

Research Article

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Acquisition of referentiality in elicited narratives of Estonian-speaking children

<https://doi.org/10.1515/opli-2022-0187>

received June 15, 2021; accepted March 15, 2022

Abstract: This study addresses the acquisition of referential expressions in pre-schoolers' narratives in Estonian. A total of sixteen 6- to 7-year-old typically developing monolingual Estonian children were tested using the story "Baby Goat" from the Multilingual Assessment Instrument for Narratives (MAIN) (Gagarina, Natalia, Klop, Daleen, Kunnari, Sari, Tantele, Koula, Välimaa, Taina, Balciuniene, Ingrida, Bohnacker, Ute and Walters, Joel. 2012. "MAIN: Multilingual Assessment Instrument for Narratives." *ZAS Papers in Linguistics* 56, 1–140, Gagarina, Natalia, Klop, Daleen, Kunnari, Sari, Tantele, Koula, Välimaa, Taina, Bohnacker, Ute and Walters, Joel. 2019. "MAIN: Multilingual assessment instrument for narratives – Revised." *ZAS Papers in Linguistics* 63). The objective was to understand how children introduce a new referent and how they maintain referents in their storytelling, and what correlation could be observed between the length of the story and the average length of the reference chain. Qualitative analyses revealed that children generally introduced new referents using bare nouns; they also generally used bare nouns for further reference. NPs consisting of a noun and a determiner were more frequently used for main characters in the story, while bare nouns were preferred for other characters. The influence of the typological character of Estonian can be observed in the use of zero references and pragmatically driven word order in children's utterances. In general, the length but not the complexity of the story was correlated with the average number of reference units in a chain.

Keywords: reference chains, reference introduction, reference maintenance, MAIN, zero reference

1 Introduction

When children arrive at school, they are expected to converse in "academic language," the language used in schooling situations to engage in arguments, to comprehend texts, to give presentations, to integrate information across multiple passages, etc. (Schleppegrell 2004, Snow 2010). Creating a coherent text, both spoken and written, is a skill necessary in a school context and is related to later academic success. Therefore, it is very important to find out what reference skills children have when they go to school.

Narratives place greater demands on semantic clarity, planning, and linguistic self-monitoring as they lack the supportive framework of conversational interactions (i.e., implicit shared background knowledge and non-verbal cues; Nicolopoulou et al. 2006), and challenge children to build up a picture of a world using only words (Wells 1985), which is beneficial for understanding and producing the conventions that are both typical of classroom interactions and instruction (Gillam et al. 1999) and supportive of language development. Learning how to introduce and maintain referents appropriately in a story is a complex process. Children have to understand which referents are familiar to all speakers and which are new.

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Children also have to learn that certain linguistic forms are used to refer to objects or people and that some of these are new to the listener, whereas other forms are used for those referents that have already been mentioned. The investigation of reference in child narratives provides an opportunity to look at the development of referentiality in the controlled conditions as well as better understanding the way in which various factors can affect the acquisition of referentiality. The narrative has been defined as a sequence of events over time, a succession of temporal and causal events (Labov 1972, Onega and Landa 1996). A narrative has to be a complete and comprehensive text that allows us to look at the reference from the beginning of the story to the end. The skill needed to introduce and maintain references during a story, that is, the skill of using longer reference chains, demonstrates a child's ability to create a coherent and elaborated narrative.

However, although in Estonia the need to teach storytelling skills is highlighted in didactic articles (Padrik and Hallap 2008) and in Estonian education documents (e.g., the Preschool Child Care Institutions Act), there is still a lack of reliable information about children's acquisition of narrative skills. Referentiality has been at the centre of several studies on the Estonian language (Hint 2015, Kaiser and Vihman 2010, Hint et al. 2020, Pajusalu et al. 2020). However, despite this, there is only one study on referentiality in Estonian child-directed speech (Vihman 2015) as well as one or two others that concentrate on elicited narratives of Estonian-speaking children (Kirsipuu et al. 2012, Hint et al. 2013, Soodla et al. 2010).

Referring expressions are linguistic expressions (proper names, natural kind terms, indexicals, and definite descriptions) that identify the entities we want to talk about (Allen and Serratrice 2015, 2). Which referential expressions children select is determined not only by the syntactic constraints or rules of the language(s) they are acquiring but also by aspects of the discourse to which their utterances belong (Allen and Serratrice 2015, 3). In the research on the acquisition of referentiality, very different approaches have been used, from Universal Grammar (for the acquisition of anaphora, see Lust 1986) to an approach called emergentism (see the "processing view" of the acquisition of anaphora, O'Grady 2015). Apart from the studies mentioned, several discourse-relevant factors (e.g., accessibility, type of interaction, differences in cognitive load, prosody, caregiver input), as well child-related factors (e.g., age, language ability, cognitive ability, language spoken), have been identified as strong influencers of the forms that children select to express referents, as well as influencing the order in which they acquire these means of language (Allen and Serratrice 2015, 10).

Some studies on the acquisition of reference have shown that in early spontaneous productions, children are sensitive to the distinction between given and new information from early on (i.e., from 3 years of age) (for Inuktitut children aged 2; 0–3; 6, see Scarabela et al. 2013, for several other languages see Hickmann et al. 2015). However, there are studies indicating that the ability to introduce characters appropriately develops much later and may not be fully developed until age 9 (e.g., Hickmann et al. 1996, Kail and Hickmann 1992).

On the basis of the existing literature, maintenance of the reference seems to be easier to acquire for children than introducing a new referent. For the introduction of a new referent, children show a preference for definite forms until they are 9–10 years old (Hickmann et al. 1996 for English-, French-, German-, and Mandarin Chinese-speaking children). Before that age, children show a gradual moderate development in using indefinite forms that first appear at age 7 and have 50% frequency (Hickmann et al. 1996). Dasinger (1995) tested Finnish children to study referential (in)definiteness developmentally in picture-based narration. She found that the young children provided explicitly definite forms in discourse contexts calling for indefinite noun phrases until around 8 years of age. Similarly, Hickmann et al. (1996) observed a gradual replacement of the inappropriate bare preverbal subject NPs in initial introductions with more appropriate lexically indefinite post-verbal NPs in Chinese.

In terms of character reintroductions, according to Aksu-Koç and Nicolopoulou (2014, 2, for English, Greek, and Turkish), children use the appropriate definite nominal forms as opposed to less informative pronominals starting around 4 years of age, and these increased gradually until 10 years of age (see also Orsolini et al. 1996, Hickmann et al. 1996).

For Estonian, there are some studies on elicited narratives of children at the kindergarten-school transition, 6–7 years of age (Soodla et al. 2010, Soodla 2011, Hint et al., 2013), and a pilot study using the MAIN test in 4- to 8-year-old children (Kütt 2018). Soodla (2011) has used narratives to compare the results of typically developing children with those with specific language impairment. Andra Kütt's article provides the preliminary results of a MAIN pilot test in Estonian. The preliminary test showed that

storytelling is difficult for Estonian children. When producing a narrative, it was not natural for the children to indicate a starting point (giving time or place), but rather they began stories immediately with conflicts and goals as internal components. Challenges and goals also turned out to be the most common and therefore the simplest content in the children's narratives (Kütt 2018, 104).

1.1 The reference system in Estonian

Estonian, as a Finnic language that is part of the Finno-Ugric language family, is a language with rich morphology. Estonian verbal agreement morphology (person and number) allows for both subject and object ellipsis, and therefore, reference can also be expressed with a null subject, that is, only with a verb form consisting of a relevant inflectional suffix (e.g., *lähe-b majja* “go-PRES.3SG house:ILL”). This kind of reference has been called a “zero reference” in articles on Estonian the reference system (e.g., Hint et al. 2020, Pajusalu et al. 2020).

