeably in this thesis, following the authors' choice of terms. In addition to the aforementioned studies that overtly address artfulness, researchers have addressed some of the features (but not labelled them artfulness) by considering narratives from the perspectives of two prominent models of narrative: high point and story grammar.

Narrative Models

High Point

The work on artfulness has drawn particularly on the high point model (Ukrainetz et al., 2005). Originally proposed by sociolinguist William Labov, the high point model emphasizes

narrator's evaluations, defining these as linguistic and prosodic devices which connote the significance of the story events to the narrator or to the story character(s) (Reese et al., 2011). Peterson and McCabe (1983, cited in Zhang & Pesco, 2020) were the first to apply the high point model to children's narratives. As Peterson and McCabe explained, in the high point model a mature narratives consists of the following narrative elements: *abstracts*, defined as short and generalized summaries of the narrative; *orientations*, which include information about who the characters are in the story and information about the setting; *evaluations*, which transmit information about what the speaker thinks or feels about the characters, objects, locations, and events in the story; as well as resolutions and codas, which are events that immediately follow the climax and indicate the narrative's end. According to the high point model, these narrative elements provide a narrative with coherence; without them, narratives would be simply a series of events recounted in chronological order. More coherent and developed stories use high point elements to orient the listener to the spatial and temporal context, relate events to one another, surround the story's climax or "high point" with evaluation, and follow the high point with statements that either resolve a central problem in the story or wrap up unresolved events. Zhang and Pesco (2020) also examined characters' speech (dialogue or reported speech) in Chinese children's personal and fictional stories. This variable has been defined as an evaluation subtype in some studies (e.g., Zevenbergen reviewed next) and studied as a separate category in others.

Zevenbergen et al. (2003) examined evaluation in a study of 4-year-old children in Head Start classrooms who participated in a 30-week storytelling intervention and a 16-week phonemic awareness program. The Bus Story was used as a story prompt and basis for children's stories. Each child was presented with 12 images while the investigator told the story. Afterwards, the child was asked to retell the same story using the same pictures as support. The

evaluative devices examined in the stories included characters', narrators', or listeners' internal states (emotional or cognitive); qualifying comments; dialogue; mention of missing objects, events, or characters; causal "because" type statements. They found that the only evaluative elements children included were character internal states, causal statements, and dialogue, both before and after the intervention. T-tests established that children included more of these expressive elements at Time 2 than Time 1 for the first two elements, but no significant change was reported for dialogue. However, when language ability was controlled in a multivariate analysis, the results revealed that children receiving the intervention included more character internal states and dialogue at Time 2, while causal statements were not significant.

Story Grammar

The story grammar model is based on the idea that we possess a mental schema of narrative structure that guides our expectations for stories. According to the model, well-constructed stories involve actions that are driven by the goals of a central character (or characters), the character's attempts to achieve those goals, and their responses to conflicts within the story (Hedberg & Stoel-Gammon, 1986; Reese et al., 2011).

Key elements of a story according to the story grammar model include two that are particularly relevant to the present study: setting and internal responses. Setting is similar to orientation in the high point model. It involves key information about the time and location of events. Internal responses are indications of how a character is feeling or what they are thinking; thus, this category overlaps with the broader high point category of evaluation. Mature narrators coordinate these elements within and across story episodes. There is also research which suggests that children's development of story grammar elements evolves as they age; younger children may produce narratives that are just series of character actions, but older children

produce narratives that are more complete and structured in a way that is easier for listeners to comprehend (Schneider et al., 2006; Stein & Glenn, 1979 as cited in Zhang, 2019).

Schneider et al. (2006) used a story grammar model to examine children's narratives from ages 4 to 9, elicited with the Edmonton Narrative Norms Instrument used in my study and elaborated in the Method, which requires children to tell a narrative based on a series of related images (i.e., a story in pictures). Babar et al. (2013) have also examined narratives gathered with the instrument. They focused on the use of internal state terms, particularly emotional and cognitive states, by children aged 4 to 9 years old. Analysis showed that age predicted the use of emotional state terms but not cognitive state terms. The older children described the emotional experiences of characters more frequently than younger children, but the frequency of cognitive terms tended to stay consistent with age.

Artfulness Features Investigated Under Other Names

As discussed above, both high point analysis and story grammar, two models of narrative, contain features which can be considered artful or impact the perceived creativity of a narrative. Likewise, specific evaluative devices such as mental and emotional states have been explored considerably in the literature, and are thought to contribute to the expressive elements of a narrative. As mentioned above, emotional references and indications of characters goals are an important element of a story according to the story grammar model.

Internal state terms, which include emotion terms, have also been considered in studies of "literate language". Literate language is presented in these studies as a language style that is more advanced than the oral language used for everyday communication. Greenhalgh and Strong (2001) propose that oral language and literate language sit on either ends of a continuum where oral language, the more prevalent and highly contextualized language style, is positioned on one

end, and literate, more decontextualized language appears on the opposite end. The authors further suggest that literate language includes the use of mental and linguistic verbs and adverbs that contribute to the "richness of language used" (p. 115). They examined children's literate language (mental and linguistic terms as well as the number of conjunctions, elaborated noun phrases, and adverbs) in relation to a more traditional measure of lexical diversity, namely number of different words. Their results revealed a moderate correlation between the literate language and lexical diversity measures.

Narrative measures designed by researchers and administered by language specialists (such as speech language pathologists) to determine children's narrative ability also suggest that some degree of artfulness is expected from children. The Narrative Assessment Protocol is a narrative assessment tool that provides illustrations and texts that are read aloud to children. These are used to elicit story retells from children (Justice et al., 2009). Although the measure was not specifically designed to test for verbal creativity, expressive linguistic elements such as adverbs and adjectives are included in the total score for the assessment, based on studies of the measure's reliability and a factor analysis (Bowles et al., 2020). Assessment tools like the Narrative Assessment Protocol that are used by professionals to determine a child's narrative ability have thus integrated some artfulness features to a broader measure of narrative ability.

Artfulness is also present in discussions of storytelling performance, an aspect of narratives that may be considered separately from the structural elements of a story. In a study of children aged 3-4 and 6-8 years, Reilly (1992) examined how these two age groups compared on storytelling performance, as well as on the length and grammatical complexity of their narratives. Like many studies investigating story generation, each child was asked to tell a story based on a series of pictures. The stories were then analyzed for storytelling performance. This

variable included the following expressions of affect: characterization or quoted speech and evaluative comments (namely, references to characters' emotional and mental states as well as the narrator's judgements regarding characters' actions). Storytelling performance also included nonverbal expressions of affect, such as the narrator's facial expressions, gestures, changes in voice, and lexical and or phonological stress. Finally, story structure variables were analyzed, specifically the length of propositions (defined as any utterance or clause with a verb) and the number of story elements or events. Reilly's findings revealed that both groups expressed affect verbally at similar rates (i.e., they were not significantly different). However, older participants told longer stories that included more story events than younger participants. Additionally, younger children produced more nonverbal affective strategies, such as facial expressions and gestures. Perhaps the younger children were recruiting more evaluative devices overall to compensate for their still developing skills in articulating narrative events.

The inclusion of expressive elements in the story grammar and high point models and in the research literature on literate language, narrative assessments, and storytelling development suggest considerable overlap between what researchers and experts consider to be the fundamental components of a narrative and artfulness or expressive elaboration. Aspects of artfulness such as appendages, orientations, and evaluations feature heavily in the high point model, while a specific form of evaluation (internal responses or states) plays a key role in story grammar. However, adopting artfulness as a lens for analyzing children's narratives allows us to shift the focus from story structure to the ways children individualize their stories and engage listeners. In everyday life, children tell stories not only to transmit information but also to express themselves and affect others (e.g., by surprising or amusing them). In other words, artfulness allows us to appreciate stories in light of their social function.

Artfulness and Narrative Development

As with many other areas of children's development, children are assumed to make strides in the quality of their narratives as they grow older. Artfulness in oral narratives appears to rely partly on language and is likely tied to development in other areas, such as social cognition. To elaborate, Bruner (1986, as cited in Pelletier & Astington, 2010) proposed that narratives consist of both landscapes of action (the plane upon which story plot and elements occur) and landscapes of consciousness (explanation of character's internal states such as their emotions, thoughts, and motivations). This means that narratives involve action sequences that are driven by and underscored by character's internal states. For children to establish the landscape of consciousness, they must first grasp that individuals have mental states (desires, emotions, thoughts, beliefs, and goals) and that these may be different from their own. This knowledge is part of *theory of mind* which develops considerably in the preschool years, and includes an understanding of even false belief by age 4 (Astington & Edward, 2010). Given this development, it makes sense that children will refer increasingly to narrative characters' mental or emotional states during the preschool years.

Previous Artfulness Studies

Artfulness, sometimes referred to as expressive elaboration or "sparkle" has also been the focus of a small set of studies. I have identified three studies devoted specifically to artfulness or elaborative expressiveness in children's narratives. In the first one, conducted by Ukrainetz et al. (2005) the narratives of 293 children aged 5 to 12 years old were examined. Each child was asked to produce an oral narrative based on five illustrations. The narratives were transcribed, coded, and analyzed by age group (5-6, 7-9, and 10-12 years). The coding system consisted of three main categories of expressive elaboration: (a) appendages, which encapsulate the story and

thus cue listeners to the story's meaning; (b) orientations, which provide details about characters, their features, and their relationships with one another; and (c) evaluations, which comprise various devices for enriching the story, including adverbs, adjectives, and references to characters' internal states. Interestingly, researchers have examined the last three features in terms of the creativity they add to children's pretend play scenarios (Howe et al., 2014). In fact, play is so closely tied to narratives that it has been used as a narrative prompt or elicitation strategy such as in the Griffin et al. (2004) study previously summarized.

