

Distance, visual salience, and contrast expressed through different demonstrative systems: An experimental study in Estonian¹

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Abstract

This study explores the factors that are considered to have an influence on exophoric or deictic demonstratives. Using an experimental approach, the choice of demonstrative pronouns *see* ‘this’ and *too* ‘that’, and demonstrative adverbs *siin* ‘here’, *siit* ‘hence’ and *seal* ‘there’, *sealt* ‘thence’ are tested for the effect of distance, visual salience and contrast in Common Estonian. In addition, this study also deals with the effect of experimental instructions given before the experiment on the use of Common Estonian demonstrative pronouns and adverbs. Data analysis confirmed statistically significant association between the distance of the referent and the choice between demonstratives, but no such association was found between the use of demonstratives and visual salience/contrast stimuli. However, a more detailed analysis of the data revealed that although visual salience does not have enough power to influence the choice of Common Estonian demonstratives, it does influence the way distal demonstrative adverbs are used. In addition to the influence of distance on demonstrative choice and the influence of visual salience on demonstrative use, the importance of different experimental instructions on the use of the distal demonstrative pronoun *too* ‘that’ was also discovered.

Keywords: exophoric demonstratives, experimental approach, distance, visual salience, contrast, Common Estonian

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1 Introduction and background

1.1 Demonstratives and their usage

Language is one of the means for communication and individuals use language on a daily basis to exchange information and thoughts. When individuals communicate, the communicative acts take place in space and time, and things being mentioned have to be identified within that space and time. When identifying these entities, we refer to them using referential expressions. Reference can be defined as a “three-place relation that holds when speaker *x* uses expression *y* to identify entity *z*” (Abbott 2010: 2). One means for referring is using demonstratives² – deictic expressions such as *this* and *that* and *here* and *there* in English.

The use of demonstratives can be divided into two groups: *endophoric use* – the use of demonstratives takes place in text and helps to keep track of what happened to whom – and *exophoric use* – the use of demonstratives takes place in the physical world where interlocutors refer to actual entities in the space in which they are currently located (Halliday & Hasan 1977). Yet, it should be noted that it is not possible to distinguish demonstratives as endophoric or exophoric in every situation, as the intended referent may belong to the physical as well as discourse world at the same time.

In the classical view, demonstratives are treated as egocentric devices (Lyons 1977) where the speaker considers him/herself as the anchor point in time and space, i.e., the choice of exophoric demonstratives is dependent on the spatial location of the referent relative to the speaker. Also, demonstratives are seen as universal linguistic elements, as it has been claimed that “all languages have at least two adverbial demonstratives (or deictic particles) that indicate the distance contrast between two referents or locations” (Diessel 2005: 3). In this, the English demonstrative pronoun *this* and demonstrative adverb *here* could be interpreted as referring to something that is near to the speaker, and the demonstrative pronoun *that* and demonstrative adverb *there*, as something that is far from the speaker.

Although this distance-based approach for the choice of exophoric demonstratives is supported by typological (Diessel 1999; 2005) as well as experimental studies (Coventry et al. 2008; Tóth et al. 2014; Reile 2015), several authors (Hanks 2009; Jarbou 2010) have found the near-far distinction too simplistic. For example, it does not explain how the same

² Following Diessel (1999; 2014) the term demonstrative is used to indicate demonstrative pronouns, demonstrative adjectives, and demonstrative adverbs.

referent can be referred to with a different demonstrative, while the location of the interlocutors and the referent remains the same (Jarbou 2010). Moreover, Kemmerer (1999) has argued that while there is a fundamental distinction between far (extrapersonal) and near (peripersonal) space in the visual system, the notion of proximal and distal which is encoded in demonstratives is “very abstract” (ibid.: 56). Therefore, the connection between the notion of near and far is not as straightforward in language as it is in perception.

Increasingly, the choice of demonstratives is explained with means other than distance. Distance is thought to be “only one possible parameter alongside others”, such as perception, salience (cognitive or perceptual), and so on (Hanks 2011: 320). Several authors (e.g. Laury 1997; Hanks 2005; Marchello-Nizia 2005; Etelämäki 2009) have shown the importance of different contextual frames on demonstrative choice. In addition, Diessel (2006) proposes that demonstratives function to create a joint focus of attention. Therefore, they also serve to create and guide the attention of the addressee to the intended referent, not merely mark the distance of the referent from the interlocutors.

In recent years, different empirical studies have been conducted that test the influence of distance (Coventry et al. 2008; Tóth et al. 2014; Reile 2015) and other possible factors on demonstrative choice. For example, the effect of joint attention (Stevens & Zhang 2013; Peeters et al. 2014) and contrast (Tóth et al. 2014) have been found to be as important as distance. Another possible affective factor is the accessibility of the referent. However, when dealing with accessibility, there are different notions on what is meant by this. In discourse studies, which focus on referential expressions in text flow, accessibility refers to how accessible the referent is mentally for the addressee (Ariel 2001). According to Ariel (2001: 29), referring expressions “instruct the addressee to retrieve a certain piece of Given information from his memory by indicating to him how accessible this piece of information is to him at the current stage of discourse”. Put simply, there are low accessibility markers, such as proper names and definite descriptions, which indicate the mentally least accessible referents; high accessibility markers such as personal pronouns, which indicate the most accessible referents; and mid accessibility markers, i.e., demonstratives, which “connect discourse to given entities from the physical surrounding” (Ariel 1988: 76). Compared to the discourse settings, spatial situations require identification of the referents in a physical world. With vision being a key source in spatial deixis (Hanks 2011), the speaker

has to take into account the visual field. Moreover, there are languages that have demonstratives which even encode the invisibility of the referent (Diessel 1999). Thus, visual perception seems to play an important role in exophoric demonstrative choice.