Typical means of reference in Estonian are as follows:

1. NPs with different complexity:
 - (a) Bare noun, i.e., a noun without any modifier, e.g., *tüdruk* “girl”;
 - (b) NP with an indefinite pronoun as a determiner, e.g., *üks tüdruk* “one/some girl”;
 - (c) NP with adjective or other modifier as a determiner, e.g., *homse ajalehe esikülj* “front page of tomorrow's newspaper”;
 - (d) NP with a demonstrative pronoun as a determiner, e.g., *see tüdruk* “this girl”;
 - (e) NP with a definite pronoun as a determiner (other than a demonstrative pronoun), e.g., *teine rebane* “another fox”;
 - (f) NP with a possessive pronoun as a determiner, e.g., *tema poeg* “her son”;
 - (g) Indefinite pronoun, e.g., *mõlemad* “both”;
 - (h) Demonstrative pronoun, e.g., *see* “this”;
 - (i) Personal pronoun (long and short forms), *tema, ta* “she/he”;
 - (j) Indefinite pro-form as a determiner, e.g., *üks läks ära* “one went away”;
2. Quantifier phrase (QP), e.g., *kaks poissi* “two boys”;
3. Zero reference (verbal inflection, e.g., the verb form can be the means of reference if there are no other means in the text (*lähe-n koju* “go-PRES.1SG koju:home.ILL”), speakers use zero to refer to subject referents when the same referent is mentioned in the preceding utterance, that is, zero reference is used with a small referential distance to the preceding mention of the same referent (see Hint et al. 2020, 59, Pajusalu 2017, 567, Lindström 2017, 551–560);
4. More complex options (involving previously mentioned types of NP and QP):
 - (a) Pragmatically driven word order (the definite referent is usually in the pre-verbal position, SVO order), e.g., *Poiss jookseb maja taha*, “the boy.NOM runs behind the house” (the boy is already introduced or familiar both to the speaker and listener), the opposite order can be used in reference introduction only, e.g., *Maja taha jookseb poiss*, “behind the house runs a boy.NOM.” (The boy is not introduced and is at the focus of the sentence) (see Pajusalu 2017, 573);
 - (b) Specific case form of NP (nominative and genitive case form for definite, and partitive for indefinite referents), e.g., *Pliiats on laua peal*, “the pencil.NOM is on the table,” vs *Anna mulle pliiatsi-t*, “give me (some) pencil-PARTIT.”

Introducing **new referent** noun phrases (including proper names) consisting of a noun and an adjective are used most frequently:

- | | | | | | |
|-----|--|----------------|---------------|---------------|--------------|
| (1) | <i>Äkki</i> | <i>ilmu-s</i> | <i>tee-le</i> | <i>punane</i> | <i>buss.</i> |
| | suddenly | appear-PST.3SG | road-ALL | red.NOM | bus.NOM |
| | “A red bus suddenly appeared on the street.” | | | | |

In the first mentions, such indefinite determiners as *üks* “one/some,” *mingi* “some sort of,” and *keegi* “somebody” are also typically used (see examples 2 and 5). For example, the speaker can use the determiner *üks* if he or she presumes that the referent is unknown to the listener:

- (2) *Üks* *mees* *läks* *mööda tee-d.*
 one.NOM man.NOM go.PST along road-PARTIT
 “A man went down the road.”

Indefinite determiners are often used at the beginning of narratives:

- (3) *Ela-s* *kord* *üks* *mees.*
 live-PST.1SG once one.NOM man.NOM
 “Once upon a time there was a man.”

Estonian personal pronouns have both long and short forms and, according to Pajusalu (2017), the use of short and long pronouns can result from a complex combination of different factors. The short forms of personal pronouns are the most frequent and unmarked, and they are the most neutral and used for the most salient and activated referents. Long forms are usually used to contrast referents or to indicate that a referent is new or focused (Pajusalu 2017, 569).

For an entity mentioned earlier, i.e., for the **maintenance** of a referent, pronouns and lexical NPs are most typically used. Lexical NPs can consist of nouns with general meanings (*mees* “man,” *naine* “woman,” *poiss* “boy,” and *laps* “child”). Third person pronouns (*ta* “(s)he,” *tema* “(s)he,” *nemad* “they,” and *nad* “they”) are most typical means for reference maintenance and can be used if the referent is already familiar and salient and has no competing referents with the same status. The third person long pronoun *tema* “she/he” is used if the referent is in focus but contrasted with some other referent (example 4, see also see Pajusalu 2006, 124).

- (4) *Poiss* *rääki-s* *kohe,* *mis* *nad*
 boy.NOM speak-PST.3SG immediately, what.NOM they.NOM
tei-nud *ol-i-d,* *tema* *ei* *ol-nud* *nii* *rumal* *kui* *teise-d.*
 do-PST be-PST-3PL he.NOM no be-PST so stupid as other-PL
 “The boy said immediately what they had done, he was not as stupid as the others.”

Demonstratives (see “this,” *need* “those”) and other indefinite pronouns and pro-forms (*üks* “one/some,” *kõik* “all”) can also be used for familiar referents. An NP consisting of a demonstrative pronoun as the part of the determiner (e.g., see *kuri koer* “this wicked dog”) is used for a familiar referent not activated or mentioned enough to refer to with a bare pronoun. The demonstrative pronoun *see* “this” is frequently used in reference maintenance as the definite determiner in NPs in Estonian (Pajusalu 2017, 575).

- (5) *ela-s* *kord* *üks* *tüdruk.*
 live-PST.3SG once one girl.NOM
 “Once upon a time there was a girl.”
- see* *tüdruk* *oska-s* *hästi* *laul-da.*
 this girl.NOM can-PST.3SG well sing-INF
 “This girl could sing well.”
- ta* *armasta-s* *laul-da* *igasuguse-i-d* *laul-e.*
 she love-PST.3SG sing-INF different-PL-PARTIT song-PL.PARTIT
 “She loved different songs.”

1.2 Acquisition of reference in Estonian

Studies regarding the acquisition of reference and also the reference in child-directed speech in Estonian are scarce. Vihman's 2015 paper compares the forms of expression of core verbal arguments in Estonian child-directed speech with those in speech between adults. Avoidance of ellipsis and a preference for lexical (rather than pronominal) noun phrases were characteristics of the child-directed speech in Vihman's sample.

In analysing the acquisition of Estonian pronouns on the basis of recordings of spontaneous speech, Vija and Pajusalu (2009) argue that 4- to 5-year-olds are not aware of their own or others' mental states (which can be explained by insufficient Theory of Mind, see Astington and Pelletier 2005, 313) and are thus prone to mark as definite even if referents are unknown to the listener, meaning that in many cases children are not able to choose the correct determiner. At the same time, several instances were found in the speech of a 3-year-old child of children's use of the pronoun *üks* "one" in full convergence with adult use, which is to introduce a new referent in the discourse.

There are two studies (Kirsipuu et al. 2012, Hint et al. 2013) on context and context-creating means of reference in 6- to 7-year-old children's narratives. In the study by Hint et al. (2013), children participating in a narrative test mainly introduced the new referent with NPs without a determiner, and only 12% of the children used NPs with indefinite pronouns as was expected. A similar strategy was observed in Kirsipuu's study (as one of the most common strategies used by children). When the referent has already been introduced into the discourse, children may then switch from substantives to personal pronouns (Kirsipuu et al. 2012).

Kirsipuu et al. (2012) also argue that the means for marking the informational status of the referent are not yet consistent in 6- to 7-year-old children's narratives. Although children usually start their stories with noun phrases consisting of a modifier and a noun, sometimes the pronoun is used to bring a new referent into the discourse. Most children, according to Kirsipuu, are able to narrate in a way that the informational status of discourse referents is comprehensible to the listener. The main results of the study by Hint et al. (2013) were different from Kirsipuu et al. (2012) results and revealed that children did not differentiate between new and old referents. The new referent was in most cases introduced with NPs consisting of a noun with a modifier, while the old referent was mainly expressed with a bare noun or also with a pronoun. Although the pronoun *üks* "one" was used only with a new referent, the demonstrative pronoun *see* "this," which is a typical device for expressing a familiar referent in Estonian, was also mainly used with a new referent (Hint et al. 2013, 177).