Ukrainetz and colleagues' findings revealed that at all ages, the vast majority of children used some type of expressive elaboration (i.e., evaluations, orientations, or appendages). However, the older children produced more expressive elaboration than the younger children overall, and more evaluations, the most frequent category in all age groups. Moreover, within the evaluation category, adjectives and adverbs were the most frequently occurring subtypes and followed a developmental trend. Children in the youngest age group (aged 5 to 6 years old) included adjectives and adverbs 60% of the time in their narratives, while older participants (7 years and older) included them 90% of the time. Internal states followed a similar trend, with the younger children including fewer internal state words than the older children. However, even the 5- to 6-year-olds used at least some such words (2 on average) and included both emotional terms (e.g., mad, miserable) and cognitive state words (e.g., thought, decided).

Ukrainetz and Gillam (2009) continued their exploration of children's expressive elaboration in a study comparing 6- and 8-year-old children with "typical language development" (TLD) to peers with specific language impairment (SLI), a group reported to produce less coherent and lower quality stories according to previous studies. Using a slightly modified version of the coding system described above (Ukrainetz et al., 2005), the authors scored each

child's narrative for expressive elaboration (1 point for each instance), but maximized the number of points a child could receive. For example, even if an evaluation subtype occurred multiple times throughout a story, a child was awarded a maximum of two points to control for differences in narrative length. Across the two groups (TLD and SLI), the 8-year-olds consistently received higher expressive elaboration scores than the 6-year-olds. The researchers additionally found that the 8-year-old participants with SLI resembled the 6-year-olds in the TLD group. Together, these results indicate that children of varying language ability use expressive elaboration in their stories, but that language ability plays a role in its production.

Glenn-Applegate and colleagues (2010) subsequently examined expressive elaboration, referring to it as artfulness, in narratives told by 43 4-year-olds. They adopted the coding system described above (Ukrainetz et. al., 2005; Ukrainetz & Gillam, 2009), with minor modifications. As shown in the studies of older children by Ukrainetz and colleagues, the rates of expressive elaboration were high (present for 97.6% of the children) and evaluations were again particularly common (Glenn-Applegate et al., 2010). In addition, the authors examined elaboration in relation to language measures derived from the narratives: namely, mean length of T-units (i.e., independent clauses and any dependent clauses attached to them), lexical diversity within the narratives (as indicated through number of different words), and productivity (total number of T-units). Researchers also administered a subtest of a standardized language assessment to determine participants' overall language capabilities. Analysis showed that expressive elaboration within the narratives was moderately to strongly correlated with these other measures of language. Additionally, all the measures just mentioned were entered into a hierarchical regression analysis to see if they predicted vocabulary, grammar, and morphology subtests of a standardized language test and whether artfulness contributed unique variance to the results,

above and beyond the language measures derived from the narrative samples. The authors found that expressive elaboration accounted for 14.7% of the total variance for the vocabulary subtest scores. Comparatively, the analysis revealed that artfulness had little impact on the variance of morphology scores (6.5% of the variance) and did not significantly account for the variance of grammar subtest scores. These findings support the idea that expressive elaboration and language skills, particularly lexical skills, overlap to some degree. Following from this idea, expressive elaboration might be best seen as the child's integration of language skills with their knowledge of narrative features.

The Present Study

This study explored artfulness features in stories told by 4- and 5-year-old children attending kindergarten in French-language schools in Quebec (mainly children learning French as a first language). The data come from a larger research project by my research supervisor involving professional development for teachers to support kindergarteners' storytelling and dramatization of stories with peers (funded by the Ministry of Education and the Fonds de recherche du Québec - Société et culture).

Unlike many existing studies, my study did not examine plot, sequencing of story events, or narrative cohesion. Instead, it focused on how children tell stories and use their language to add "sparkle". To the best of my knowledge, my study is the first to examine artfulness in the narratives of French-speaking children. Additionally, there are no studies examining 4- to 6-year-olds' stories for artfulness in the literature; Glenn-Applegate and colleagues studied 3- to 4-year-olds while other researchers have studied older children (Ukrainetz & Gilliam, 2005) or children across a large age range, beginning at age 5 (Ukrainetz et al., 2009). One aim of this study, then, will be to explore how children make use of creative elements in their stories during an eventful

period of narrative development, ages 4 to 6 (McCabe & Rollins, 1994). The following research questions will be addressed:

- 1) Which features, claimed to lend sparkle to children's stories, do French-speaking children enrolled in K4 or K5 use? (K4 and K5 refer respectively to the first and second level of kindergarten in Quebec; see Method). How do these features relate to the findings of previous research (i.e., Ukrainetz et al., 2005; Glenn-Applegate et al., 2010)?
- 2) Do artfulness features vary by kindergarten level? Based on evidence of developmental trends in both younger and older samples (Glenn-Applegate et al., 2010; Ukrainetz et al., 2005), I expect the older children in K5 to use a greater number and diversity of features.
- 3) Do the artfulness features correlate with language measures taken from the story, specifically number of T-units (a measure of syntax), mean length of T-units, total number of words, and number of different words? Based on Glenn-Applegate et al.'s findings, I expect there to be a positive relationship between the artfulness score and these three variables.

Method

Participant Characteristics

The current study was covered by the research supervisor's ethics approval for the larger study described above, for which there were no exclusionary criteria; children were welcome to participate if their parents gave consent and they themselves assented to participation. All of the children in the current study met these criteria.

Participants ($N = 91$) were recruited from kindergarten classes in schools within the province of Quebec. The schools all offered instruction in French, the provincial official language, and were located in various regions (semi-rural to urban, but all outside the central

metropolitan area of Montreal).

The Quebec government provides an index of socioeconomic risk for each school in the province based on data about the families the school serves; in French, the index is named the Indice de milieu socio-économique (IMSE). The index is a decile ranking of 1 to 10 based on the level of maternal education and unemployment of the parent(s) during a given period, variables which the government states are associated with school achievement. Higher scores indicate higher levels of risk and disadvantage (Ministère de l'Éducation, 2021). In my study, the children in K4 all attended the same school ranked 6, and the children in K5 attended various schools, with an average ranking of 6.8; thus, the groups were roughly similar in terms of the indicators of socioeconomic risk (Ministère de l'Éducation, 2019; 2020).

Participants had an average age of 64.94 months (range 53.62 - 73.82 months) at the time the data were collected (late fall or early winter, depending upon the school). The children were grouped by kindergarten level: K4 (referred to in French as "maternelle 4 ans") or K5 ("maternelle" or "maternelle 5 ans"). To enroll in kindergarten classes, children must reach a specified age by September 30th of the school year (4 years old for K4, 5 years old for K5). Participants in the K4 group ($n = 27$, 11 female) had a mean age of 59.92 months at the time of testing (range 53.62 – 71.59). Participants in the K5 group ($n = 64$, 34 female) had a mean age of 67.06 months (range 61.54 – 73.82). An independent samples t-test showed that children in the K5 group were significantly older than those in the K4 group, as expected $t(88) = 8.67, p < .001$.

Most participants spoke French as their first language ($n = 81$) while 10 participants, all from a single school, were French second language learners according to a parental report of children's language exposure and use (See Appendix C).

Measures and Procedure

Storytelling Measure

I examined audiorecorded and transcribed narratives elicited from children using the Edmonton Narrative Norms Instrument (ENNI) (Schneider et al., 2006). The ENNI is a standardized measure with norms for Canadian English-speaking children that has also been adapted to French in Quebec (Thordardottir et al., 2010). The measure was administered as a pretest in the larger study of storytelling noted above, but due to the suspension of research during the pandemic, no posttest data could be collected.

The stories were elicited in an individual session by a French-speaking research assistant (RA). As per the protocol outlined in the ENNI manual, the story task was preceded by a practice story where children were presented with a series of images depicting narrative events and asked to generate a story. During the practice phase, the RA provided assistance and prompting to the children as needed, following a script in the ENNI manual. Then, each child was presented with 14 black and white pictures which depict a narrative (the ENNI "A3" picture set) and were asked to generate another story. The cartoon-like images show a giraffe and an elephant playing with a toy airplane beside a pool, the elephant dropping the airplane into the pool, and various characters subsequently attempting to retrieve the toy. Figure 1 shows one of the images.

Figure 1

Sample Image from the ENNI A3 Picture Set (Schneider et al., 2005)



© Wooket Graphics, 2000

The RA presented the pictures to the child one by one, and then allowed the child to peruse them at their own pace while telling their story. As per the ENNI guidelines, the child telling the story was reminded that the assistant could not see the pictures (a procedure intended to encourage fuller stories). Each story was audio recorded on a tablet or smartphone then transferred daily to a secure server and purged from the recording devices.

Transcription and Coding for Artfulness

Each story was transcribed from the audio recording by a trained RA, using the *Codes for the Human Analysis of Transcripts* (CHAT), a set of conventions for transcription that is compatible with *Computerized Language Analysis* programs (CLAN) designed to analyze children's speech and language (MacWhinney, 2000). I coded each transcript line-by-line, implementing an adapted version of the coding system used by Glenn-Applegate and colleagues (2010, pp. 491-492) (summarized above) and originally designed by Ukrainetz and colleagues (2005, pp. 1368-1369). I implemented the coding using a CLAN function that allows one to select codes from a dropdown menu created by the user and count frequencies of codes automatically, thus reducing human error. I listened to the appropriate audiorecording while coding each transcript and in situations where I questioned the transcription, I made a note. At the ending of coding, I notified my supervisor of any questions regarding the transcriptions. Following our discussion, my supervisor and a research assistant, who both have a stronger command of the French language, reviewed the audio files and adjusted the transcriptions accordingly. Following the adjustments, my supervisor and I met to resolve any changes in the transcripts that might impact the artfulness coding. A sample transcript showing the CHAT conventions and the CLAN coding is provided in Appendix D.