However, it should be noted that Piwek et al. (2008) define a referent's accessibility in spatial context through mental rather than visual access. According to Piwek et al. (2008), new referents have low accessibility (similarly to Ariel's approach) and referents situated in the domain focus have high accessibility. For a referent to be in the domain focus, it has to be "referred to in the preceding utterance or be adjacent to an object that was referred to in the preceding utterance" (Piwek et al. 2008: 708). A similar approach is adopted by Tóth et al. (2014) in the study of Hungarian and Dutch demonstratives. At the same time, Jarbou (2010) relies on his definition of a referent's accessibility more on a visual ground in the sense that the speaker takes into account the addressee's viewpoint. Referents with low accessibility will not be easily recognizable for the addressee and so s/he "has to exert some effort to recognize it". On the other hand, referents with high accessibility are already recognizable for the addressee or s/he "will easily recognize it based on prominent perceptible features in context" (Jarbou 2010: 3088). Similarly, Coventry et al. (2014) used an experiment to test the influence of the visibility of a referent on the choice of English demonstratives. Blocking visual access to referents had an effect on the participants' choice of demonstratives. Thus, the referent is accessible if it is in joint focus of attention of the speaker and the hearer (Piwek et al. 2008; Tóth et al. 2014), i.e., it is "mentally accessible". The referent is accessible if it is easily recognizable to the addressee (Jarbou 2010), that is, the referent is visually accessible. And finally, the referent is accessible, if the referent is visible for the speaker (Coventry et al. 2014). These three notions are intertwined, as it is harder to create joint focus of attention when the visual access to an intended referent is not easily established or if the referent is not visible at all. While the studies on influence of distance on the choice of demonstratives in different languages have had uniform results, previous research on the accessibility or salience of the referent (whether mental or visual) has found inconclusive evidence of the effect on demonstrative choice from studies of different languages (Jarbou 2010; Coventry et al. 2014; Tóth et al. 2014) as well as in the same language but using varying experimental designs (Piwek et al. 2008; Tóth et al. 2014).

While there has been quite extensive research on demonstrative pronouns, demonstrative adverbs have had only limited research attention. Yet typological studies (for example, Diessel 1999; Dixon 2003) show that there are many different demonstrative systems in the world's languages and not all of these have more than one demonstrative pronoun (such as in German, Diessel 1999). In this case, the spatial contrast is conveyed through demonstrative adverbs (Diessel 1999; Levinson 2004). Thus, Levinson (2004: 116) has proposed that demonstrative adverbs might be "the most universal examples of spatial deixis". Moreover, Laury (1996) has suggested that in the Finnish use of demonstrative pronouns or adverbs, more precisely internal case forms or locative-adverbial forms of demonstratives, location is conceptualized either as figure or ground, respectively. This finding and the variety of different demonstrative systems in the world's languages suggests that it is likely that the mechanisms of demonstrative choice are not yet fully understood.

1.2 Estonian demonstratives

Estonian is a Finno-Ugric language with approximately 1 million native speakers. Despite this relatively small number, there are three regionally varying demonstrative pronoun systems in Estonian (Pajusalu 2009), which is not that common among the world's languages. In northern Estonia, there is only one demonstrative pronoun *see* (with meanings like those of *this* and *that* in English), which is used distance-neutrally (Larjavaara 2007; Reile 2015). For example, in a sentence *see auto on punane* 'this car is red' the demonstrative pronoun *see* would be used when referring to a car that is near to the speaker as well as to a car that is far away. Common Estonian has two demonstrative pronouns: proximal *see* 'this' and distal *too* 'that'; however, distal *too* is mostly used in southern Estonia. For example, in a sentence *see auto on punane ja too auto on roheline* 'this car is red and that car is green', the demonstrative *see* would be used for a car that is near to the speaker and demonstrative *too* for the car that is far from the speaker. In South Estonian³, there are three demonstrative pronouns: *sjoo* (refers to something near to the speaker), *taa* (refers to something near to the hearer), *tuu* (refers to something that is far from both, the speaker and the hearer) (Pajusalu 2009).

³ As this study focuses on the two-way system in comparison to the one-way system, a more detailed overview of the three-way system is not given.

While the Estonian reference grammar (Erelt et al. 1993) has treated *see* and *too* as distance-oriented demonstrative pronouns, Pajusalu (1999) suggests that *too* is used when there is a spatially contrastive situation, otherwise *see* is used for both, spatially near and far referents. Another important aspect of Estonian demonstrative pronouns is that contrary to most languages, for example English (Strauss 2002) and Hungarian (Tóth et al. 2014), the proximal demonstrative *see* is used much more frequently than distal *too*. From the Frequency list of the Balanced Corpus of Estonian (2012), which consists of fiction, journalistic, and scientific writings (5 million words from every genre), *see* occurs 263 713 times and *too* 6064 times. This difference in frequency between the two demonstrative pronouns suggests that the use of distal *too* is much more restricted than the use of proximal *see*. Pajusalu (2006) has also suggested that the use of demonstrative *too* might be beginning to disappear, as the results from her study show that the demonstrative *too* is very rare in fiction and is used to refer to the second character of the narrative or in time expressions. The demonstrative *see* is much more frequent and is used to refer to “any suitably activated referent” (Pajusalu 2006: 251).

Also, Estonian has six spatially contrastive demonstrative adverbs: the lative adverbs *sii* ‘hither’ and *sinna* ‘thither’; the locative adverbs *siin* ‘here’ and *seal* ‘there’; and the separative adverbs *siit* ‘hence’ and *sealt* ‘thence’, all of which have developed from the demonstrative pronoun *see*. Demonstrative pronouns and adverbs are often combined in Estonian, most probably partly due to the distance neutrality of the demonstrative *see* ‘this’ in the one-way demonstrative pronoun system of Estonian (Reile 2015). Compared to the frequency of demonstrative pronouns, the frequency of demonstrative adverbs is more balanced between proximals and distals in the Frequency list of the Balanced Corpus of Estonian (2012), though it seems to be a bit more skewed to the use of distal demonstrative adverbs: *sii* ‘hither’ 3010 vs. *sinna* ‘thither’ 4501; *siin* ‘here’ 12 903 vs. *seal* ‘there’ 12 909; *siit* ‘hence’ 1894 vs. *sealt* ‘thence’ 3213 times. This balanced frequency in the corpora gives reason to believe that demonstrative adverbs are also used in a more balanced manner in spatial context than demonstrative pronouns.