1.3 Rationale and the research questions of the study

Creating coherent texts is a crucial skill for school success. One important aspect of creating coherent texts is the ability to introduce and maintain referents. Although there has been much research about this in various languages, we know very little about referential skills in Estonian-speaking children and thus have little basis upon which to assess Estonian-speaking children's skills or provide appropriate instruction to them. Therefore, we expect our study to (1) improve our understanding of the skills of reference in controlled conditions, that is, in narratives of 16 Estonian-speaking children at the age of transition to school (6–7 years); (2) contribute to the understanding of the acquisition of reference in general; that is, the results from typologically different languages, in Estonian as a Finno-Ugric language, could improve our understanding of the role of typological characteristics for universal vs particular patterns in the language development. Therefore, comparisons with data from other languages will be provided.

The more concrete research questions for our qualitative study are as follows:

1. What strategies are used by Estonian-speaking children to introduce a new referent?
2. What strategies do children use to maintain referents?
3. What correlations can be observed in the length of the story, general complexity (scores), and average length of the reference chain in children's narratives? The skills of maintaining a reference during a story, in particular the skills to use longer reference chains, demonstrate a child's ability to create a

coherent and elaborated narrative. Therefore, correlations between the length of reference chains and overall scores of the story would be expected.

4. How are the strategies used in the introduction and maintenance of reference related to typological characteristics (i.e., use of zero reference and pragmatically driven word order) of the language?
5. What kind of other influencing factors can be detected in children's use of referential devices?

2 Referential devices used in the elicited narratives of Estonian-speaking children

2.1 Method

2.1.1 Participants

The MAIN test was conducted with 16 Estonian monolingual 6- and 7-year-old children. There were eight boys and eight girls in the group. All parents were asked to provide a written consent to test their children. The parents also completed a questionnaire where they were asked to provide some information about the family.

2.1.2 Materials

From two sets of pictures intended for storytelling in MAIN, "Baby Birds" and "Baby Goats," the "Baby Goat" story was chosen. The story provides a culturally coherent and at the same time interesting story for Estonian children (a goat is not as common an animal as a bird and could be more attractive to the children). Although the MAIN test makes it possible to evaluate children's production and comprehension, only production has been analysed in this article.

The number of protagonists per picture and the timing/sequence of their appearance in each story are controlled for in the test. For example, in the first picture in each of the four stories, only the main protagonist is presented, and in "Baby Goats," the two babies are presented additionally; in all the MAIN stories, the second protagonist appears only in picture 2, where he/she/it is seen only partially in order to convey a process of "entering" or first appearance. In addition, plurality is controlled in the "Baby Goats" story: there are two baby goats in the pictures. Background details are kept to a minimum in order not to distract the child from the primary content and structure.

The story of the baby goats contains six pictures with five animal characters of three different species: a mother goat and two baby goats (all introduced in the first picture), a fox (introduced in the second picture), and a crow (introduced in the fourth picture). All referents are presented in the pictures, but their information status changes during the story (Figure 1).

The production, i.e., all children's narratives, was audio-recorded and transcribed (in CHAT format, MacWhinney 2000) for further analysis. The Estonian MAIN database is available in the CHILDES Estonian corpora (<https://chilides.talkbank.org/browser/index.php?url=Other/Estonian/>).

2.1.3 Procedure

The assessment of narrative production was carried out individually in a separate room in the children's kindergarten or hobby school by an examiner. Each child was presented with six pictures from the "Baby Goat." To create a mediated narrative, three envelopes were placed on the table, all of which contained the same picture series. The purpose was to make the child think that the instructor did not know what the story in the envelope was. The instructor sat in front of the child so that the child could hold the pictures and the

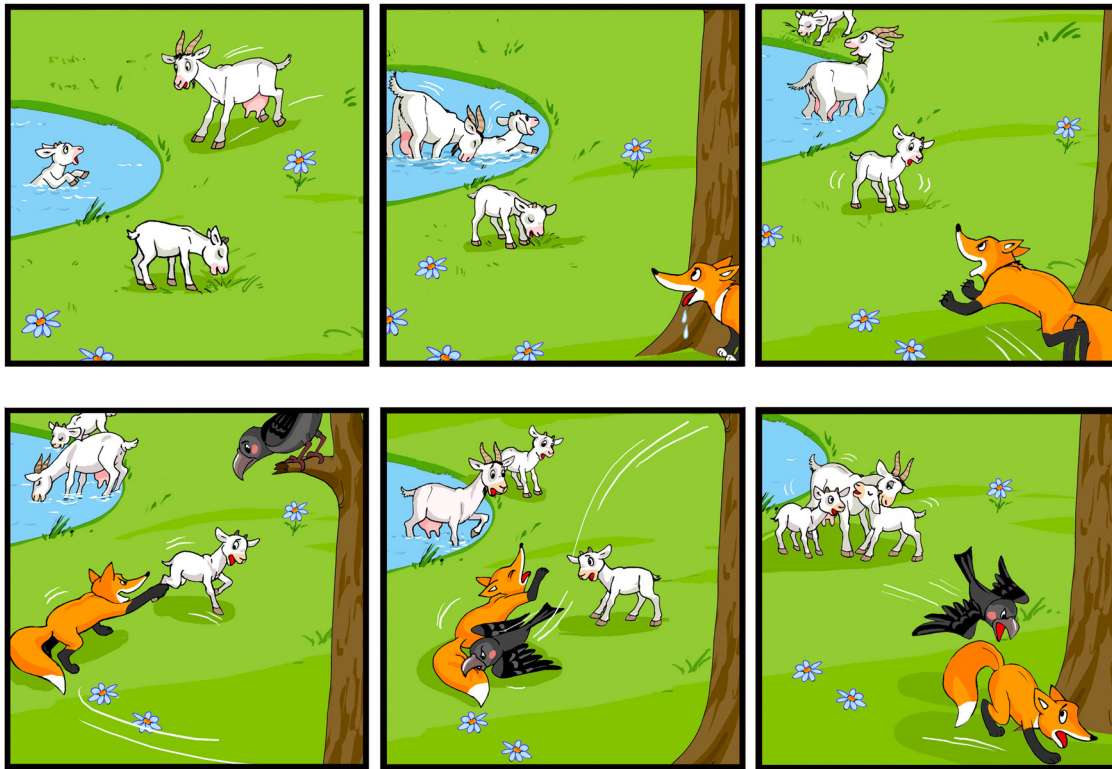


Figure 1: Baby Goats stimulus pictures (based on Guelzow and Gagarina 2007).

instructor could see the back of the pictures. The setup of the test was thus one of non-shared visual attention with a “not very aware” listener. Pictures 1–2 show a scene in which a goat is trying to save a baby goat that has fallen into a pond, and in pictures 3–4, a fox tries to catch a baby goat; pictures 5–6 show a bird saving the baby goats from the fox.

The children were guided according to MAIN instructions. The observer gave only minimal neutral positive feedback (e.g., “yes”). The observer did not react when the child gave an incomplete answer. When the child reached the end of the story and stopped speaking, the observer asked if she/he had finished the story.

2.1.4 Coding and analysing the material

The narratives were transcribed and coded by one of the authors of the present study, Andra Kütt. Then, all narratives were coded by the second author, Reili Argus. The only disagreement between two coders concerned the coding of verb inflection as the device for reference maintenance in cases where the child’s utterance followed the experimenter’s feedback, and there were no other reference devices used in the utterance, for example, the NP for reference was used in one utterance and the bare verb form was used after the experimenter’s feedback utterance. This problem was discussed, and the final decision to code these verb forms as zero references was made on the basis of the information available for the experimenter, that is, for the first coder who could assure that the child was referring to the character of the story and not to anything else.