My adapted coding system had three major categories: Appendages (APP), Orientations

(ORI), and Evaluations (EVA), each of which had several subcodes. The full coding system is provided in Appendix A. I removed the subcode for "stress" used in past studies as I was unable to identify a system for reliably coding this feature without acoustic analyses (the previous studies appeared to use only subjective judgments of stress, which the literature suggests are not reliable). In the evaluation subcategory *internal states*, I consulted a list of internal state terms provided in English by Recchia and Howe (2011) to code for equivalent terms in French. I also further coded the internal states as goals and attempts, desire and emotional states, or cognitive internal states. Unlike previous coding systems, I included three novel evaluation subcodes: figurative language, attention words, and verbs. For the verb coding, I initially coded verbs that seemed to me to be rare or infrequent, and later confirmed the coding using a database of verb frequencies in French (see Results for details regarding the database).

After coding for artfulness, I trained a second coder, a research assistant in Child Studies and a simultaneous bilingual French-English speaker, to establish intercoder reliability. The assistant coded 18% of the data, randomly selected from the larger set of data. During reliability coding between the two coders, it became apparent that there were discrepancies between coders on the verb subcategory and this revealed the need for a minor adjustment to the coding (namely, to include some relatively low frequency verbs that were initially not coded). Any disagreements in coding were resolved via discussion between me and the second coder.

Cohen's kappa was calculated by entering data from both coders and formulas in Excel for all artfulness codes except for verbs (for the reasons stated above). Cohen's kappa is defined as a "numerical index that reflects the degree of agreement between two raters ... corrected for the level of agreement expected by chance alone" (American Psychological Association, n.d.). According to conventions for interpreting Cohen's kappa, "values range from 0 (no agreement) to

1 (perfect agreement), with kappas below .40 generally considered poor, .40 to .75 considered fair to good, and more than .75 considered excellent" (American Psychological Association, n.d.). The results revealed a kappa value (κ) of .81, indicating excellent agreement between my coding decisions and those of the second coder.

Language Measures

In addition to coding each transcript for artfulness (i.e., "sparkle"), I examined more general measures of language ability in my analysis of each transcript. To be exact, I calculated the number of terminable units (T-units); the mean length of T-units in words (MLTU); the total number of words (TNW); and the number of different words (NDW).

A T-unit consists of an independent clause as well as any related dependent clauses and, in children, is considered a measure of syntax (Schneider et al., 2006). For example, in English an utterance with a simple structure such as "*She saw his plane.*" would be considered a T-unit as would an utterance with more complex syntax such as "*He was angry because he dropped it.*" (Schneider, 2003). MLTU is the average length of children's T-units in words and is also considered an indicator of syntactic development. While utterance length is sometimes counted in morphemes, morpheme-based counts have been found to correlate with word-based counts for French-speaking children in Quebec (Thordardottir, 2005). Finally, TNW and NDW are measures of lexical diversity. NDW is typically calculated as the number of word roots in a given language sample. The four measures and their treatment in the present study are elaborated immediately below.

Coding and Calculating T-units, MLTU, TNW, and NDW

Each transcript was coded for T-units based on methods and conventions proposed by Eisenberg et al. (2008) and Lê and Mozeiko (2007). T-units were defined as the shortest

grammatically coherent utterance a child produced, alone or along with any dependent clauses (see Appendix B for the T-unit coding rules). Following training by me, a French-speaking research assistant examined all of the child's utterances within the ENNI narrative transcript for the presence of T-units and marked each T-unit with a symbol [^c] recognized by the CLAN programs. Since this kind of coding was new to our research team, my research supervisor subsequently reviewed all of the T-unit coding while listening to the audiorecordings of the children's ENNI stories. My supervisor agreed with 87% of the original T-unit coding; the disagreements were nearly all due to the supervisor coding additional clauses that the assistant had skipped due to ambiguities (e.g., reformulations or unintelligible utterances) in the transcription that the supervisor resolved. The number and mean length of T-units was then calculated for each participant using the CLAN software frequency program (freq command).

Total number of words (TNW) was also calculated for each child using the CLAN frequency program. For this count, some words or vocalizations were ignored via marking in the transcript: fillers such as "ben" or "umm", onomatopoeia, dysfluencies, phonological fragments, or words a child abandoned and reformulated. This is standard procedure in calculating TNW.

Finally, NDW was calculated, again using the CLAN software. First, the CLAN programs were used to generate a comprehensive list of words used by the children, collapsing across individuals. From this list, a smaller list of word roots was determined. For example, singular and plural versions of nouns (e.g., l'éléphant, les éléphants) were counted together as one word root. A similar distinction was made for verbs. Regular form verbs were considered one root no matter the conjugations for tense or person; however, irregular form verbs were considered separately, with each form counted as a single word root.

Results

Approach to Data Analysis

Frequency scores for the main artfulness elements (EVAL, APP, ORI) and the categories combined (i.e., the Total) were first assessed for normality of the variables and of the unstandardized residuals, each of which can be used to meet the assumptions for the independent samples t-test or ANOVA. Visual inspection of the histograms, skewness and kurtosis statistics, and Shapiro-Wilk tests of normality for the K4 and K5 groups indicated that the major artfulness variables (EVA, ORI, APP, and TOTAL) were not normally distributed in either group. A nonparametric statistic (Mann-Whitney U) was subsequently considered for between group comparisons, but the data also failed to meet one of the assumptions (symmetry of distribution in the two groups).

Given the limitations just described, I took the following approach to analysis. First, I transformed the EVA, ORI, APP, and TOTAL variables using a log10 transformation. This resulted in an adequately normal distribution for the EVA and TOTAL variables, and homogeneity of variance for the two groups, thus allowing for a between group comparison with parametric statistics. The APP and ORI continued to be non-normally distributed even when transformed, likely due to the prevalence of many zero frequencies in the data. I thus calculated and report only descriptive statistics for these two variables, noting patterns of findings in the text. To examine the relationship of the children's age to these variables, I report Spearman (nonparametric) correlations in a separate step. Additionally, I conducted chi-square tests to determine the relationship between the proportion of children who used an artfulness element at least once and group (K4 or K5). The reports of these chi-squares are reported when appropriate in the results below. Evaluations were excluded from the chi-square analyses because every child

in my sample produced at least one evaluation during the course of their narrative; therefore, the proportion of children who used an evaluation in K4 and K5 was equal (100%).

Artfulness Elements

The average frequencies of the main artfulness elements are provided in Table 1. As Table 1 shows, considering the three artfulness categories, the children produced evaluations most often. Independent samples t-tests (two-tailed) on the transformed variables further showed that the K4 group used fewer evaluations, on average, than the K5 group: $t(89) = 2.04, p = .044$, and fewer artfulness features overall (i.e., Total) $t(89) = 3.04 p = .003$.

Table 1

Frequency of Artfulness Elements: Main Categories and Total by Group

	K4		K5	
	Mean	SD	Mean	SD
Evaluations	9.37	4.81	11.72	5.56
Appendages	.07	.27	.61	.63
Orientations	1.26	1.10	1.78	1.52
Total	10.70	5.20	14.11	5.90

Evaluations

The frequencies for the subcategories of the evaluation categories are provided below in Table 2, by group. To test for between-group differences (K4 vs. K5), independent samples t-tests were conducted for subcategories with a mean of 1 or more for either the K4 or K5 group (see Table 2). The remaining subcategories (i.e., with a mean of less than one, indicating a low prevalence rate) were excluded from the t-test analysis.

As Table 2 shows, the most prevalent type of evaluation for both groups was reference to internal states, specifically desires (Il voulait le prendre / He wanted to take it) or emotions (Il

était fâché / He was mad). Counter to the overall trend, where older participants produced more total evaluations than younger children, the descriptive statistics suggested that K4 participants included slightly more instances of emotional and desire states in their stories than K5 participants. However, an independent t-test comparing the two groups was not significant for this subcategory, $t(89) = 0.88, p > .05$.

Table 2

Evaluation Subcategories by Group (in Order of Frequency)

	K4		K5	
	Mean	SD	Mean	SD
Emotional State Words	4.44	2.65	3.98	2.12
Verbs	1.44	1.45	1.28	1.30
Adjectives	1.19	1.84	1.41	1.31
Goal and Attempt Words	.85	.82	1.34	.88
Adverbs	.70	.91	1.14	1.63
Dialogue	.48	.85	1.20	2.74
Cognitive State Words	.15	.46	.39	.77
Beyond the Page	.07	.39	.41	1.08
Humour	.04	.19	.17	.68
Repetitions	.00	.00	.14	.59
Attention Words	.00	.00	.14	.66
Interjections	.00	.00	.05	.21
Figurative Speech	.00	.00	.03	.18

Compared to evaluations, the other internal state subcategories I examined were less frequent; participants produced fewer references to goals or attempts such as *Il a essayé de l'attraper* (He tried to get it) and even fewer cognitive internal state references like *Il a réfléchi à qu'est-ce qui pouvait faire* (He thought about what he could do). These two internal state

subcategories, however, did follow the general age trend where older children included more instances of each than younger children. A t-test comparing K4 and K5 groups on use of goal or attempt words (ISG) was significant, $t(89) = 2.49, p = .015$. As indicated above, cognitive internal states were excluded from t-test analysis due to their low frequency rates.

All words coded as internal states were extracted from the transcripts using the CLAN program. Table 3 displays all the emotional state words that occurred more than once.