Although there have been a number of empirical studies on the use of spatial demonstratives, the experimental studies that have allowed controlling for confounding factors have been mostly carried out on Indo-European languages (such as English and Dutch). With only few exceptions (e.g. Tóth et al. 2014), demonstrative studies on other languages

have relied on observational methods (for example, Laury 1997; Etelämäki 2009; Jarbou 2010; Monzoni & Laury 2015), e.g., video recordings of natural language use, and descriptions of demonstrative use from naturally occurring situations in written form (see Jarbou 2010: 3081–3082). While the observational data have the benefit of naturalness, “the actual speech context almost always involves several different dimensions at once” (Hanks 2009: 12), thus making it hard to tackle the influential parameters of demonstrative choice. Moreover, experimental studies enable one to gather language data using different people in the same situation and to acquire comparative data from different languages. On the other hand, experiments test for concrete aspects of language use and thus provide more limited information. Therefore, to get more detailed explanations for the use of demonstratives, both observational and experimental studies are needed.

1.3 Theoretical background and hypotheses

The methodology of the study was developed by the author following previously published empirical papers by Coventry et al. (2008) and Piwek et al. (2008). In Coventry et al. (2008), demonstrative choice with respect to varying distance was explored in English and Spanish. In the Piwek et al. (2008) experiment, the influence of referents’ accessibility on Dutch demonstratives was studied using role-play. This study combines the role-play approach with testing influence of distance on the choice of Common Estonian demonstratives and extends it by adding visual salience and contrast to varying distance of referents.

The first affective factor to be tested is distance. Following Coventry et al. (2008), the division of physical space into near and far regions was based on the physical access of the object – if the object was within arm’s reach (the participants could easily touch it and pick it up), then it was considered near and if it was outside arm’s reach (the participants had to stand up in order to reach it), it was considered to be far. As Estonian demonstratives are considered to be spatially contrastive (Erelt et al. 1993; Pajusalu 1999), the switch in the use of demonstratives was assumed to happen on the border of the near and far space (roughly 100 cm). The hypothesis was as follows:

- (1) Demonstratives *too* ‘that’, *seal* ‘there’, and *sealt* ‘thence’ are used while referring to distant referents while demonstratives *see* ‘this’, *siin* ‘here’, and *siit* ‘hence’ are used for referring to near referents.

The second influential factor under investigation is visual accessibility tested through the visual salience of the referent. The association between accessibility of the referent and the choice of referential expressions has been studied extensively in discourse studies (see for example Ariel 2001). The more mentally accessible the referent is, the shorter the form of the referential expression that is used. Also, it is suggested (Ariel 2001) that demonstratives are positioned on a slightly different scale in the accessibility hierarchy – distal demonstratives indicate less accessible referents than proximals. This division is based on the notion that distal demonstratives are often grammaticalized into definite articles, which indicate even lower accessibility of the referent (Ariel 1988). Relying on Chafe (1994), the accessibility of the referent is defined with respect to the addressee, that is, in order for language to fulfil its communicative function, the speaker has to assess the addressee’s mental processing and act accordingly. As for spatial context, the accessibility of the referent has been identified either as being in joint focus of attention (Piwek et al. 2008) or with the ease of which the addressee will be able to identify the intended referent (Jarbou 2010).

The adopted approach here combines the idea of an accessibility hierarchy where demonstratives refer to referents with different accessibility (Ariel 1988), and the notion that the speaker’s choice of demonstratives is dependent on the visual accessibility of the referent with regard to the addressee (Jarbou 2010). As it is proposed that in spoken Estonian, the proximal demonstrative pronoun is the demonstrative that is in the process of becoming a definite article (Pajusalu 1997), the approach to the accessibility hierarchy is a bit different, i.e., the proximal demonstrative pronoun is considered to be marking lower accessibility than distal. Following Jarbou (2010), visually non-salient referents were defined as referents with low accessibility – they were difficult for the addressee to differentiate among other possible referents – and visually salient referents were defined as referents with high accessibility – they were easily recognizable for the addressee. Thus, to indicate that the intended referent is far and visually salient, distal *too* ‘that’ would be used – the speaker would be suggesting that it is enough for the addressee to rely only on a distance distinction. To indicate far and visually non-salient referents,

proximal demonstrative *see* ‘this’ would be used – the speaker is indicating that the referent is less accessible and more than just a distance distinction is needed for the addressee to find the intended referent. Also, Reile (2015) found that proximal demonstrative adverbs could be used in indicating the visually less accessible referents regardless of the distance of the referent.

The hypothesis for visual accessibility is as follows:

- (2) Demonstratives *see* ‘this’, *siin* ‘here’, and *siit* ‘hence’ are used while referring to visually non-salient and far referents; demonstratives *too* ‘that’, *seal* ‘there’, and *sealt* ‘thence’ are used in referring to visually salient and far referents. The visual salience effect overrides the distance effect on demonstrative choice.

Contrast is the third aspect that is tested for its influential effect on demonstrative choice in this study. Following Kaiser (2010), contrast is taken as comparing or opposing [a] focused entity with the other members of the alternative set. In Estonian, contrast can be expressed either with contrastive conjunctions or with lexical items (Erelt et al. 1993: 278–279). Thus, it can be assumed that in Estonian, demonstrative pronouns implicitly carry the contrastive notion and should express contrastive context, as they can be used with or without contrastive conjunctions to create contrast. For example, with a conjunction: *See on ilus, aga too kole*. ‘This one is pretty, but that one is ugly’. And without a conjunction: *See avab kapiukse, too korteriukse*. ‘This unlocks the cupboard door (and) that one the door to the apartment’.