The narratives were transcribed and coded at the first level for the first presentation of a new referent and for the second reference. On the second level, the narratives were coded for reference chains, that is, all references used for one character were marked. On the third level, the means used for reference were coded: different NPs (bare noun, NPs with different determiners); pronouns (indefinite, demonstrative, personal pronouns); zero references. To analyse the use of a pragmatically driven word order to express definiteness,

Table 1: Overview of participants and scores for narratives produced

Code for the child	Age	Gender	Story structure score (max 17)
CHILD4	6;4.03	Female	3
CHILD5	6;7.12	Male	4
CHILD1	6;3.15	Male	5
CHILD3	6;6.08	Female	5
CHILD6	6;5.03	Male	5
CHILD12	6;3.10	Male	5
CHILD15	5;8.12	Male	5
CHILD2	6;4.02	Male	6
CHILD7	6;6.15	Female	6
CHILD8	6;10.02	Male	6
CHILD9	6;8.19	Female	6
CHILD13	6;2.15	Female	6
CHILD10	6;10.14	Female	7
CHILD11	6;11.5	Female	7
CHILD14	6;1.18	Male	7
CHILD16	6;5.04	Female	8
Average	6;5.11		5.7

all constructions consisting of the reference unit as subjects were extracted and coded for the position of the subject (in pre- or post-verbal position).

The Story Structure Scores for the children's narratives were calculated according to MAIN assessment guidelines. The story structure score (see Table 1) indicates the overall complexity and the number of components in a child's story. Quantitative scoring in the story structure calculates the number of story components produced by the child (the maximum score consists of 1 point each for reference to time and place at the beginning of the story, and 1 point each for mentioning the five components of an episode (internal state as initiating event, goal, attempt, outcome, internal state as reaction)), see <https://zaspil-leibniz-zas.de/article/view/516/525>.

2.2 Results

2.2.1 Introducing a new referent

In order to use different types of linguistic means to introduce a character in the story, children must be able to judge whether the referent they are introducing is currently also known to the listener, that is, they need to be able to take the listener's perspective into account. This means that children should have developed the sufficient theory of mind (Tomasello 2003). In the current study, the pictures were not visible to the experimenter and children could assume that the experimenter did not know the characters of the story.

Children's skills of the introduction of new referents may also depend on the complexity of the story, e.g., good performance in introducing new characters has been reported in studies where simple stimulus material with a small number of characters was used (Lindgren 2018, 113). When using more complex stories with a higher number of characters, the results indicate that children acquire full mastery of introducing a new character rather late. In the current study, the stimulus (the MAIN story "Baby Goats") can be considered rather complicated: There are three main characters (two baby goats and their mother) and two other characters (the fox and the crow). Therefore, 6- to 7-year-old children would not be expected to have full mastery over the introduction of a new reference.

Every character presented in pictures can be first introduced as a new referent. There were five characters in the pictures that could be introduced as new: the mother goat and her two baby goats (all introduced in the first picture; baby goats can be referred to as one plural referent), the fox (in the second

picture), and the crow (in the fourth picture). The children were able to introduce more than five new referents and sometimes even seven referents. There were three reasons why the number of introduced referents was higher than the number of characters in the pictures. First, children sometimes grouped characters and used one introducing device for more than one character, for example, *kitsepere* “family of goats” or *kaks kitse* “two goats,” or children referred to all characters of the story as *kõik* “all” using a quantifier. Some children did not understand that one, and the same character appears in several pictures (see Figure 1) and they introduced some characters again as new (e.g., referring to the mother goat in the second picture as a new referent with NP *teine ema* “another mother”). In some cases, children invented a new character, for example, they started the story by introducing a farmer who had two baby goats (example 6).

(6)

*CHI15: *ela-s* *kord* *üks* *talumees* *ta-l* *ol-i-d*
 live-PST.3SG once one farmer.NOM he-ALL be-PST-PL
kitse-d.
 goat-PL
 “Once upon a time there was a farmer who had goats.”

Concerning the types of construction used by children with the first mention of a story character, a preference for argumentative construction (the character is introduced as a subject or an object) was prevalent. Only five children used typical narrative presentation (the character is introduced as part of a typical narrative beginning, such as “once upon a time”) at the beginning of their story (example 7); other children started with argumentative constructions (example 8). Labelling (or naming) was not used for the introduction of the (first) character by Estonian children.

(7)

*CHI12: *ela-s* *kord* *kolm,* *üks* *ema* *ja*
 live-PST.3SG once three.NOM, one.NOM mother.NOM and
kaks *las-t.*
 two children-PARTIT
 “Once upon a time there were three (goats), a mother and two children.”

(8)

*CHI3: *et* *lehmatal* *lehmatal* *läks* *vette*
 that small.cow.NOM small.cow.NOM go.PST water.ILL
aga *ta* *jä-i* *sinna* *kinni* *ja.*
 but (s)he stay-PST there stucked and
 “That baby cow went into the water but he got stuck there and.”

The children used 112 expressions in total to introduce new referents. The type of references did not depend on the score the children got from the story. Children whose narratives were shorter than 40 tokens did not use NPs with modifiers to introduce new referents (CHI4, CHI5, CHI6, CHI13).

The characters were generally introduced with bare nouns without any determiners (51 tokens, see Table 2), among nouns, common nouns, i.e., natural terms (e.g., *rebane* “fox” and *vares* “crow”), were used most frequently by the children (example 9).

(9)

*CHI11: *ja* *siis* *tul-i* *rebane.*
 and then go-PST fox.NOM
 “And then came a fox.”

Table 2: Different devices used to introduce a new referent

Devices used for introduction of a new referent	Number	%
Bare noun	51	45.5
NPs with modifiers		
<i>NP with adjective</i>	5	4.5
<i>NP with indefinite pronoun</i>	10	8.9
<i>NP with demonstrative pronoun</i>	1	0.9
<i>NP with possessive pronoun</i>	3	2.7
<i>NP with definite pronoun</i>	5	4.5
Total (NPs with modifiers)	24	21.4
Indefinite pronoun	3	2.7
Personal pronoun	3	2.7
Indefinite determiner	3	2.7
Quantifier phrase	3	2.7
Zero reference	1	0.9
Total	112	

This means of reference seems to be used in picture narratives in general (reported also by Hint et al. 2013, 177) and also for CDS (Vihman 2015). In some cases, children used some higher terms instead of specific words: *ema* “mother” for the mother goat, *lind* “bird” for the crow, or *laps* “child” for a baby goat.

NPs consisting of a noun and determiners were the second most frequently used device for introducing a new referent (24 instances). The usage of an indefinite determiner (*üks* “one”) in NPs to introduce a new referent is reported to be common in Estonian narratives (Hint et al. 2013, 171), as well as in Estonian spoken language in general (Pajusalu 1997, 2000), although this typical device for introducing a new character in Estonian was used only seven times by children in this study (examples 10 and 11).

(10)

*CHI11: *ühe-l* *ilusa-l* *suvepäeva-l* *uppu-s*
 one-ADESS beautiful-ADESS summer.day-ADESS drown-PST.3SG
 üks *kitsetalle-ke* *peaaegu* *ära.*
 one.NOM baby.goat-DIM.NOM almost PRF.PRTCL
 “On one beautiful summer day a baby goat almost drowned.”

(11)

*CHI12: *ela-s* *kord* *kolm,* *üks* *ema* *ja*
 live-PST once three.NOM one.NOM mother.NOM and
 kaks *las-t.*
 two.NOM children-PARTIT
 “Once upon a time there were three (goats), a mother and two children.”

Other indefinite determiners used by children to introduce a new referent were not as frequent: children used indefinite pronouns such as *mingi* “some (sort of)” and *teine* “another,” for example, *mingi lind* “some (sort of) bird,” *teine rebane* “another fox,” *teine kits* “another goat.” A non-typical device for the introduction of a new referent, an NP consisting of a noun and the demonstrative pronoun *see* “this,” was used once: *see vares* “this crow” (example 12). A similar strategy was noted by Hint et al. (2013, 177). It is difficult to guess why the child uses such a non-typical device to introduce a new referent in his narrative. One reason could be that he used the demonstrative pronoun *see* in the meaning of “this one,” indicating that he is talking about the particular crow presented in the picture, drawing the experimenter’s attention to the crow. Looking at the child’s previous utterance we can see that he also uses the inappropriate NP *teine*

rebane “another fox” for the second mention of the fox. (Despite the fact that the same fox appears in all the pictures, the child introduced it as a new referent in the second picture.)