Table 3

Emotional State (ISE) Words (in Order of Frequency)

Emotional State Word	Count
content (<i>happy</i>)	95
fâcher (<i>to be angry</i>)	76
vouloir (<i>to want</i>)	68
pleurer (<i>to cry</i>)	36
triste (<i>sad</i>)	12
surpris (<i>surprised</i>)	11
aimer (<i>to like</i>)	9
avoir peur (<i>to be scared</i>)	8
colère (<i>angry</i>)	7
gêné (<i>shy, embarrassed</i>)	5
rire (<i>to laugh</i>)	3
adorer (<i>to love</i>)	2
choquer (<i>to shock</i>)	2
fier (<i>proud</i>)	2
heureux (<i>happy</i>)	2
jaloux (<i>jealous</i>)	2

The following were the emotional state words that appeared in the narratives only once: désoler (*to feel sorry or apologize*), étourdir (*to be dizzy*), avoir hâte (*look forward to something*),

impressioner (*to be impressed*), avoir la peine (*to be sad*), sourire (*to smile*), inquiète (*worried*), and méchant (*mean*).

Tables 4 and 5 display all the cognitive state words as well as words related to character goals and attempts to achieve a goal.

Table 4

Cognitive State (ISC) Words (in Order of Frequency)

Cognitive State Word	Count
savoir (<i>to know</i>)	4
penser (<i>to think</i>)	2
croire (<i>to believe</i>)	1
decider (<i>to decide</i>)	1
réfléchir (<i>to think, reflect</i>)	1

Table 5

Goal or Attempt (ISG) Words (in Order of Frequency)

Goal or Attempt Word	Count
essayer (<i>to try</i>)	93
chercher (<i>to look for</i>)	33
trouver un idée (<i>to have an idea</i>)	6

After emotional states, the next most frequent type of evaluation children engaged in was verbs. This subcategory was one I created to reveal the interesting and novel ways children described the actions, states, and incidents in their stories using low frequency verbs. Based on the means, the younger K4 participants on average appeared to include more of these types of verbs in their stories than K5 participants. However, the t-test was nonsignificant, $t(89) = .51, p > .05$. While there are no databases that we are aware of that report word frequencies in children's language in French, a database compiling word frequencies from children's books in

French does exist (Ministère de l'Éducation Nationale de la Jeunesse et des Sports, 2020). All of the words coded as verbs in my study are relatively low frequency according to this database.

Table 6 presents all instances of verbs that occurred more than once (a full list is provided in Appendix E). The verbs are listed in their infinitive form and adjectives in their masculine singular form. Various forms (i.e., past, present or future tense) of a verb with a shared root were grouped together and entered as a single word.

Table 6

Low Frequency Verbs (in Order of Frequency)

Low Frequency Verb	Count
redonner (<i>to give back</i>)	11
couler (<i>to sink</i>)	10
expliquer (<i>to explain</i>)	7
rattraper (<i>to catch</i>)	7
ramasser (<i>to pick up, to collect</i>)	6
arracher (<i>to pull, wrest, extract</i>)	5
envoler (<i>to launch</i>)	5
enlever (<i>to remove</i>)	4
plonger (<i>to dive, sink</i>)	4
caler (<i>to submerge in liquid</i>)	3
chicaner (<i>to argue</i>)	3
partager (<i>to share</i>)	3
tirer (<i>to pull</i>)	3
briser (<i>to break</i>)	2
mouiller (<i>to soak</i>)	2
recupérer (<i>to recover, retrieve</i>)	2
reprendre (<i>to reclaim</i>)	2
étirer (<i>to stretch</i>)	2

Adjectives, adverbs, and dialogue were also codes that had mean averages of, or over, one and were therefore subject to individual t-tests to determine if the means for these codes differed by group. A t-test determined that the mean frequency of adjectives was not

significantly different between K4 and K5 participants, $t(89) = .65, p > .05$. The t-tests for adverbs and dialogues were also not significant: adverbs $t(89) = 1.31, p > .05$; dialogues $t(89) = 1.34, p > .05$.

Orientations

Orientations were the second most prevalent artfulness feature. As presented in Table 7 immediately below, K4 participants produced slightly fewer of these than K5 participants.

Table 7

Orientation Subcategories by Group (in Order of Frequency)

	K4		K5	
	Mean	SD	Mean	SD
Relationships	.89	.93	1.20	1.10
External Conditions	.30	.47	.19	.39
Personality Features	.07	.27	.36	.74
Names	.00	.00	.02	.13

As the reader will recall, orientations could include references to characters' traits, names, personal features and character traits (hereforth referred to as *personality features*), and relationships with others. Within this category, descriptives statistics revealed that references to relationships between characters like *mère* (mother), *père* (father), *frère* (brother), and *ami* (friend) and job positions such as *la sauvegarder de la piscine* (lifeguard) were included more often and more frequently by the older participants than the younger ones. All other orientation codes on average appeared less than once during stories for both age groups. Orientations to physical locations, such as *la piscine* (the swimming pool) were provided more often by K4 children than K5, while characters' personality features such as *le grand éléphant* (the big elephant) occurred more often in stories told by older participants than younger ones. Finally,

names were an extremely rare occurrence in the sample and were only included by one participant in the K5 group (participant SM 12). A chi-square test of independence was conducted to determine if the percentage of children producing orientations was associated with group. The result was nonsignificant, $\chi^2(1) = .06, p > .05$.

Appendages

The least frequently occurring element was appendages, which as previously described are the elements that traditionally frame a story and indicate when a story begins and ends. As shown in Table 8, children in K4 did not produce introductions or abstracts at all. The older participants used introductions most (these comprised 70% of all appendages) but produced all three appendage subtypes at low rates, with abstracts only included by one K5 child and endings by only 28 K5 children. A chi-square test of independence was conducted to determine if the percentage of children producing appendages was associated with group. The result was significant, $\chi^2(1) = 16.6, p < .001$. A higher proportion of children in K5 than K4 produced appendages: to be exact, 2 children in the K4 (7%) and 34 children in the K5 group (53%).

Table 8

Appendage Subcategories by Group (in Order of Frequency)

	K4		K5	
	Mean	SD	Mean	SD
Endings	.07	.27	.16	.37
Introductions	.00	.00	.44	.50
Abstracts	.00	.00	.02	.13

Correlations of Artfulness Frequency, Diversity, and Group

A Spearman rank order correlation revealed that group (K4 and K5) was significantly correlated with the major artfulness categories of evaluations $r_s = .23, p < .05$, and appendages r_s

= .43, $p < .05$, but not orientations. The total artfulness score based on these three sub-categories of artfulness elements were also significantly but weakly correlated with group, $r_s = .33, p < .05$.

Further correlational analyses determined that within the evaluation category, the beyond the page ($r_s = .21, p < .05$), and internal states referencing goals and attempts ($r_s = .26, p < .05$) were significantly and weakly correlated with group. Within the appendages category, introductions ($r_s = .43, p < .05$) were also significantly and weakly correlated with group. All other subcategories were not significant. Analysis based on the children's age in months yielded similar results.

Diversity of Artfulness Features. The number of different types of artfulness elements within the categories of evaluations, orientations, and appendages a child produced was also calculated. This variable, henceforth referred to as diversity, was calculated by tallying up the number of different features within a category that a child produced at least once during their story. For example, if a child included only three out of the 11 possible evaluation codes, their diversity of evaluation code would be three. Once the diversity variables were calculated, they were tested for normality in the same way the frequency variables were tested as described above. The diversity variables were also not normally distributed for the K4 or K5 group. The diversity of the evaluation and orientation variables fulfilled all the assumptions for nonparametric analysis. Unfortunately, the diversity of appendages variable did not meet the assumptions and therefore was not tested; instead, descriptive statistics are reported.

As Table 9 shows, K5 children produced a greater variety of evaluative, appendage, and orientation subcategories than their K4 counterparts. A Mann-Whitney U test was conducted to compare the groups. The results revealed a significant difference between the K4 and K5 groups for diversity of evaluations, $U = 575.0, p = .011$, favouring the K5 group. A second Mann-

Whitney test was run on the diversity of orientation categories but did not reveal a significant relationship ($U = 697.5, p > .05$) or difference between K4 ($Mdn = 1$) and K5 ($Mdn = 1$). As explained above, the data for appendages was not further analyzed.

Table 9

Diversity of Artfulness Elements (Number of Subcategories) by Group

	K4		K5	
	Mean	SD	Mean	SD
Evaluation Diversity	3.89	1.28	4.81	1.57
Appendages Diversity	.07	.27	.59	.61
Orientation Diversity	.96	.71	1.09	.85

Language Measures

Language Measures by Group

The transcripts were also coded (see Methods section) in terms of the following language measures: number of T-units, mean length of T-Units (MLTU), total number of words (TNW), and number of different words (NDW). The mean scores are presented by group in Table 10.

Table 10

Language Measure Scores Derived from Narrative, by Group

	K4		K5	
	Mean	SD	Mean	SD
Number of T-units	12.74	5.10	16.67	4.70
Mean Length of T-units	6.53	1.54	7.35	1.40
Total Number of Words	86.89	45.01	122.73	45.38
Number of Different Words	35.85	13.44	48.39	13.40

The K4 and K5 groups were compared on each variable in Table 7 using an independent samples t-test or a nonparametric alternative (Mann Whitney U) when the variable was not

normally distributed in one or both groups. These results follow, along with ranges for the variables regardless of group.