The hypothesis of contrast is as follows:

- (3) In order to create contrast between two similar objects at the same distance, the demonstrative pronoun *see* ‘this’ is used in referring to the first referent and the demonstrative pronoun *too* ‘that’ is used in referring to the second referent. The contrast effect overrides the distance effect on demonstrative choice.

This study explores the role of distance, visual salience, and need for contrast on the choice of demonstrative pronouns and demonstrative adverbs in Common Estonian. Moreover, using an experimental approach, this study explores how the experimental instructions given before the experiment influence the subject’s use of demonstratives. In this way, this study contributes and extends the current knowledge concerning factors influencing demonstrative choice in a language with multiple demonstrative pronoun systems.

2 Method and data

2.1 Procedure, stimuli, and the sample

The experiment consisted of two participants (a ‘builder’ and an ‘instructor’) reconstructing a sculpture on the basis of a ready-built model from Lego blocks that were situated in front of the participants on a large table (1.2 x 2.75 meters). Only the instructor saw the ready-built model and only the builder was allowed to move the blocks one by one from the table. The blocks on the table and in the pre-built sculpture were numbered in order to keep the sequence of the blocks taken from the table the same for all the participants. The blocks were all of the same size and in two different colors, thus minimizing the possibility for the instructors just describing the blocks without using any demonstratives, yet at the same time making it easy enough to differentiate the blocks combining gesture, demonstratives, and block colors.

The experiment was divided into three series, each of these testing one demonstrative-related stimulus:

- 1) The first series tested for the effect of distance – the blocks on the table lay seemingly randomly at varying distance. There were 14 blocks in 2 different spatial sections, within and outside of both participants’ reach, thereby creating the condition near vs. far (Figure 1 in the Appendix). The instructor was asked to indicate one block at a time. When the builder was certain s/he understood which one of the blocks had been indicated, s/he took the block from the table and returned it to the starting point. Then the instructor continued with the instructions, telling the builder where to put the block which had been taken.
- 2) The second series tested for the effect of visual salience and distance – the 14 blocks lay on the table and were grouped together within and outside of both participants’ reach, creating visual salience (Figure 2 in the Appendix). Three same-colored blocks were grouped together, in this way being visually less distinctive from one another and therefore visually less accessible, i.e., visually non-salient. The fourth block in front of the three in different colors was made visually salient. Also the blocks that were positioned alone on the table were considered visually salient as they were easy to differentiate from other similar blocks. The experimental condition was: salient vs. non-salient and near vs. far. The instructor was asked to indicate one block at a time. When the builder was ready, s/he took that block from the table and returned it to the starting point. When returned, the instructor resumed instructing the sculpture building.
- 3) The third series tested for the effect of contrast and distance – the blocks lay seemingly randomly on the table (the layout was the same as in the distance series, Figure 3 in the Appendix). The instructor was asked to indicate two blocks

(one at a time) instead of one, after which the builder put the two blocks on a marked location on the table in the near distance. Then the instructor indicated the blocks on the marked spots (one at a time) and instructed where to put the blocks. The conditions for this series were near distance and contrast.

In addition, to detect possible changes in the use of the distal demonstrative pronoun *too* ‘that’, the participants were divided into two groups, depending on the instructions that the experimenter gave them. Group A received fairly loose instructions, the only restriction being not to use the numbers on the blocks while instructing the builder. Group B was not allowed to use spatially descriptive phrases such as “the last block at the back”, “the first block”, and “left” and “right”. They were told that they could use demonstratives (demonstrative pronouns/adverbs)⁴, gestures, and block colors while giving the instructions. The restriction of block numbers applied to group B as well.

The participants were assigned to their roles at random. Each pair of participants went through all three series. The sequence of series was kept random to minimize the possible influence of a carry-over effect (Field & Hole 2003). Respondents were given standardized oral instructions before each series, thus making the participants feel more comfortable yet granting the same level of guidance within the sample. Participants were told that the study explores the connections between space and language, but not that the study explores the use of demonstratives. Pilot studies confirmed that the participants did not realize that the goal of the experiment was to elicit demonstratives and were completely concentrated on the task of building the sculptures.

2.2 Participants

As the use of the demonstrative *too* has regional restrictions, the data were collected in 3 high schools in South Estonia⁵ – in Võru, Antsla, and Põlva

⁴ The experimental instructions for the instructors in group B regarding the use of demonstratives were as follows: While instructing, do not use the block numbers, expressions like ‘the right one’, ‘the left one’, ‘the first one’, ‘the last one’. You can use block colors, gestures, and demonstratives such as *see, too, siin, seal*, etc.

The participants were not asked to use precisely these forms, but these were named to give an example of demonstratives so participants would know what was expected of them.

⁵ More specifically, in this study the regions where the two-way demonstrative system is used (Võru, Põlva and Tartu counties) are referred to as South Estonia.

regions – between March and May in 2013. In addition, the participants were asked to fill in a sociodemographic questionnaire, making it possible to eliminate the participants that originated from regions outside of South Estonia. This careful consideration of the participants made it possible to assess whether the use or lack of use of the demonstrative pronoun *too* ‘that’ is caused by the stimuli in the experiment or instead by the regional origin of the participants (Reile 2015).

The experiment was conducted in a classroom on a school day and the study was approved by school authorities beforehand. Participation was voluntary and informed consent was obtained from each participant. The permit for conducting the experiment was obtained from the Ethics Committee of the University of Tartu (Approval No. 248/M-19).

All trials of the experiment were recorded using a video camera and were later transcribed by the author (coding the use of demonstratives as well as gestures).

The experiment was carried out using a total of 37 pairs of participants, but as there was a need to keep the data balanced between regional sites and groups (in Võru, there were only 4 pairs of participants in group A) as well as due to several technical and other reasons (absence of the participants due to illness, leaving only one participant for the study, too loud background noise, etc.), only data from 24 pairs of participants were included in the analysis. Respondents were pupils between the ages of 16 and 19 (mean age 17 years) mostly in their 11th school year. There were 24 instructors of which 6 were male and 18 were female, and 24 builders of which 7 were male and 17 were female. All the participants took part in all the experimental series.