(12)

*CHI1:	<i>ja</i>	<i>siis</i>	<i>ta</i>	<i>jõ-i</i>	<i>ja</i>	<i>teine</i>	<i>rebane</i>
	and	then	he.NOM	drink-PST	and	another.NOM	fox.NOM
	<i>teg-i</i>		<i>lapse-le</i>	<i>haige-t</i>	<i>ja.</i>		
	make-PST		child-ALL	hurt-PARTIT	and		
	“And then she drank and another fox hurt the child and”						
	<i>ja</i>	<i>siis</i>	<i>see</i>	<i>vares</i>	<i>näg-i.</i>		
	and	then	it.NOM	crow.NOM	see-PST		
	“and then this crow saw.”						

NPs with adjectives used as modifiers were quite rare when introducing new referents, being used only five times by all the children: *väike kitsekene* “small goat,” *väike tüdruk* “small girl.” One possible explanation could be the general paucity of adjectives in the children’s lexicons (for Estonian, see Kütt and Argus 2017, 89–93, Argus and Kõrgesaar 2014; for English, see Li and Fang 2011). Another explanation could be that NPs with adjectives are not the most typical means of introducing a new referent in Estonian.

Possessive pronouns, as members of NPs, were used three times by children: *nende poju-ke* “their son-DIM,” *oma lapsed* “one’s children,” and *ta ema* “her/his mother.”

Pronouns or determiners alone, that is, without nouns, were used six times to introduce new referents with the determiner *üks* “one” being used most frequently. In example 13, we can see that the child is using the indefinite determiner *üks* “one” for the wolf (fox in the picture) at the end of a very long utterance and a little bit later after some hesitation and the experimenter’s feedback (*jaa* “yes”) used the NP *kuri hunt* “wicked wolf.”

(13)

*CHI2:	<i>vaata</i>	<i>siin</i>	<i>söö-b</i>	<i>üks</i>	<i>lammas</i>	<i>rohtu</i>	<i>ja</i>
	look.IMP	here	eat-PRS.3SG	one.NOM	lamb.NOM	grass.PARTIT	and
	<i>teine</i>	<i>jookse-b</i>	<i>sinna</i>	<i>sest</i>	<i>teine</i>	<i>on</i>	
	another.NOM	run-PRS.3SG	there	because	another.NOM	is.PRS.3SG	
	<i>mere-s</i>						
	sea-INESS						
	<i>ja</i>	<i>siis</i>	<i>päästi-s</i>	<i>ära</i>	<i>ja</i>	<i>siis</i>	<i>tul-i</i>
	and	then	save-PST.3SG	PRF.PRTCL	and	then	come-PST.3SG
	<i>üks.</i>						
	one.NOM						
	“Look, here one lamb is eating grass and another is running there because another is in the sea and then saved and then came one.”						
*CHI2:	<i>siis</i>	<i>tul-i.</i>					
	then	come-PST.3SG					
	“Then came.”						
*OBS:	<i>jaa.</i>						
	“Yes.”						

*CHI2: *siis* *tul-i* *kuri* *hunt.*
 then come-PST.3SG wicked.NOM wolf.NOM
 “Then came a wicked wolf.”

The pronoun *teine* “another” was used two times (example 14) and only for baby goats.

(14)
 *CHI2: *vaata* *siin* *söö-b* *üks* *lammas*
 look.IMP here eat-PRS.3SG one.NOM lamb.NOM
rohtu *ja* *teine* *jookse-b* *sinna*
 grass.PARTIT and another.NOM run-3SG there
 “Look here, one sheep is eating grass and another is running there.”

Quantifier phrases were used three times (*kaks last* “two children,” *kolm kitse* “three goats” and *kitsetallekesed kolm* “three baby goats”) and only for baby goats. A personal pronoun (*ta* “she/he”), which is not a typical way of referring to a new referent, was used three times (example 15).

(15)
 CHI16: *ta* *taht-i-s* *kitsetall-i* *ära*
 he.NOM want-PST-3SG baby goat-PL.PARTIT PRF.PRTCL
süüa.
 eat-INF
 “He wanted to eat baby goats.”

The quantifier *kõik* “all” was also used once to introduce all the characters in the pictures as a group.

(16)
 *CHI2: *ja* *siis* *hammusta-s* *saba* *ja* *siis* *kõik*
 and then bite-PST.3SG tail.PARTIT and then all.NOM
näg-i-d
 see-PST-PL
 “And then he bit the tail and they all saw it.”

A new referent was introduced using zero reference once in the narratives (example 17). Although Estonian allows a zero reference and a verb in present tense form, it usually contains the personal suffix: the omission of overt reference to a new referent is uncommon. According to Hint et al. (2020, 59), speakers use zero to refer to subject referents in Estonian when the same referent is mentioned in the preceding utterance. In the next example, the child has not yet mentioned the crow in the narrative.

(17)
 *CHI5: *siis* *tule-b* *rebane* *ja* *taha-b*
 then come-PRS.3SG fox.NOM and want-PRS.3SG
süüa
 eat-INF

ei *lase* *siis* *vaata-b* *vares*
 no let then look-PRS.3SG crow.NOM
tule-b *naksa-b* *kinni* *ja* *lenda-b*
 come-PRS.3SG catch-PRS.3SG close and fly-PRS.3SG
ära.
 PRF.PRTCL

“Then a fox comes and wants to eat it but it doesn’t let it [the other goat does not let the fox attack the baby goat] and then a crow sees and comes and catches the fox and flies away.”

Different characters were introduced differently: to introduce the crow or the fox, the children most frequently used bare nouns, only six times were NPs used with modifiers. At the same time, baby goats, as the main characters of the narrative, were introduced with a number of different NPs (bare nouns and noun phrases consisting of determiners, pronouns and quantifier phrases).

Analysing the use of pragmatically driven word order in children’s reference introductions, we can see that there were 72 introductions of a new referent with a referential unit (i.e., a word or phrase) in the role of subject in the children’s narratives. The word order in 61% of these constructions was the neutral SVO, for example, the subject was in a pre-verbal position (see example 12), while in 39% of referential constructions, the subject was in post-verbal position (example 18 and also examples 9, 10 and 13).

(18)

*CHI3:	<i>siis</i>	<i>tul-i</i>	<i>lind</i>
	then	come-PST	bird.NOM
	“Then a bird came.”		

2.2.2 Referring to a familiar referent

The children used 145 words or phrases in total to refer to familiar referents (see Table 3). The children’s narratives contained various numbers of references to familiar referents and individual variation between children was extensive: a child’s narrative could consist of 0 to 22 references to a familiar referent.

The usage of nouns without modifiers was the most frequent way to refer to a familiar referent (in total 65 times), a device that was used in approximately half of the cases.

Although pronouns, especially the personal pronoun *ta* “she/he,” are the most common way to refer to a person or an animal that has already been introduced in the discourse (see Hint et al. 2020, 50), the children used pronouns in narratives less frequently (32% vs 45%, see Table 3) than full lexical items, that is, bare nouns. There were five different pronouns used for familiar referents in the children’s narratives. Apart from the most common pronoun, *ta*, the third person plural pronoun *nemad* “they” for the baby goats and *teine* “another” for one baby goat were also used. The pronoun *teine* “another” is common in Estonian as a second reference in situations where some kind of group has already been introduced (see Pajusalu 2017, 578). The reflexive pronoun *ise* “him-/her-/itself” was also used to refer to the crow (e.g., CHI7: *ise hammustab rebast sabast* “him-/her-/itself bites the fox on the tail”). The pronoun *mina* “I” was used in a reported speech by one child to refer to a baby goat:

(19)

*CHI6:	<i>ja</i>	<i>väike</i>	<i>tüdruk</i>	<i>taht-i-s</i>	<i>ema</i>
	and	small.NOM	girl.NOM	want-PST-3SG	mother.NOM
	<i>ma</i>	<i>taha-n</i>	<i>palun</i>	<i>et</i>	<i>küüri-ksi-d</i>
	I.NOM	want-PRS.1SG	please	that	you.NOM
	<i>mind.</i>				scrub-CON-2SG
	I.PARTIT				
	“And the small girl wanted ‘mummy I want please scrub me’.”				