For the number of T-units, collapsing the data across the two groups, the range of values was wide, with some participants producing only a single T-unit and others producing as many as 30 T-units. A Mann Whitney U test revealed that the K5 group ($Mdn = 16$) produced more T-units than the younger K4 participants ($Mdn = 13$): $U = 1269.0, p < .001$. For MLTU, values ranged from 3.50 to 10. As was the case for the T-units, the MLTU scores were significantly higher in the K5 group than in the K4 group $t(89) = 2.50, p = .014$.

TNW scores for the entire sample ranged dramatically from 4 to 248, and scores in the K5 ($Mdn = 114.5$) group were again significantly higher than the K4 group ($Mdn = 87; U = 1243.5, p = .001$). NDW scores also ranged considerably from 4 to 80, and the scores of the K5 ($Mdn = 48$) group again exceeded those of the K4 group ($Mdn = 36; U = 1301.0, p < .001$).

Correlation of Language Measures with Artfulness Features

Spearman's rank order correlations were conducted to examine the relationships amongst the language measures; the total number and diversity of artfulness features; and the evaluations, appendages, and orientations (the artfulness categories comprising the total) as well as the diversity variable of the major and total artfulness scores. Group was added as a variable expressly to examine the correlation coefficients, since the between-group comparisons of K4 and K5 had already established the presence or absence of a relationship.

The Spearman correlations are presented in Tables 11 and 12 and elaborated immediately below the tables. As the tables show, all the significant correlations were positive in direction. In describing the strength of the correlations (i.e., the correlation coefficients), the following conventions are used: correlation coefficients of 0 reveal no relationship between two variables,

values ranging from 1-3 depict a weak one, 4-6 are moderate, and correlation coefficients of 7 and up are considered strong (Weir, n.d.).

Table 11

Spearman's Correlations Amongst Group, Artfulness Frequency, and Language Measures

	GROUP	EVA	APP	ORI	TOTAL	T-unit	MLTU	TNW
GROUP	--							
EVA	.233*	--						
APP	.426**	.225*	--					
ORI	.157	.032	.188	--				
TOTAL	.320**	.933**	.384**	.335**	--			
T-unit	.372**	.727**	.337**	.219*	.769**	--		
MLTU	.223*	.322**	.278**	.211*	.403**	.346**	--	
TNW	.348**	.696**	.359**	.247*	.760**	.862**	.737**	--
NDW	.400**	.739**	.439**	.278**	.808**	.855**	.587**	.905**

* $p < .05$, ** $p < .001$

Table 12

Spearman's Correlations Amongst Group, Artfulness Diversity, and Language Measures

	GROUP	EVA_D	APP_D	ORI_D	TOTAL_D	T-unit	MLTU	TNW
GROUP	--							
EVA_D	.269**	--						
APP_D	.426**	.241*	--					
ORI_D	.049	.071	.154	--				
TOTAL_D	.353**	.848**	.522**	.488**	--			
T-unit	.372**	.596**	.332**	.180	.631**	--		
MLTU	.223*	.416**	.285**	.102	.435**	.346**	--	
TNW	.348**	.628**	.357**	.165	.651**	.862**	.737**	--
NDW	.400**	.679**	.439**	.221*	.733**	.855**	.587**	.905**

* $p < .05$, ** $p < .001$

Number of T-Units and MLTU. The relationship between group and number of T-units established by the between-group comparisons was reflected in a significant but moderate correlation between the two variables, as indicated in Table 11. The number of T-units was strongly and positively correlated with the other language measures of TNW and NDW and moderately correlated with MLTU. The number of T-units was also strongly correlated with the total number of artfulness features as well as with the number of evaluations participants produced. It makes sense that the number of T-units would correlate similarly with these two variables, given that evaluations are part of the total and the two were themselves very strongly correlated ($r_s = .93$). Finally, the number of T-units correlated moderately with the number of appendages and orientations. The relationships between T-units and the diversity of evaluations, appendages, and orientations followed a similar pattern but with slightly weaker correlation coefficients. The relationship between T-unit and diversity of orientations, however, was not significant.

MLTU was only weakly correlated with group. The Spearman's rank order correlations further revealed that MLTU was most strongly correlated with TNW and moderately correlated with NDW and the number of T-units (the latter was noted in the previous section). MLTU was weakly correlated with evaluation, appendages, and orientation, and moderately correlated with the total artfulness score. MLTU and the diversity of artfulness categories had a similar relationship although with slightly higher correlation coefficients. MLTU correlated weakly with diversity of evaluation, appendages, and total artfulness score, but did not have a significant relationship with the diversity of orientation score.

TNW and NDW. TNW was positively but somewhat weakly correlated with group, like all other language measures described thus far. In addition to being strongly correlated with T-

units and MLTU (as reported above), TNW was strongly correlated with NDW. It was also strongly correlated with evaluations and total number of artfulness features; moderately correlated with appendages; and weakly correlated with orientations. TNW and diversity scores shared a similar relationship albeit with weaker correlation coefficients. However, the relationship between TNW and diversity of orientations was not significant.

NDW was only moderately correlated with group status but had the strongest correlation in comparison to the other language variables. NDW was also strongly correlated with evaluations and the total number of artfulness features; moderately with appendages; and weakly with orientations. Diversity scores and NDW shared a similar relationship but with weaker correlation coefficients.

Summary

A t-test determined that the total number of artfulness elements the K5 children used was greater than the number used by the K4 children. Of the major artfulness categories, children produced evaluations the most and, within the evaluation category, they used emotional state terms most frequently. T-test analysis determined that the K5 children produced more evaluations than the K4 group, but of the evaluation subcategories, only the goal or attempt category differed by group. Mann-Whitney tests also indicated that K5 children produced significantly more types of evaluation than K4 children. Because of many zero values in the orientations and appendages categories, we were not able to compare the group means or medians for the frequency and diversity scores. However, chi-square tests were carried out to determine the relationship between group and the proportions of children producing orientations and appendages. The result was nonsignificant for orientation. For appendages, the result was significant with the K5 group producing more of these than the K4 group. The results for the

main categories and total artfulness are summarized in Table 13.

Table 13

Summary of Significant Findings in Major Categories

Variable	Finding
Total Frequency of Artfulness Features ^a	K5 > K4
Evaluation Frequency ^a	K5 > K4
Evaluation Diversity ^b	K5 > K4
Appendages ^c	K5 > K4

^a t-tests on transformed variable; ^b Mann-Whitney U; ^c chi-square test on proportion of children producing feature

Spearman's rank correlations also showed a relationship between group and the following artfulness categories: total artfulness, evaluations, as well as appendages (orientation was not significant). However, the coefficients showed a small effect (i.e., small values for r_s). This finding suggests that group had a hand in determining artfulness, but that other factors are in play. In fact, the results suggest that general language measures (T-units, MLTU, TNW, and NDW) have a greater impact.

Additionally, Mann-Whitney or t-tests (depending on the variable) determined that K5 children had higher values for T-units, MLTU, TNW, and NDW than the K4 children. The Spearman's rank correlations further showed that the language measures of number of T-units, TNW, and NDW correlated with the total number of artfulness features and the number of evaluations (variables which were themselves strongly intercorrelated), with correlation coefficients that were equal to or greater than .70. While MLTU also correlated significantly with three of the four artfulness components, all of the correlation coefficients were equal to or less than .40.

Discussion

The central aims of this study were to investigate the following: the artfulness features that French-speaking kindergarteners include in their stories to make them come alive, how these features differ for younger children versus older, and how they relate to more general measures of language derived from the narratives. I link my findings to these aims and to previous studies of artfulness, in particular. Additionally, the discussion addresses some of the implications of the findings, as well as some of the limitations of the study and suggestions on how to redress them.

As discussed in my literature review, there are just a handful of studies looking directly at artfulness. Of the three studies I found, the participants in Glenn-Applegate et al. (2010) and Ukrainetz et al. (2005) were most similar to mine in age; in Glenn-Applegate et al. participants were aged 3 to 4 years old. Their average age was 54 months, a few months younger than my K4 group participants who were, on average nearly 60 months old. Similarly, although Ukrainetz et al. (2005) studied children that ranged in age from 5-12 years old, among their 5-year-olds, the average age was 67.8 months. The participants in my K5 group were, on average, 67.06 months old. Therefore, I compare the findings for Glenn-Applegate's 4-year-olds with those for my K4 group, and compare Ukrainetz et al.'s 5-year-old participants with my K5 group when appropriate.

Evaluation

All the children in my sample told an artful narrative as defined by the presence of artfulness features. As the results indicated, children produced an overwhelmingly greater number of evaluations compared to the other artfulness features of orientations and appendages. This was true for both groups. Although children in the K4 group had significantly lower evaluation and total artfulness scores than the K5 group, the number of evaluations the children

used in their stories was strongly correlated with their total artfulness scores (i.e., the overall degree of artfulness) in both groups.

The high prevalence of evaluation makes a great deal of sense as evaluations comprised 13 of the 21 artfulness codes. Therefore, if a child were to theoretically include every single artful code in their story once, evaluations would be responsible for 62% of that score. High rates of evaluation were observed not just in my study but in Ukrainetz et al. (2005) and Glenn-Applegate et al. (2010). In my sample, all children used at least one evaluation; this translates to a proportion of 100%. While a relatively lower proportion of children used evaluation in the Ukrainetz et al. and Glenn-Applegate et al. studies, the proportions were still very high: 88% and 98% of participants, respectively.

Within the evaluation category, I observed that my participants included emotional state terms more than any other evaluation type. The emotional terms used most by participants in my study were words related to happiness (e.g., references to smiling and verbs such as "like" or "love"), sadness (e.g., references to crying or being sad), and anger. These are emotions that children understand and refer to in early childhood, although sadness and anger are only gradually distinguished from one another (Denham, 2005). Despite the sheer number of the emotional state terms, statistical analysis revealed that the younger and older children did not include this element at different frequencies.