2.3 Data analysis

The current analysis uses data from the instructor’s utterances only, as the builders tended to use scarce linguistic devices, mostly just carrying out the given instructions. The focus of the analysis is on the utterances that apply to the activity taking place on the table. The units of analysis are demonstrative pronouns and demonstrative adverbs. Included are all the references to the object until the builder had found the block. Since the aim of the experiment was to confirm whether distance, visual salience, and need for contrast differentiates the use of Estonian demonstratives, the utterances without any demonstratives were left out of the analysis. In total, the data included 264 units of analysis for the distance series (112 in group

A and 212 in group B, respectively), 273 for the visual salience series (106 in group A and 215 in group B), and 218 for the contrast series (64 in group A and 154 in group B). Due to the small sample size, the locative and separative forms of the same adverbial series (*siin* ‘here’ and *siit* ‘hence’; *seal* ‘there’ and *sealt* ‘thence’) were grouped together. Since the analysis was focused on the activity that took place while referring to the blocks on the table, no locative forms of demonstrative adverbs occurred (these forms were used only while building the sculpture). The data analysis is conducted using Fisher’s exact test to test for statistical significance of the association between stimuli and the choice of demonstratives within the two groups and the difference of demonstrative use between groups (§ 3.1–3.4), and a Chi square test to assess the statistical significance of the association between the experimental series and demonstrative use (§ 3.4).

3 Results

3.1 Results of the distance series

Table 1 presents the overall use of demonstratives in the distance series, where the effect of distance on the choice of Estonian demonstratives was tested. In group B, the use of the demonstrative *too* ‘that’ increases while the use of the demonstrative *see* ‘this’ decreases as the distance grows. In group A, the frequency of the use of the demonstrative *see* ‘this’ is quite even in both distance categories. The demonstrative *too* is used infrequently and only in the far distance category. It can be seen in Table 1 that the use of proximal and distal demonstrative adverbs is similar to the use of demonstrative pronouns. In group A, proximal demonstrative adverbs (*siin* ‘here’, *siit* ‘hence’) can be used in referring to the blocks in both distance categories quite evenly, similarly to the use of proximal demonstrative pronouns. For group B, there is a clear distinction in using the proximal demonstrative adverbs in the near distance category, even more so than with proximal demonstrative pronouns. In group B, Fisher’s exact test shows a statistically significant association between the chosen demonstrative and the distance of the referent from the speaker for both demonstrative pronouns and adverbs ($p < 0.001$). In group A, this association was statistically significant only for demonstrative adverbs ($p < 0.01$).

Table 1. The frequency of demonstratives used in the distance series of the experiment

Demonstrative pronoun/adverb	Near (row %)	Far (row %)	Total, n	<i>p</i> -value*
Group A				
<i>see</i> 'this'	32 (49)	33 (51)	65	= 0.118
<i>too</i> 'that'	0 (0)	4 (100)	4	
<i>siin</i> 'here' and <i>siit</i> 'hence'	17 (59)	12 (41)	29	< 0.01
<i>seal</i> 'there' and <i>sealt</i> 'thence'	1 (7)	13 (93)	14	
Group B				
<i>see</i> 'this'	59 (66)	30 (34)	89	< 0.001
<i>too</i> 'that'	4 (7)	51 (93)	55	
<i>siin</i> 'here' and <i>siit</i> 'hence'	16 (94)	1 (6)	17	< 0.001
<i>seal</i> 'there' and <i>sealt</i> 'thence'	4 (8)	47 (92)	51	

**p*-value presents the statistical significance of the association between distance and the choice of Estonian dem.pron-s and dem.adv-s

Table 2 presents the uses of demonstrative combinations in an utterance. Three combinations of demonstrative pronouns and demonstrative adverbs were used: a proximal demonstrative pronoun combined with a proximal adverb, as in (1); a proximal demonstrative pronoun combined with a distal demonstrative adverb, as in (2); and a distal demonstrative pronoun combined with a distal demonstrative adverb, as in (3). Though for some language users, combining a distal demonstrative pronoun with a proximal demonstrative adverb is possible, no such combination occurred in the sample.

Table 2. The frequency of pronoun and adverb combinations used in the distance series of the experiment

Demonstrative pronoun and adverb combinations	Near (row %)	Far (row %)	Total, n
Group A			
<i>See+siin/siit</i> 'this+here/hence'	9 (70)	4 (30)	13
<i>See+seal/sealt</i> 'this+there/thence'	0 (0)	7 (100)	7
Group B			
<i>See+siin/siit</i> 'this+here/hence'	10 (91)	1 (9)	11
<i>See+seal/sealt</i> 'this+there/thence'	1 (8)	13 (92)	14
<i>Too+seal/sealt</i> 'that+there/thence'	3 (15)	17 (85)	20

- (1) *Siis võta see sinine siit.*
 then take this.DEM.PRON.NOM blue here.DEM.ADV.SEP
 'Now take this blue one here.'

- (2) *Võta see kõige tagumine klots seal.*
 take this.DEM.PRON.NOM most back block there.DEM.ADV.SEP
 ‘Take that block that is furthest to the back over there.’
- (3) *Ee võta too tagumine seal punane.*
 um take that.DEM.PRON.NOM back there.DEM.ADV.SEP red
 ‘Take that back one there, the red one.’

In group A, the demonstrative *too* did not combine with any demonstrative adverbs, while the demonstrative *see* was used in combination with both distal and proximal demonstrative adverbs.

For example, while indicating the blocks near:

- (4) *Ja siis võta see punane klots siit.*
 and then take this.DEM.PRON.NOM red block here.DEM.ADV.SEP
 ‘And then take this red block from here.’

and far:

- (5) *Mm võta see kõige tagumine klots seal.*
 um take this.DEM.PRON.NOM most back block there.DEM.ADV.SEP
 ‘Take the block furthest to the back over there.’