The short personal pronoun *ta* “she/he” is used for the most salient and activated referents with this pronoun more probably referring to the subject than to any other constituent of the previous clause (Pajusalu 2017, 580, Hint et al. 2020, 44). The children in this study used it mainly for the main characters of the story (the goats) and also for the fox. The personal pronoun *ta* was mainly used for the subject, and

Table 3: Different devices used for referent maintenance

Devices used for reference maintenance	Number	%
Bare noun	65	44.8
NPs with modifiers		
<i>NP with adjective</i>	3	2.1
<i>NP with indefinite pronoun</i>	4	2.7
<i>NP with demonstrative pronoun</i>	1	0.7
<i>NP with possessive pronoun</i>	2	1.4
<i>NP with definite pronoun</i>	4	2.7
Total (NPs with modifiers)	13	9
Indefinite pronoun		
Determiner		
Personal pronoun	46	31.7
Quantifier phrase		
Zero reference	7	4.6
Total	145	

only eight usages out of a total of 46 were for other clause constituents (mostly direct objects). One exceptional usage of NP can be found in one narrative where the child used the long form of the personal pronoun *tema* “she/he” with a noun functioning as a post-positive apposition (example 20). This kind of usage is stylistically marked and generally more characteristic to fiction texts and not to spoken narratives.

(20)

*CHI2: *ja* *siis* *jooks-i-s* *tema,* *hunt* *mine-ma.*
 and then run-PST-2SG he.NOM, wolf.NOM go-INF
 “And then run he, the wolf away.”

Sentences with zero reference were also used for the familiar reference by three children (see Table 3). This device was used only once for the introduction of a new referent but seven times for familiar referents (only for the fox and crow). Zero reference was quite common in adult’s narratives: according to Hint et al. (2020, 44), as many as 37.1% of references can be without an overt subject. The past tense form was used predominantly by children with a variety of different verbs (examples 21 and 22).

(21)

*CHI12: *sa-i* *kätte* *ja* *vares* *teg-i* *noka-ga*
 get-PST hand.ILL and crow.NOM make-PST beak-COM
 talle *haige-t.*
 he.ALL hurt-PARTIT
 “Caught and crow hurt him with the beak.”

One child used a relative clause to refer to a familiar referent, to a baby goat:

(22)

*CHI12: *ja* *hakka-s* *karga-ma* *otse* *väikse-le* *talle-le,*
 and start- growl-INF straight small- baby.goat-
 PST.3SG ALLAT ALLAT
 kes *parajasti* *rohtu* *sõ-i.*
 who.NOM at.the.moment grass.PARTIT eat-PST.3SG
 “‘And started to growl at the small lamb who at the moment was eating grass.”

Noun phrases were used for reference to familiar referents with lesser frequency than when introducing new referents (see Tables 2 and 3). Although the noun phrase with an indefinite determiner (e.g., *üks tall* “one lamb”) is a typical device for the introduction of a new referent, the children also used it four times for familiar referents. The definite determiner *see* “this” is a very common demonstrative pronoun for referring to a familiar referent in Estonian, with children in this study using it only four times in NPs. *See* “this” was used to refer to the mother goat (e.g., *see isa* “this father”) and to the baby goat (e.g., *see kits* “this goat”).

Unlike for new referents, indefinite pronouns and demonstrative pronouns without a noun (e.g., *see* “this”) as well as quantifier phrases were not used for familiar referents (see Table 3). Thus, the results were in some places very similar to those of the previous study by Hint et al. (2013), and we can argue that children refer to familiar referents most often by using lexical items and less often with pronouns and verb forms. The distinction between definite and indefinite referents in children’s narratives is manifested by more frequent use of personal pronouns when referring to familiar referents than when referring to new referents. Differentiation between old and mentioned subjects is not always clearly distinguishable: children do not sometimes rely on typical lexical means for expressing definite subjects (NPs consisting of nouns and definite pronouns were used only four times).

Looking at pragmatically driven word order for expressing definiteness, we could expect children to use mainly referential constructions with SVO order for reference maintenance, that is, the opposite word order is not typical for introduced referents. In example 23, the baby goat was introduced by the child in the same utterance, but still the child uses the non-typical word order referring to the baby goat with the pronoun *ta* “she/he.”

(23)

*CHI13: <i>talle-d</i>		<i>sõ-i-d</i>		<i>rohtu</i>		<i>ja</i>		<i>üks</i>
baby.goat-PL		eat-PST-PL		grass.PRT		and		one.NOM
<i>läks</i>	<i>vett</i>		<i>joo-ma</i>	<i>ja</i>		<i>siis</i>		<i>kukku-s</i>
go-PST	water.PRT		drink-INF	and		then		fall-PST
<i>ta</i>	<i>vette.</i>							
(s)he.NOM	water.ILL							
“Baby goats were eating grass and one went to drink water and then she/he fell into the water.”								

Still, among all constructions referring to already introduced characters, 92% were with the subject in pre-verbal position (SVO order), and in only 8% of cases did children use non-typical word order for reference maintenance.

2.2.3 Chains of reference

Chains of reference are described as all referential units used for the same referent during one story (despite possible distractions by other reference chains). The length and the number of reference chains demonstrate the child’s ability to create a coherent narrative, to convey the activities of the same character throughout the whole story. The children’s narratives consisted of 92 reference chains. On average, the reference chain consisted of 2.9 reference units (Table 4).

Children who had longer narratives also had longer reference chains (there was a positive correlation between the length of reference chains and the whole narrative of the child, $r = 0.66$, $p = 0.006$). The shortest chain consisted of only one element (to introduce a new character). At the same time, the longest reference chain had nine members and was used to refer to the fox: *rebane* “fox” > *rebane* > *rebane* > *rebane* > *rebane* > *taht-is* “want-PST.3SG” > *rebane*, *haara-s* “catch-PST.3SG,” *rebane* > “fox.GEN” > *rebane*. No correlation was found between the story structure score and the length of reference chains ($r = 0.39$, $p = 0.133$) and between story structure score and the length of the story ($r = 0.20$, $p = 0.452$).

The densest reference chain consisted of five different means of referring to the same character: *rebane* “fox” > *vaata-s* “look-PST.3SG” > *hüppa-s* “jump-PST.3SG” > *hakka-s taga ajama* “start-PST.3SG to catch” >

- *CHI16: *ja ta ei oska uju-da.*
and (s)he.NOM no can swim-INF
“She/he cannot swim.”
- *OBS: *mhmh.*
“Yes.”
- *CHI16: *ja siis pea-b lükka-ma ema te-da*
and then must-3SG push-INF mother.NOM (s)he-PARTIT
välja.
out
“And then the mother has to push her out.”
- *OBS: *mhmh.*
“Yes”
- *CHI16: *ja siis ta sa-i-gi ja siis tul-i*
and then (s)he.NOM manage- PST-CL and then come-
PST
rebane.
fox.NOM
“And then she/he managed (to get out) and then a fox came.”
- *OBS: *mhmh.*
“Yes.”
- *CHI16: *ja püüd-i-s ta kinni.*
and catch- (s)he.GEN up
PST-3SG
“And caught her.”
- *OBS: *mhmh.*
“Yes.”
- *CHI16: *ja siis vares hammusta-s te-da saba-*
and then crow.NOM bite-PST (s)he- st.
PARTIT tail-
ELAT
“And then the crow bit him from the tail.”
- *OBS: *mhmh.*
“Yes.”
- *CHI16: *ja siis ta aja-s ta mine-*
and then she/he drive-PST (s)he.GEN ma.
go-INF
“And then she/he drove her away.”