While neither Ukrainetz et al. nor Glenn-Applegate et al. split internal states into subcategories, they did report total rates of internal states. They found that children aged 5-6 included roughly two internal states per narrative, while Glenn-Applegate reported that 3- to 4-year-olds included even fewer. The children in my study (K4 and K5) produced considerably more internal states per narrative, as shown by the means for the three internal state categories.

The researchers also shared that children produced more internal states as age increased. While my study did not reveal a significant relationship between group and number of internal state terms, my sample had a narrower age range compared to Ukrainetz et al., whose study involved children from 5 to 12 years old. If I had included children in the first few years of elementary school, I too might have observed age or grade differences.

The inclusion of verbs in the analysis of artfulness was a novel element not included in previous studies of artfulness. I coded any verbs I believed to be relatively rare in French, and later confirmed their low frequency by looking them up in a database of verb frequencies in French (Ministère de l'Éducation Nationale de la Jeunesse et des Sports, 2020). This database consists of words used in children's literature (my supervisor and I are unaware of any database of word frequencies drawn from children's language). The verbs I coded were far lower in frequency than the top 25 most frequent verbs in the database. For example, three verbs that appeared in my sample - *apercevoir*, *expliquer*, and *déchirer* – had frequency counts in the database of 4,904, 2,238, and 827 respectively, whereas verbs like *être*, *avoir*, and *faire* appeared far more frequently (*être*, over 350,000 times; *avoir*, nearly 250,000 times; and *faire*, 78,000 times (Ministère de l'Éducation Nationale de la Jeunesse et des Sports, 2020). Low frequency verbs can enrich a story, as can adjectives and adverbs, word classes that, according to the Narrative Assessment Protocol, are important to narrative quality in English (Bowles et al., 2020).

Orientations and Appendages

As reported in the results section, the proportions of children producing orientations and appendages were analyzed in relationship to group through chi-square tests. The result for orientation was not significant suggesting that K4 and K5 children produced this feature at

similar rates. In Ukrainetz et al. (2005), they collapsed children aged 5-6 into one group to examine orientation and other variables. They found that roughly half of the participants in this age group included orientations of some sort but averaged 14.6 orientations per story. This contrasts considerably with the proportions reported in my study; roughly 75% of children in the K4 and K5 groups used orientations (i.e., location of the story, relationships between characters, descriptions of characters, or character names), but on average, both groups produced fewer than 2 orientations per story. Glenn-Applegate et al. (2010) reported a similar proportion to the children in my sample; 72% of the 3- to 4-year-olds children included orientations. However, their participants averaged 2.40 instances of orientations per narrative while their age-mates in my sample (the K4 group) averaged 1.26 orientations per narrative.

The data for orientation in my study further showed that the most common type of orientation provided by children concerned relationships. For example, many children referred to the young giraffe and elephant as *amis* and related them to the older late-appearing elephants in a variety of ways (e.g., as the father, mother, or teacher of the younger characters, as well as lifeguard. Ukrainetz et al. found that their participants made mention of character relationships more than 40% of the time. Glenn-Applegate and colleagues, on the other hand, reported that only 16% of children made mention of relationships between characters; personality features or adjectives that were used to specifically describe the characters in the story were more common. It would appear then that there is quite a bit of variation across these studies with how children use orientations. Some of this variation might be attributable to differences in story prompts across studies, or in the pictures used to elicit the stories.

Appendages were the least frequently occurring category in my study but showed the most variation in regards to their presence. Over half of the children in K5 group included an

appendage but very few in the K4 group did (less than 10%), leading to a significant chi-square test of association between group and appendages. The moderate proportion of children using appendages in the K5 group, however, does not mean that children used appendages *frequently*. Both the K4 and K5 had group means of less than one appendage per story. These low frequencies are not entirely surprising given the nature of the category. Appendages indicate when the story is beginning, provide a synopsis of the story's major themes, and signal the end of a story. These elements are unlikely to occur frequently. For example, a good storyteller would not re-start a narrative multiple times nor would they signal the end repeatedly.

The many zeros in the appendage data made comparisons of the means or medians impossible. We were able, however, to consider the relationship of the appendages to group via a chi-square test and the result was significant (53% of K5 children produced appendages while only 7% did in K4). These figures can be compared to Ukrainetz and colleagues (2005). They reported that over three-quarters (77%) of 5- to 6-year-olds included some type of appendage in their story. Glenn-Applegate and colleagues found that over half (51.2%) of children produced appendages. These proportions were higher in comparison to the groups of similar age in my study. The reason for this discrepancy is not clear, but merits further investigation. However, there was one similarity between my sample and the others; abstracts (an appendage subcategory) occurred at very low rates in both my study and the others. More specifically, Ukrainetz et al. indicated that only 3% of 5- to 6-year-olds included abstracts while Glenn-Applegate and colleagues reported that 4% of 3- to 4-year-olds produced them. In my study, I did not calculate the proportion of children who used abstracts, as the mean scores indicated how rare they were (0 per story for the K4 group and .02 per story for the K5 group).

To explore the relationship of general language ability to artfulness, I calculated the

following language measures: the number of T-units per narrative, the mean length of those narratives (MLTU), the total number of words per story (TNW), and the number of different words per story (NDW). As noted in the method, number of T-units and MLTU can be considered measures of syntactic complexity while TNW and NDW reflect lexical quality.

When the relationship between the syntactic measures and artfulness elements was explored, we saw that T-units correlated strongly and positively with the evaluation score and total artfulness score, but weakly with appendages and orientations. MLTU also correlated significantly with these categories, but more weakly. The relations between the syntactic measures and the artfulness categories can be interpreted in two ways. First, children may use more T-units and longer T-units to add detail, embellishment, and richness to their story; in other words, artfulness could motivate more complex syntax and greater length. It is also possible, however, that children with stronger syntactic abilities are more likely to include artfulness features in their stories. Additionally, evaluation included adjectives and adverbs, which could increase the MLTU. For example, had a child used the following sentence, "*The giraffe made a new friend*", the T-unit would span 6 words. Had the child excluded the adjective "new", the T-unit's length would be 5 words. Clearly, the inclusion of one adjective in one T-unit would have a minimal effect on the narrative's MLTU; however, the inclusion of one or more adjectives or adverbs on many utterances within a narrative could have a dramatic effect on MLTU.

The lexical variables (TNW and NDW) also correlated strongly with evaluations and the total artfulness score, moderately with appendages, but weakly with orientations. It is logical for these variables to correlate most strongly with evaluations, since that category involves various word types such as adjectives, adverbs, and internal state terms. As for the syntactic measures, however, the correlations do not show the direction of the relationship; in order to be artful,

children might include a greater number of words and more varied words. Alternatively, a greater vocabulary could lead to greater artfulness. The limits of the current study in teasing apart these possibilities are elaborated in the Limitations section below.

On a final note, we can use our T-unit data to again compare our results to those reported by Ukrainetz et al. These authors used T-units as a measure of story length. The 5- to 6-year-olds in their study told stories that were roughly nine T-units long, while the K5 children in my group told stories that were nearly 17 T-units long. The discrepancy in length could be explained by the difference in picture prompts. The ENNI story in my study involved 14 images, while the story Ukrainetz et al. used was limited to five images. Glenn-Applegate and colleagues did not report on T-units for their sample, so I was unable to compare our two groups.

Contribution to Knowledge

The findings of my study contribute to our understanding of how children make their oral stories unique and interesting and add sparkle. It is the first study to explore artfulness in French-speaking children's stories, and adds to a scant literature on the narrative skills of children in Quebec schools. More specifically, my results have implications for the education of preschoolers as they reveal both strengths and challenges in storytelling. On the one hand, children use evaluations often and without much prompting. Save for a few instances where the RA could be heard encouraging reticent children to begin or continue their stories, most children were able to freely tell stories involving optional elements, such as adjectives, adverbs, and references to character's internal states, without support.

On the other hand, children in this study had challenges using orientations, evidenced by low rates of use in comparison to children of similar ages in the other studies considered. Orientations are integral parts of storytelling; they establish the time and place of a story as well

as add details about characters and their relationship to one another, and thus help create the storyworld. The children in my study may have used little orientation, particularly to describe the temporal and physical context of events, because they felt little need to do so. Children were presented with pictures meant to guide and support their stories but might have believed that providing information that was clearly depicted in the images (such as the physical setting) was redundant. This possibility is supported by the greater prevalence of orientation categories that are not evident in the ENNI pictures. For example, character relationships were the most common subcategory; many children described the three elephants as brothers, sisters, or having parent-child relationships, even though the pictures did not explicitly convey this.

Limitations and Future Directions

The results of this study were influenced by a few factors, such as the sample size, issues with the coding system, and the nature of the storytelling task itself. I discuss these next, as well as solutions to address them in the future.

The size of my sample was small and unequally balanced. In total, I had 91 participants, but over twice as many children in the K5 group than in the K4 group. The smaller number of younger participants was partly due to recruitment issues and partly due to the COVID-19 pandemic (recruitment in this group was slower than in K5 and then data collection was halted because of the pandemic). The smaller group in K4 reduced statistical power. Additionally, there were 10 children who were learning French as a second language, but given their small number, their data was not separately analyzed. Replicating the study with larger numbers of second language learners would be an important avenue to pursue.

Also, most variables in my data were not normally distributed, even after data transformations. This limited analyses to nonparametric tests in some instances. A larger sample

size might have ensured a more normal distribution and allowed me to conduct parametric tests and more complex analyses. For example, hierarchical linear regression could help untangle how language contributed to artfulness (and the opposite, how artfulness contributed to language). Therefore, conducting this study with a larger and more balanced sample is advisable.