In group B, the demonstrative *too* was used in combination only with distal demonstrative adverbs. The demonstrative *see* was used with both proximal and distal adverbs. For example, while referring to the blocks at near distance:

- (6) *Ja siis ee võta see siit.*
 and then um take this.DEM.PRON.NOM here.DEM.ADV.SEP
 ‘And then take this one from here.’

And at far distance:

- (7) *Siis ee too viimane punane klots seal.*
 then um that.DEM.PRON.NOM last red block there.DEM.ADV.LOC
 ‘Then that last red block over there.’
- (8) *Siis see sinine seal.*
 then this.DEM.PRON.NOM blue there.DEM.ADV.SEP
 ‘Then this blue one over there.’

However, it seems that when a distal demonstrative pronoun was actively used (as in group B) then distal adverbs were more prone to combine with distal demonstrative pronouns (20 out of 34) rather than with proximal ones (14 out of 34).

As can be seen in Table 2, in the case of the combinatory use of demonstrative pronouns and adverbs, proximal demonstrative adverbs are more prone to combine with proximal demonstrative pronouns. In the case of combinatory uses, the demonstrative adverbs hold the position of marking the distance of the referent from the speaker. For example, in the case of a proximal demonstrative pronoun and distal adverb combination, the referred object tends to be situated in the far not in the near category.

3.2 Results of the visual salience series

Tables 3, 4, and 5 present the uses of demonstrative pronouns and adverbs and the combination of the two in the visual salience series. The use of the demonstrative *too* ‘that’ is almost absent in group A (only 1 occurrence). Demonstrative *see* ‘this’ is used mostly for salient referents at both near and far distance. In group B, the proximal demonstrative pronoun is still used for near referents and the distal for far referents. The same applies for demonstrative adverbs. In addition, participants tend rather to use demonstratives for referring to salient referents than to non-salient ones.

Table 3. The frequency of the demonstratives used in the visual salience series of the experiment

Demonstrative pronoun/adverb	Near (row %)		Far (row %)		Total, n
	Salient	Non-salient	Salient	Non-salient	
Group A					
<i>see</i> ‘this’	22 (39)	3 (5)	28 (49)	4 (7)	57
<i>too</i> ‘that’	0 (0)	0 (0)	1 (100)	0 (0)	1
<i>siin</i> ‘here’, <i>siit</i> ‘hence’	11 (48)	2 (9)	10 (43)	0 (0)	23
<i>seal</i> ‘there’, <i>sealt</i> ‘thence’	0 (0)	0 (0)	17 (68)	8 (32)	25
Group B					
<i>see</i> ‘this’	40 (38)	23 (22)	34 (32)	9 (8)	106
<i>too</i> ‘that’	2 (5)	0 (0)	28 (72)	9 (23)	39
<i>siin</i> ‘here’, <i>siit</i> ‘hence’	11 (39)	8 (27)	7 (24)	3 (10)	29
<i>seal</i> ‘there’, <i>sealt</i> ‘thence’	1 (2)	0 (0)	27 (66)	13 (32)	41

Table 4 shows that there is no statistically significant association between the choice of demonstratives and the visual salience of the referent ($p > 0.05$ for both demonstrative pronouns and adverbs in both groups).

Table 4. The frequency of the demonstratives used while referring to salient and non-salient referents in the far distance category

Demonstrative pronoun/adverb	Far distance		<i>p</i> -value*
	Salient	Non-salient	
Group A			
<i>see</i> ‘this’	28	4	= 1
<i>too</i> ‘that’	1	0	
<i>siin</i> ‘here’, <i>siit</i> ‘hence’	10	0	= 0.073
<i>seal</i> ‘there’, <i>sealt</i> ‘thence’	17	8	
Group B			
<i>see</i> ‘this’	34	9	= 0.791
<i>too</i> ‘that’	28	9	
<i>siin</i> ‘here’, <i>siit</i> ‘hence’	7	3	= 1
<i>seal</i> ‘there’, <i>sealt</i> ‘thence’	27	13	

**p*-value presents the statistical significance of the association between visual salience and the choice of Estonian dem.pron-s and dem.adv-s

Table 5 shows that combinatory use of demonstrative pronouns and adverbs is more prone to occur while referring to visually salient objects rather than visually non-salient objects. Interestingly, in group A, there is one instance of combinatory use of a distal demonstrative pronoun and proximal demonstrative adverb for a salient object in the far category.

Table 5. The frequency of the demonstrative combinations used in the visual salience series of the experiment

Demonstrative pronoun and adverb combinations	Near			Far		
	Salient	Non-salient	Total, n	Salient	Non-salient	Total, n
Group A						
<i>See+siin/siit</i> ‘this+here/hence’	7	0	7	2	0	2
<i>See+seal/sealt</i> ‘this+there/thence’	0	0	0	11	1	12
<i>Too+siin/siit</i> ‘that+here/hence’	0	0	0	1	0	1
Group B						
<i>See+siin/siit</i> ‘this+here/hence’	7	4	11	3	1	4
<i>See+seal/sealt</i> ‘this+there/thence’	1	0	1	8	2	10
<i>Too+seal/sealt</i> ‘that+there/thence’	0	0	0	9	1	10

As there seemed to be no association between visual salience and the choice of proximal and distal demonstratives, the analysis focused on the cases where adverbs were used while referring to salient and non-salient blocks. More detailed analysis showed that although the incongruent use of

demonstratives (proximal demonstratives used for distant and non-salient blocks) was not statistically significant as was predicted; the position of the demonstrative adverbs in the word order of the utterances showed a clear distinction while referring to the salient and non-salient blocks. Table 6 presents the position of the adverbs used in the first mentions taking into account the visual salience of the referent. Only the first mentions of the blocks were included in the analysis to be certain that the referred block was not first identified before the use of the demonstrative adverbs.