One child (CHI16), who had the longest reference chain for a baby goat, introduced the baby goat with NP, then maintained the reference with personal pronouns and then continued with nouns without modifiers: *nende pojake* “their little son” > *ta* “he” > *talle* “to him” > *ta* “he” > *neid* “them” > *kitsepoeg* “baby goat” > *tall* “baby goat” > *kitsepoeg* “baby goat” > *kitsepoeg* “baby goat.”

The other main character in the pictures was the mother goat. The chains of reference used for the mother goat were shorter and consisted of 1–6 units (2 units on average). For the introduction of the referent, the children mainly used nouns (e.g., *ema* “mother” eight times, *kitseema* “mother goat,” three times). To maintain the reference, that is, in the second mention of the mother goat, the children used significantly more nominal rather than pronominal forms, for example, nouns without modifiers (*ema* “mother” or *isa* “father,” four times); there were many fewer instances of the personal pronoun *ta* “she/he” (only one child). The third mention was quite similar, children preferred bare nouns (e.g., *ema*, three times), with only one child using the pronoun *ta* “she/he,” and one child NP consisting of a personal pronoun as a modifier (e.g., *tema ema* “her/his/its mother”). Compared with the reference to the other main

Regarding individual children's profiles, some differences in the length of reference chains and strategies used for reference maintenance can be observed. One child (CHI5) referred to all the characters only once during his story, that is, he introduced characters but did not maintain references. His story was short and without coherence. Two children differed from others with a higher preference for zero reference, both using verb forms without subjects two to three times in their stories. Children preferred to use nouns without modifiers or personal pronouns to re-introduce and maintain the reference. Other devices such as NPs with determiners or adjectives as modifiers were also used but with much less frequency. Some children differed from others in their usage of the personal pronoun *ta* "she/he" to maintain the reference: one child (CHI16) used only the personal pronoun *ta* in subsequent mentions of a referent in her story, while another child CHI3 had only one personal pronoun among 27 referring units in his story.

3 Discussion and conclusion

The present study investigated the strategies used to introduce and maintain referents in MAIN narratives produced by 16 Estonian-speaking children. In the qualitative analysis of referent introduction and maintenance, some previous results were confirmed and some new information was added.

By answering the first research question "What strategies are used by Estonian-speaking children to introduce a new referent?," the authors' intention was to investigate what strategies are used by Estonian-speaking children to introduce a new referent. New referents were generally introduced using bare nouns (45% of all introductions), a result that is similar to the previous findings in the study by Hint et al. (2013). This means of reference seems to be used in picture narratives in Estonian generally (Hint et al. 2013, 177). At the same time, this result differs from results received in other languages. Lindgren et al. (2020, 14) have found that the use of bare nouns to introduce a new referent among 6-year-old children was negligible in Swedish and German.

More complex noun phrases consisting of nouns and adjectives or nouns and other determiners were used less frequently by Estonian children, and pronouns were used in less than 10% of references to new referents. This result contributes to Allen's and Serratrice's (2015, 11) basic finding that "children, like adults, typically use high information forms such as lexical noun phrases for referents that are not accessible to the interlocutor, and low information forms such as pronouns and null forms for referents that are accessible to the interlocutor." That is, our results point to the accessibility of referents as the most important factor influencing the choice of a reference device: a new referent is not as accessible as an introduced referent and cannot be referred to with a pronoun.

According to Hint et al. (2013, 177), the most common determiners in children's narratives were the indefinite determiner *üks* "one" and the demonstrative pronoun *see* "this." According to our results, the indefinite determiner *üks* can also be considered the most common determiner when introducing a new referent, while the demonstrative pronoun *see* was not used to introduce a new referent (only twice in our data). The small difference in the frequency of using NPs with an indefinite determiner emerges in a comparison of our results with the previous results for Estonian. Hint et al. (2013, 177) have reported that children used NPs with indefinite determiners in 12% of introductions of a new referent, while in our data, they did so with a lower frequency, in 9% of cases. Due to the relatively small sample in this study, this difference is not significant and could be caused by the different methodology of the studies. In particular, there were only two characters in the pictures used by Hint et al. and five characters used in the present study. It could be that it is easier for children to differentiate between the status of referents when the number of referents is greater, and there are more possibilities to introduce a new referent during the narrative.

The difference is much bigger when comparing the current data with other languages where the tendency of the late acquisition of the introduction of a new referent, that is, the preference for definite forms for the introduction of a new referent, has been reported (Maratsos 1974, Hickmann et al. 1996, Dasinger 1995, De Cat, 2015). Such a preference was not observed in the present study. Allen and Serratrice

(2015, 1078) also found that English indefinite noun phrases accounted for $\frac{2}{3}$ of all subject noun phrases used to introduce a new referent for both monolingual and bilingual children. In comparison to these results, Estonian children use NPs with indefinite modifiers with a much lower frequency. The reason could be the different system of expressing (in)definiteness in Estonian. Distinction between definite and indefinite subjects and objects is not obligatory (e.g., there is no grammaticalised article system in Estonian) and also not regular in Estonian. Therefore, it can be assumed that Estonian children just reflect the general usage of definite and indefinite linguistic constructions in Estonian.

As for the answer to the second research question “What strategies do children use to maintain referents?,” our data revealed that children used bare nouns with approximately the same frequency as for the introduction of a new referent (45%) and NPs with different modifiers less frequently (9%) to maintain reference. The biggest difference compared with referent introduction concerns the use of personal pronouns, which were used much more frequently to maintain references (32%). This result is also different from Allen’s and Serratrice’s data (2015) on the monolingual English children who overwhelmingly used noun phrases to re-introduce referents and produced subject pronouns only 20% of the time. Estonian children’s NPs (bare nouns and NPs with different modifiers) formed approximately half of all devices used for reference maintenance, while the use of pronouns formed one-third of all referent maintenances.

According to Hint et al. (2013, 177), children don’t seem to differentiate between new and old referents. At the same time, Lindgren and Vogels (2018) have shown that Swedish pre-school children do not use different types of referring expressions randomly when telling a story. On the basis of our data and looking at the different devices used to introduce a new referent and maintaining the old referent, we can say that Estonian children can differentiate new and mentioned referents to some extent. As bare nouns can be used for both referent introduction and maintenance, we cannot consider their use to be the most important factor in deciding on acquisition of reference. The significantly frequent use of pronouns for reference maintenance indicates children’s ability to differentiate new and old referents. Children used personal pronouns as the most typical means for a mentioned referent generally for reference maintenance and only in a few cases for the introduction of a new referent (3%). This result reflects typical (and probably adult-like) use of personal pronouns. Children also used zero reference mainly for reference maintenance (5.3% of all devices) and only occasionally to introduce a new referent (1%). NPs consisting of an indefinite determiner were used more frequently for the introduction of a new referent (9%) and not for reference maintenance (3%).

In short sum, we can argue that 6-year-old Estonian-speaking children can differentiate between new and old referents and that they behave differently when introducing and maintaining the reference. It seems that Estonian-speaking children do not acquire the reference system at a very early age (contradicting the results of Scarabela et al. 2013) because they have still not fully mastered the system by that age. At the same time, we can assume that the ability to introduce and maintain the reference starts to develop earlier (before age 9) than that reported by Hickmann et al. (1996).

To answer the third research question “What correlations can be observed in the length of the story, general complexity (scores) and average length of the reference chain in children’s narratives?,” the length of reference chains and correlations between the general complexity and the length of stories with an average number of units of a reference chain have been analysed. Children used reference chains of different lengths and contents. A reference chain could consist of up to nine members. The children usually started the chains with bare nouns or NPs consisting of determiners as modifiers of nouns, then continued with bare nouns, verbs, or pronouns. Pronouns usually occurred in the second position (the second mention of a referent) in a reference chain. In general, the children produced more lexical NPs relative to pronouns to maintain reference to characters. It could be that the composition of the pictures (several characters in the same picture all of which can be referred to with the same pronouns) caused non-frequent use of personal pronouns by children.