While such analyses could be used to assess whether language predicts artfulness (or vice versa), they would not allow us to establish causality. One future direction to address this issue might be an intervention study. For example, one could teach children to appreciate the artfulness features of a story in an experimental group but focus on other language or narrative skills in a control group, and examine the effects on children's language. Similarly, one could target various linguistic forms in an experimental group (vs. a control group receiving no intervention) and examine the effect on artfulness in the children's stories.

There were a few aspects of the procedures that could be refined in future studies. The first has to do with data collection. The way we gathered our stories did not allow for the analysis of nonverbal data as they were not videotaped. Instead, the stories were audiorecorded and transcribed. Thus, the gestures or facial expressions children used during their stories were not captured. The audiorecordings provided clues that some nonverbal communication was taking place (e.g., children used phrases like *Il a fait comme ça!*/"He did it like that") and made sound effects that may have been accompanied by gestures or facial expressions. Furthermore, the coding of humour in this study was partly based on instances of laughter. However, children's use of humour could have been signaled through smiling and would have been missed. Including nonverbal data could provide further insight into children's use of evaluation in their stories.

The second aspect of the procedures that could have been improved relate to coding.

First, as noted in the method section, coding for verbs was based on my judgement and that of a bilingual research assistant. Although I was later able to confirm that the verbs were low frequency by comparing them to verb frequencies in a database, this step would ideally have taken place prior to coding to derive a list of specific verbs for coding purposes. Second, I did not systematically code for prosody (i.e., rhythm, stress, intonation), although intonation was taken into account in the coding for humour and to distinguish direct from reported speech. Prosody is, as Hoel (2013) points out, an important part of storytelling performance and could contribute to the artfulness of a story. However, a thorough analysis of prosodic features would be best carried out using acoustic analyses which was beyond the scope of this study.

Finally, the storytelling task might well have affected the stories children told. In this study, stories were elicited through picture prompts. This could both support and constrain the narratives we collected. Pictures provided the children with a clear basis for their narratives. Even when children were shy to begin their stories, or hesitated mid-story, the research assistant administering the task could and did refer the child to the images in front of them and this appeared to help children proceed. However, the presence of the images might also have led children to interpret the tasks as a picture description task and thus limited their narration to what they could see on the page.

The testing context might also have constrained children's stories. Children were assessed during school hours and were pulled from their classrooms to participate. They did not tell a story completely of their own volition, although each child was asked for their assent to every data collection session. Spontaneous stories, in more naturalistic environments, might have led to more creative and exciting narratives. Stories are not told in a vacuum; in telling a story, narrators seek to affect the listener in some way. In this study, however, the children had little

feedback from the listener. The standard ENNI procedures limit the listener's participation to encouraging the child, but do not allow for genuine and natural responses to storytelling.

Furthermore, we do not know if the stories would be considered artful by listeners. As Newman and McGregor showed (2006), the more artful children's narrative were, the more listeners appreciated them and rated them highly. Building on this idea, a novel elaboration of this study would be to invite adult listeners, and perhaps even other children, to rate the quality and enjoyability of the audiorecorded stories and to then map the relationship between these ratings and sparkle as measured in the current study.

Conclusion

Narratives play a significant role in communication and social interaction starting in early childhood. Narrative skills are also expected of children beginning in kindergarten and predict later literacy skills and academic outcomes. While much research has been devoted to the structure of children's stories, less attention has been devoted to their artfulness: the features of stories that make them sparkle and engage listeners. This study investigated how French-speaking children use artfulness in their narratives and how artfulness relates to language skill. More specifically, I explored how children used artfulness features, whether the use varied by age, and whether language measures related to artfulness.

The results of this study showed that artfulness features, particularly evaluations, were used by all children. In particular, older children (K5) tended to include more artfulness features than younger ones (K4), overall and within the subcategories of evaluation and appendages, and also included a greater variety of evaluations. Children, regardless of group, included orientations and appendages far less frequently than evaluations, suggesting that children might need more overt instruction on the significance of including these features in their stories, as well

as support on how and when to include them. General language measures (the number and mean length of T-units, and the number of total and different words) were strongly correlated with the total number of artfulness features in the children's stories and the number and diversity of evaluations they included. Group also correlated with the language measure and artfulness variables, but only weakly, suggesting that children's language abilities might be a stronger determinant of artfulness than kindergarten level. My study contributes to our understanding of children's narrative ability, demonstrates how French-speaking children in Quebec use artfulness in their stories, and provides future directions for research and practice (i.e., ways of supporting children's oral storytelling).

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Appendix A

Artfulness Coding System

^aDefinition from the Ukrainetz et al. coding system (2005, pp. 1368-1369)

^bDefinition from the Glenn-Applegate et al. coding system (2010, pp. 491-492)

^cCode and definition developed based on research literature. These codes do not appear in either Ukrainetz et al. or Glenn-Applegate et al.'s systems.

Appendages (APP)^a: cue the listener that a story is being told or has ended.	
Introducer^a: Opening elements indicating the beginning of the story (e.g., <i>One morning, Once upon a time</i>).	INT
Abstract^a: Summaries of the story prior to the narrative (e.g., <i>This is about how you shouldn't stay up all night</i>) or story titles (e.g., <i>The Bad Day</i>).	ABS
Ender^a: A formal indication that the narrative was over (e.g., <i>The end</i>).	END
Orientation (ORI)^a: serve to "set the stage" for the narrative.	
Names^a: Specific identifiers to refer to characters (e.g., <i>Sam, Betty</i>). These were coded on first mention only (i.e., only the first <i>Sam</i> would be coded in the following series: <i>Sam got up. Sam went downstairs. Sam was late. The end.</i>).	NAM
Relationships^a: Words that defined a character's role in terms of relationships or jobs (e.g., <i>mother, pet, teacher, friend, and principal</i>). These were coded on first mention only.	REL
Personality Features^a: Personal attributes of characters that conceptually would endure for the length of the story (e.g., being habitually tardy, being too young to be responsible).	PER
External Conditions^b: Where and when the story takes place; the physical conditions, time, and overall location of the story. e.g., " <i>The next day ...</i> "; " <i>He was sneaking out of the bedroom.</i> "	EXC
Evaluation (EVA): conveys the narrator or character perspective on the story events (by using particular words or strategies involving longer story units)	
Adjectives^b: Descriptive words that modify things, settings, and objects. e.g., " <i>The jar is <u>empty</u>.</i> " " <i>He fell in the <u>cold</u> lake.</i> " <i>Note: All adjectival descriptors of characters were coded as Personality Features and not Adjectives</i>	ADJ
Adverbs^b: Descriptive words that modify actions or manners of actions. e.g., " <i>That water is <u>too</u> low.</i> " " <i>The bumblebees are chasing the dog <u>again</u>.</i> " <i>Note: Conjunctive adverbs and prepositional phrases were not coded as adverbs</i>	ADV
Verbs^c: Verbs involving precise descriptions and lower frequencies in comparison to common verbs such as be, do, have e.g., <i>plonger, échapper, déchirer, ramasser</i>	VRB

<p>Internal states^a: Words that reflected intentions and thoughts (e.g., <i>decided, thought</i>), emotional motivations and reactions (e.g., <i>depressed, sad, angry</i>), and physical states (e.g., <i>tired, exhausted</i>).</p>	IST
<p>Attention Words^c: Words, usually at the beginning of an utterance, used to draw the listener's attention. e.g., « <i>La! L'avion est tombe dans l'eau!</i> »</p>	ATW
<p>Interjections^b: Expressions that stand alone, expressing surprise, empathy, or other emotion. e.g., "<i>What a deer!</i>" "<i>Silly him.</i>"</p>	INJ
<p>Repetition^a: When a noun, adjective, or verb was used to add emphasis. e.g., "<i>The boy ran and ran and ran after the bus</i>", "<i>He was very very sad.</i>" <i>Note: Two uses of a modifier or verb within a T-unit were coded as a single repetition.</i></p>	REP
<p>Dialogue^a: Any portion of the narrative in which a character was speaking. This could be indicated with a semantic marker, such as <i>She said, "I want to go"</i> or it could be implicit ("<i>Oh no, I'm late!</i>"). Indirect reported speech (<i>She said that she wanted to</i>) was not coded, nor were "yes" or "no" (<i>She said no</i>), which, without intonation, may not be dialogue. Other evaluation subcategories could be coded within a line of dialogue.</p>	DIA
<p>Humour^b: Comments, emotional expressions, or intonation indicating the child's recognition or creation of humor in the story (i.e., words, laughter, vocal tone, etc.) e.g., "<i>That's a silly dog!</i>"; "<i>The dog had the glass on his head!</i>"</p>	HUM
<p>Beyond the Page^b: Unexpected story turns, description, or actions that are not explicit or implied in the story; these may be the child's speculation, assumption, or extension of the story. e.g., "<i>The giraffe and the elephant met and became friends.</i>" "<i>Maybe he ate his froggy.</i>" "<i>He looked to see if there were any sparrows and there were and they bited him.</i>"</p>	BTP
<p>Figurative language^c: Similes, metaphors, irony, or idioms. e.g., "<i>Gary was dead asleep.</i>"</p>	FIG

Appendix B

Rules for Coding T-Units

If an utterance is non-narrative (e.g., refers to turning pages, directing researcher to wait, etc.) or formulaic (e.g., "C'est fini) do not code.

Use the following rules to determine what constitutes a T-unit:

1. S (subject) + VP (verb phrase) = T-unit,

Code only when the phrase is grammatically complete.