Table 6. The frequency of the adverb position in utterances in the visual salience series

Demonstrative adverb	Position of the adverb in the utterance	Salience of the referent		<i>p</i> -value*
		Salient	Non-salient	
Group A				
<i>siin</i> ‘here’, <i>siit</i> ‘hence’	First	8	6	= 0.5
	Not first	2	0	
<i>seal</i> ‘there’, <i>sealt</i> ‘thence’	First	4	6	< 0.05
	Not first	11	1	
Group B				
<i>siin</i> ‘here’, <i>siit</i> ‘hence’	First	3	4	= 0.363
	Not first	11	5	
<i>seal</i> ‘there’, <i>sealt</i> ‘thence’	First	5	10	< 0.001
	Not first	20	1	

**p*-value presents the statistical significance of the association between visual salience and the position of the adverb used in the utterances

There was a statistically significant ($p < 0.05$) association between the visual salience of the referent and the position of the adverb used in the utterance. However, this association was proved to be significant only for distal demonstrative adverbs (for both groups). Another interesting feature of this kind of use is that when demonstrative adverbs were used in the first position of the utterance the use of a demonstrative pronoun very rarely followed (only 5 times out of 42). The participants tended to use NPs without demonstrative pronouns.

An example of this is the use of a distal demonstrative adverb for a visually non-salient block in the far distance category. In example (9), the demonstrative adverb is in the first position of the utterance which is used to indicate one of the non-salient blocks at far distance. In (10), the demonstrative adverb is at the end of the utterance (instead of the first position) and indicates a salient block at far distance.

- (9) *Sealt* *kolmikust* *kõige* *sinu poolsem* *klots*.
 there.DEM.ADV.SEP trio most your.side.COMP block
 ‘From those three there, the one that is the nearest to you.’

The use of a distal demonstrative adverb for a visually salient block in the far distance category.

- (10) *Too* *punane* *seal*.
 that.DEM.PRON.NOM red there.DEM.ADV.LOC
 ‘That red one there.’

The association between visual salience and the choice of demonstrative pronouns and demonstrative adverbs proved not to be statistically significant, yet this factor had enough power to influence how demonstrative pronouns and adverbs were used. In group B, this factor decreased the use of distal demonstratives and increased the use of proximal demonstratives (Table 1 in § 3.1 and Table 3 in § 3.2). In addition, the position of distal adverbs in the word order of an utterance was affected by the visual salience of the referent.

3.3 Results of the contrast series in the experiment

Table 7 presents the use of demonstrative pronouns in the third series of the experiment. In this series, the use of demonstratives is different, as the referred blocks are already found and the reference status of the objects is not new. Thus, demonstratives are not used to mark the location of the blocks. The indicated blocks were situated near the participants and side by side with each other (Figure 3 in Appendix). As can be seen in table 6, the use of the demonstrative *too* is as infrequent in group B as it is in group A.

Table 7. The frequency of demonstrative pronouns used in referring to the first and second block in the contrast series of the experiment

Demonstrative pronoun	First (row %)	Second (row %)	Total	<i>p</i> -value*
Group A				
<i>see</i> ‘this’	28 (48)	30 (52)	58	= 0.125
<i>too</i> ‘that’	2 (33)	4 (67)	6	
Group B				
<i>see</i> ‘this’	77 (56)	60 (44)	137	= 0.125
<i>too</i> ‘that’	6 (35)	11 (65)	17	

**p*-value presents the statistically significant association between contrast and the choice of Estonian dem.pron-s

There was no statistically significant association between the choice of demonstrative pronouns and the order in which the referents were indicated ($p > 0.05$). The participants in group A tended to use left and right to contrast between two blocks (11). However, there were some uses of proximal demonstrative pronouns for indicating both the first and second block (12). In group B, the proximal demonstrative pronoun was also used in referring to the first and second block. There were also some instances of using a proximal demonstrative pronoun for the first block and a distal demonstrative for the second one (13). Interestingly, the instructor who used proximal for the first block and distal for the second one switched, at one point, to using distal to refer to both (the first and second) blocks (14).

(11) *Ee vasakpoolse klotsi asetada kohe eelnevale siis klotsile järgi ja parempoolse klotsi asetada (.) ee uuest reast vasakule ee peale nii et ee üks rida jääks välja.*
 ‘You put the left block next to the previous block and the right block on the left of the new row, so that a bit of the block is over the edge.’

(12) *See roheline läheb keskele ja see läheb pikkupidi.*
 this.DEM.PRON.NOM green go middle and this.DEM.PRON.NOM
 go lengthwise
 ‘This green one goes in the middle and this one goes lengthwise.’

(13) *Selle klotsi sa paned ka niimoodi pikkupidi ja tolle klotsi sa paned ää nende peale pikkupidi.*
 this.DEM.PRON.GEN block you put also this.way lengthwise and
 that.DEM.PRON.GEN block you put um these on.top lengthwise
 ‘You put this block this way, lengthwise, and you put that block um on top of these lengthwise.’

(14) *Too klots lähäb ka niimoodi pikkupidi ja too klots lähäb risti.*
 that.DEM.PRON.NOM block go also this.way lengthwise and
 that.DEM.PRON.NOM block go across
 ‘That block goes lengthwise like this and that block goes across.’

3.4 Overall results regarding the influence of experimental instructions on the use of Estonian demonstratives

As can be seen in Table 8, the use of distal demonstratives in Common Estonian decreases, when the participants are given loose experimental instructions as in group A. The use of the distal demonstrative *too* is rare in group A (overall only 11 uses) where the only restriction regarding instructions was not to use the numbers of the blocks. When the participants were told not to use spatially descriptive phrases, but were allowed to use demonstrative pronouns and adverbs, then the distal demonstrative pronoun *too* was used. Although the use of the demonstrative *too* is not as frequent as the use of the demonstrative *see* in group B, it is still used. Another interesting aspect of the overall usage of demonstratives is that in group B the use of distal demonstrative adverbs is also much higher than in group A (92 uses in group B vs. 39 in group A). The association of the use of demonstratives and the experimental instructions was statistically significant in the distance series (for both demonstrative pronouns and adverbs $p < 0.001$) and in the visual salience series (only for demonstratives pronouns, $p < 0.001$), but not in the contrast series ($p > 0.05$).