The number of reference units in one chain correlates with the total number of words in the child’s narrative and not with the total score for the narrative. This means that longer narratives had longer and richer reference chains but not always a more complex structure. The reason for this could be the elements scored in the narratives: among other factors, the higher score indicated that the narrative has a starting

point (e.g., an indication of the place or time) and consists of lexical elements expressing the characters' feelings, although these structure elements are not directly linked with the reference. The small sample in this study could also be one possible factor affecting big individual differences in general results, for example, one child with very short reference chains can skew the results. Keeping in mind the importance of narrative skills in a school context, teachers need to address and encourage the production of longer narratives with the same character (using longer reference chains).

Individual profiles of children, that is, individual differences, can be observed when looking more closely at chains of reference as they concern not only the length of reference chains but also the linguistic devices children use to maintain the reference. One child referred to all characters only once, that is, he introduced the characters but did not maintain the reference. One child used only one lemma during the whole chain of reference (for three characters out of five). Two children differed from others with higher preference for null subjects, i.e., using zero reference. Two children differed from the others concerning the usage of personal pronouns to maintain the reference: one child used only personal pronoun in subsequent mentions of a referent, while the other child had only one personal pronoun among 27 referring units in his story.

In relation to the fourth research question, "How are the strategies used in the introduction, and maintenance of reference related to typological characteristics of Estonian?" The analysis resulted in some interesting findings. The influence of the typological character of Estonian can be observed first in the use of zero references in children's utterances. The nature of Estonian verbal agreement morphology allows for subject ellipsis, and therefore, the reference can be expressed only with a verb form consisting of a relevant inflectional suffix. Estonian children generally used this kind of reference to refer to a familiar referent. The possibility to use zero reference for reference maintenance could also influence the lower frequency of usage of pronouns in Estonian than in some previous results from English, Greek and Turkish (Aksu-Koç and Nicolopoulou 2014). Aksu-Koç and Nicolopoulou have reported that children use pronominals in high proportions for the introduction, reintroduction and maintenance of referents, making it children's overall referential strategy. According to our results, children generally did not use pronouns for the introduction of a new referent, using it for the maintenance of the referent in 35% of cases.

Secondly, the use of a different (pragmatically driven) word order in referring to new and old referents (subjects) in children's narratives reveals an ability to use language-specific word-order distinctions already at age 6, and we can argue that Estonian-speaking children demonstrate a preference for typical word order in their referential constructions. As expected, they used post-verbal constructions more frequently for reference introduction than for maintenance (39% vs 8%).

The strategies used by children in the introduction and maintenance of referents are related to the typological characteristics (i.e., use of zero reference and pragmatically driven word order) of the Estonian language. The use of zero reference was expected by children in reference maintenance while the pragmatically marked word order (subject in post-verbal position) in reference introductions. The results reflected the children's ability to use language-specific strategies in both reference introduction and maintenance: the zero reference was used more frequently for the maintenance of the referent (4.8% vs 1%) and the pragmatically marked word order was used with a higher frequency for reference introduction (39% vs 8%). This preliminary data on the acquisition of Estonian can be considered novel and is worth further in-depth investigation.

Concerning the last research question "What kind of other influencing factors can be detected in children's use of referential devices?," the mutual knowledge and discourse status of different characters in the story should also be considered. Mutual knowledge affects the uses of linguistic devices, including the degree to which interlocutors assume the existence and identity of referents when choosing referring expressions. Studies comparing children's narrative production in the presence and in the absence of mutual knowledge (e.g., Hickmann 2003, Kail and Hickmann 1992) have shown that children acquiring a language that encodes the new vs given distinction on the article system do not reliably use indefinite determiners for referent introduction when they lack mutual knowledge, and definite determiners for referent maintenance, even up to 7 years of age. On the basis of these data, the results of the current study are as expected: both the language-specific system for (in)definiteness and the situation with or without

mutual knowledge can influence the acquisition of new vs given distinction. Referents are proposed by pictures in picture narrative situations; jointly perceivable pictures (although the observer was sitting opposite the child) can cause the omission of NPs and the use of verbs only when referring to the characters in the pictures. The use of only verbs for reference is possible in languages that allow subject ellipsis and have verbal morphology, indicating the person and the number of the subject. The zero reference, that is only verbs, for reference to familiar referents was used frequently in our study, something that has not been reported in other studies (e.g., Aksu-Koç and Nicolopoulou 2014). Therefore, we can argue that factors such as mutual knowledge and the influence of the typological character of a language can have an interrelated effect on the distribution of different devices for referent maintenance.

One more factor that affects children's use of different strategies for referring to different characters is the discourse status of the characters in the story. There was a difference when referring to characters who were the main and most prominent and those who were not as prominent in the story. The main characters were introduced with a wider range of different NPs, while minor characters the children generally used were just bare nouns. Hence, new referents were typically referred to with more explicit forms of reference (bare nouns and NPs with modifiers), while pronouns were rarely used for new referents. Reference chains used for characters differed in their length: the longest chains were used for the fox and the baby goats. A difference emerged also in the second mention of the baby goats and the fox, where children mainly used the personal pronoun for these characters while bare nouns were used for the mother goat and the crow. This result confirms the claim of Karmiloff-Smith (1981), according to whom the most topical character in the story (the baby goats in this story) tends to be pronominalised, while other less topical characters are more likely to be re-introduced using a noun phrase (Karmiloff-Smith 1981). Lindgren et al. (2020) and Lindgren and Vogels (2018) have also been suggested that more prominent (i.e., more highly accessible to the children) characters can be referred to more frequently using pronouns. The fox was not the most topicalised character in our story but can still be more salient for children because it is the only negative character and can therefore have a more prominent position. That is, the use of different means of reference can also depend on pragmatic factors such as the topicality of different characters and the number of characters in the pictures used (i.e., a quantifier phrase can only be used to refer to multiple characters, in this story the baby goats). Therefore, the methodological features cannot be overestimated in future studies: The specific picture used in the test and the language (e.g., reference system) used by the children are not separable.

Finally, the study finds several clear differences between the strategies for referent introduction and referent maintenance in Estonian compared with the previous results on Estonian and other languages. Estonian children generally use bare nouns for reference introduction and for reference maintenance. The frequent use of personal pronouns for reference maintenance indicates the difference in referring to a new or old referent. The pattern of strategies found is different in some ways from previous Estonian data because of the different methodology used in the current study and in studies performed in other languages mainly due to the typological characteristics of Estonian. Since the distinction between definite and indefinite subjects is not regular, i.e., grammaticised in Estonian, the children's use of bare nouns both for reference introduction and maintenance does not indicate a lack of ability to differentiate between new and old referents but the specific features or general discourse strategy in Estonian. The length of the reference chains correlates with general length, but not with the complexity of the narrative. The use of zero reference for referent maintenance and pragmatically driven word order as language-specific features demonstrate the children's ability to apply language-specific reference tools in their narratives. These typological tools for reference have not been reported in other studies and could be a promising object in any study of reference acquisition in other languages.

Notes

The distinction between definiteness and indefiniteness in Estonian can be expressed similarly to Finnish, with definite or indefinite pronouns.

http://www.leibniz-zas.de/de/publications/schriftenreihe/zaspil/zaspil-56/main-start/?fbclid=IwAR1r7q6cckM_heRdCLgckHPGj8VJx3cUyFW0sur_MmE2aJzj2JyY8Woh8Dg

Acknowledgements: The authors are grateful to Chloë Marshall, Ute Bohnacker and Natalia Gagarina, as well to the two anonymous reviewers who provided feedback on preliminary drafts of the manuscript.

Funding information: The authors state no funding involved.

Author contributions: All authors have accepted responsibility for the entire content of this manuscript and approved its submission. MAIN-test used in the analyses was carried out by Andra Kütt. Reili Argus and Andra Kütt prepared the manuscript.

Conflict of interest: The authors state no conflict of interest.

Data availability statement: Data availability statements can take one of the following forms (or a combination of more than one if required for multiple types of research data): The datasets generated during and/or analysed during the current study are available in the CHILDES Estonian database (<https://sla.talkbank.org/TBB/childes/Other/Estonian/MAIN/jutustamine>). The datasets generated during and/or analysed during the current study are available from both authors on reasonable request.

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