Ex. Le girafe était content
(S) (VP)

Ex. Le girafe a pleuré
(S) (VP)

When a phrase is incomplete from a grammatical perspective (e.g., omits the object of the verb), simply ignore that phrase, as follows (* = error)

Ex. Le girafe donne *
(S) (VP)

Ex. Elle a fait *
(S) (VP)

Ex. Le girafe demande *
(S) (VP)

Ex. Elle était comme * (with gesture)
(S) (VP)

2. S + S + VP = T-unit

Ex. L'éléphant il voudrait jouer avec l'avion
(S) (S) (VP)

3. Dialogue or instances of reported speech:

S + anything following "dire" verbs or "etre" as a verb of saying = T-unit

Ex. L'attendant dit

« Qu'est que ce passe? »

Ex. Il

était comme

« hououi » @ OR « voila! »

(S)

verb of saying

reported speech/dialogue

NOTE: If there are S+VP units within character dialogue, count the "dit" verb PLUS the first S +VP (or segment) following as a single T-unit. All other S+VP that follow are separate T-units.

Ex. L'attendant dit

« Qu'est que ce passe?

Je t'aiderai »

(S)

dit verb

reported speech/dialogue

(S) + (VP)



T-unit



T-unit

4. S + VP (rules 1-4) followed by a new S + VP separated by a **comma** or a **coordinating conjunction (CC)** = more than one T-unit. This is true even the subject is the same but restated or replaced with a pronoun.

Ex. L'attendant a essayé de prendre l'avion mais il n'était pas capable.
 (S) (VP) CC (S) (VP)
 T-unit T-unit

Examples of coordinating conjunctions (from <https://www.laits.utexas.edu/tex/gr/con1.html>):

mais	but
ou	or
et	and
donc	so, thus
or	so, now
ni ... ni	neither ... nor
car	for
puis	then

If there is an utterance that omits a subject, but the subject is apparent in the preceding utterance, code the two utterances as **one** T-unit.

Ex. La madame vient
 et cherche l'avion [^c].

5. A T-unit includes dependent clauses of which there are many in French. Identify this by process of elimination (i.e., if not in chart above, assume it is a dependent clause marker).

Ex. Il était triste parce que il a perdu son avion [^c].

Appendix C

Questionnaire for Parents: Spoken Languages at Home (Original French Version)

Nom de l'enfant (Prénom, Nom) _____

Langues parlées et comprises par votre enfant

1. Quelle est la langue maternelle de votre enfant?
2. Votre enfant est exposé à quelle(s) langue(s) depuis sa naissance?
3. S'il vous plaît, énumérer les langues que votre enfant parle maintenant.
4. S'il vous plaît, énumérer les langues que votre enfant comprend maintenant.

Langues parlées par d'autres personnes à la maison

5. Qui sont les adultes qui habitent dans la même maison que votre enfant? (Si votre enfant habite dans plus d'une maison, s'il vous plaît énumérer les adultes dans chaque maison).
6. Quelle(s) langue(s) parlez-vous (ou d'autres adultes) dans votre maison avec votre enfant ? Énumérer les langues parlées en ordre décroissant (commencez par la langue la plus parlée, et finissez avec la langue la moins parlée).
7. Votre enfant habite-il avec des sœurs, des frères, ou d'autres enfants ?
8. Quelle(s) langue(s) parlent les frères, les sœurs, ou d'autres enfants avec votre enfant à la maison ? Énumérer les langues parlées en ordre décroissant (commencez par la langue la plus parlée, et finissez avec la langue la moins parlée).

Si vous avez besoin de plus d'espace, n'hésitez pas à écrire au verso de cette page.

Appendix D

Sample Children's Narrative

CHAT conventions

[//] reformulation

[x 2] exact repetition of preceding word(s)

[^c] T-unit marker

Note: All apostrophes are followed by a space, as dictated by CHAT conventions for French (e.g. l' éléphant)

Transcript

@Filename: ES_19_ENNI_T1

@Transcriber: ■■■■

@Begin

*CHI: il était une fois que un éléphant et une girafe il est allé [x 2] dans le bord de la mer, pour [x 2] voir si l' avion volait au bord de la mer [^c] .

%art: \$APP:INT \$ORI:EXC

%tim: 00:04

*CHI: l' éléphant il a hâte de le mettre dans l' eau [^c] .

%art: \$EVA:ISO

*CHI: et [x 2] l' éléphant <commence à> [//] il commence par l' envoler [^c] .

%art: \$EVA:VRB

*CHI: et l' éléphant est surpris <de que que> [//] que il la vole dans les airs [^c] .

%art: \$EVA:ISO

*CHI: là, l' éléphant prend l' avion de ses mains [^c] .

*CHI: alors, il [x 2] joue avec l' avion [^c] .

*CHI: et après, +"/.

*CHI: +" oops@o je l' ai mis dans l' eau [^c] .

%art: \$EVA:DIA

*CHI: et [x 2] <l' éléphant non> [//] la girafe, i(l) dit +"/.

*CHI: +" &-huh xxx [=! one word] [^c] .

%art: \$EVA:DIA \$EVA:HUM

*CHI: +" &eh pourquoi tu l' as fait dans l' eau &ahahah [^c] ?

%art: \$EVA:DIA \$EVA:HUM

*CHI: +" &ah maintenant il est au fond de l' eau [^c] +"/.

%art: \$EVA:DIA \$EVA:HUM

*CHI: et un deuxième éléphant arrive [^c] +"/.

%art: \$EVA:ADJ

*CHI: +" c' est quoi ça <dans &l> [//] <dans la piscine là> [//] dans la mer là [^c] !

%art: \$EVA:DIA
 *CHI: et l' éléphant est surpris [^c] .
 %art: \$EVA:ISO
 *CHI: et i(l) dit +"/.
 *CHI: +" c' est la girafe qui a fait ça [^c] !
 %art: \$EVA:DIA
 *CHI: et la girafe i(l) dit +"/.
 *CHI: +" c' est pas moi [^c] .
 %art: \$EVA:DIA
 *CHI: +" pis je veux l' attraper [^c] .
 %art: \$EVA:DIA \$EVA:ISO
 *CHI: +" okay [^c] .
 %art: \$EVA:DIA
 *CHI: +" &ahh je suis désolé de le mettre dans l' eau [^c] .
 %art: \$EVA:DIA \$EVA:ISO
 *CHI: +" c' est pas grave, moi je vais l' attraper [^c] .
 %art: \$EVA:DIA
 *CHI: et un autre éléphant arrive [^c] .
 %art: \$EVA:ADJ
 *CHI: +" qu' est ce qui s' est passé dans l' eau [^c] ?
 %art: \$EVA:DIA
 *CHI: +" <uh c' est &l> [//] c' est l' éléphant qui l' a mis [^c] .
 %art: \$EVA:DIA
 *CHI: et l' éléphant a dit +"/.
 *CHI: +" non, c' est pas moi [^c] !
 %art: \$EVA:DIA
 *CHI: et, il essaie de l' attraper [^c] .
 %art: \$EVA:ISG
 *CHI: et, elle a réussi de l' attraper [^c] .
 *CHI: et maintenant il donne à la girafe [^c] .
 *CHI: et maintenant, l' éléphant est content [^c] .
 %art: \$EVA:ISO
 @End

Appendix E

Low Frequency Verbs List (in Order of Frequency)

redonner (<i>to give back</i>)	11	avertir (<i>to warn</i>)	1	rescaper (<i>to rescue</i>)	1
couler (<i>to sink</i>)	10	câliner (<i>to cuddle, hug</i>)	1	retomber (<i>to fall back</i>)	1
expliquer (<i>to explain</i>)	7	casser (<i>to break</i>)	1	retrouver (<i>to find</i>)	1
rattraper (<i>to catch</i>)	7	coincer (<i>to catch, trap</i>)	1	revoler (<i>to fly again</i>)	1
ramasser (<i>to pick up, to collect</i>)	6	crier (<i>to shout, yell</i>)	1	s' apercevoir (<i>to appear</i>)	1
arracher (<i>to pull, wrest, extract</i>)	5	déchirer (<i>to tear, rip</i>)	1	se discuter (<i>to discuss</i>)	1
envoler (<i>to launch</i>)	5	décoller (<i>to remove</i>)	1	se noyer (<i>to drown</i>)	1
enlever (<i>to remove</i>)	4	déconstruire (<i>to deconstruct</i>)	1	se promener (<i>to walk</i>)	1
plonger (<i>to dive, sink</i>)	4	déguiser (<i>to disguise</i>)	1	secourir (<i>to rescue</i>)	1
caler (<i>to submerge in liquid</i>)	3	deterger (<i>to dig up</i>)	1	tasser (<i>to pack</i>)	1
chicaner (<i>to argue</i>)	3	enfoncer (<i>to press, sink, drive</i>)	1	tenir (<i>to keep</i>)	1
partager (<i>to share</i>)	3	enfuir (<i>to escape, flee</i>)	1	traverser (<i>to cross</i>)	1
tirer (<i>to pull</i>)	3	enterrer (<i>to bury</i>)	1		
briser (<i>to break</i>)	2	jaser (<i>to chat, talk</i>)	1		
mouiller (<i>to soak</i>)	2	jeter (<i>to throw</i>)	1		
recupérer (<i>to recover, retrieve</i>)	2	péter (<i>to bust</i>)	1		
reprendre (<i>to reclaim</i>)	2	pointer (<i>to point at something</i>)	1		
étirer (<i>to stretch</i>)	2	pousser (<i>to push</i>)	1		
accrocher (<i>to hang</i>)	1	raconter (<i>to tell</i>)	1		
apporter (<i>to bring</i>)	1	recouler (<i>to sink again</i>)	1		
atterrir (<i>to land</i>)	1	repasser (<i>to return something</i>)	1		