Also, in group B the use of distal demonstratives decreases and the use of proximal demonstratives increases in the visual salience and contrast series compared to the distance series. In group B, the difference in the use of demonstrative pronouns and demonstrative adverbs between the series is statistically significant. As expected, this kind of difference in use of demonstratives between the series was not detected in group A since the use of the demonstrative pronoun *too* was infrequent overall.

Table 8. The frequency of demonstratives used in the experiment between groups

	Demonstrative pronoun/adverb	Group A loose instructions (column %)	Group B restrictive instructions (column %)	Total, n	p-value	
Distance series	<i>see</i> ‘this’	65 (94)	89 (62)	154	< 0.001	
	<i>too</i> ‘that’	4 (6)	55 (38)	59		
	Total, n	69	144			
	<i>siin</i> ‘here’, <i>siit</i> ‘hence’	29 (67)	17 (25)	46	< 0.001	
	<i>seal</i> ‘there’, <i>sealt</i> ‘thence’	14 (32)	51 (75)	65		
	Total, n	43	68			
Visual salience series	<i>see</i> ‘this’	57 (98)	106 (73)	111	< 0.001	
	<i>too</i> ‘that’	1 (2)	39 (27)	40		
	Total, n	58	145			
	<i>siin</i> ‘here’, <i>siit</i> ‘hence’	23 (48)	29 (41)	52		= 0.572
	<i>seal</i> ‘there’, <i>sealt</i> ‘thence’	25 (52)	41 (59)	66		
Total, n	48	70				
Contrast series	<i>see</i> ‘this’	58 (91)	137 (89)	195	= 0.812	
	<i>too</i> ‘that’	6 (9)	17 (11)	23		
	Total, n	64	154			

4 Discussion

The aim of this study was to assess the association between distance, visual salience and need for contrast, and the choice of Common Estonian demonstrative pronouns and adverbs. In addition, this study handled the influence of experimental instructions on the use of Common Estonian demonstratives.

Overall results indicate that the most affective factor influencing the choice of demonstratives in Common Estonian in spatial context is distance. Distance was the only stimulus which reached the statistical significance level ($p < 0.05$) in association with the choice of both demonstrative pronouns and demonstrative adverbs. This finding suggests that the primary differentiating factor between demonstratives in Common Estonian in spatial context could be distance, as it is consistent with previous demonstrative studies in different languages (Coventry et al. 2008; Coventry et al. 2014; Tóth et al. 2014). This is also supported by the findings of an empirical study on acquisition of Turkish demonstratives

(Küntay & Özyürek 2006) that shows that the use of spatially contrastive demonstratives is learned earlier than the use of the demonstrative which encodes visual attention. Yet, it should be noted that the aforementioned studies do not take into account social factors, which have been shown to strongly influence demonstrative reference (e.g. Hanks 2005; Etelämäki 2009).

However, there was a difference in the use of the distal demonstrative pronoun *too* ‘that’ between groups. Not specifying to participants that they were to use demonstratives considerably decreased the use of the distal demonstrative pronoun *too* ‘that’ in group A. For both groups, the association between distance and demonstrative adverbs was statistically significant, but in group A the same did not hold between distance and demonstrative pronouns. The distal demonstrative pronoun *too* ‘that’ was rarely used; instead, the use of the proximal demonstrative pronoun *see* ‘this’ occurred in both distance categories (near and far) as it was used distance-neutrally (Larjavaara 2007; Reile 2015). Similarly to German (Diessel 2005), the distance of the referent from the speaker was communicated through demonstrative adverbs that were combined with the distance-neutral demonstrative pronoun *see* ‘this’.

An interesting aspect in the difference of demonstrative use in groups A and B in the distance series is that the choice between demonstrative adverbs is more consistent than between demonstrative pronouns. The scope of use of proximal demonstrative adverbs *siin* ‘here’, *siit* ‘hence’ seems to be wider for group A than for group B. In group B, the proximal demonstrative adverbs are clearly used for near distance, while in group A, these are used for far distance more frequently (Table 1 in § 3.1). This gives evidence that using only one demonstrative pronoun (demonstrative pronoun *see*) also has an effect on the use of demonstrative adverbs. The scope of proximal demonstrative adverbs widens when there are fewer possible combinations with demonstrative pronouns. In group A, there are only two possible combinations of demonstrative adverbs and demonstrative pronouns, but in group B there are three. Thus, it could be argued that while in group A, the distance between demonstratives is divided into two regions, near and far, with possible combinations being *see siin* ‘this here’ and *see seal* ‘this there’, in group B, because of the three possible combinations, the distance is divided into three regions: near (*see siin* ‘this here’), far (*see seal* ‘this there’), and the furthest (*too seal* ‘that there’). This finding suggests that the plurality of possible combinations limits more strictly the use of proximal demonstrative adverbs (as these

occur almost exclusively with proximal demonstrative pronouns) and gives a wider scope for distal demonstrative adverbs *seal* ‘there’, *sealt* ‘thence’.

The connection between demonstrative pronouns and demonstrative adverbs shows that the focus of demonstrative studies should not be only on demonstrative pronouns, but that demonstrative adverbs should be included, as well. In demonstrative pronoun and adverb combinations, the adverbs indicate whether the referent is situated near or far from the speaker. Another interesting result from the analysis is that demonstrative adverbs tend to combine with demonstrative pronouns only when the demonstrative pronoun is in the first position of the utterance, i.e., when speakers start their referential clause referring first of all to the intended object with a NP and then adding the location of the mentioned referent with a demonstrative adverb (for example *see klots seal* ‘this block there’). In addition, using demonstrative pronoun-adverb combinations, the speaker can give more precise information about the referent and its location when it is among multiple referents of the same kind.

Contrary to findings in studies of English (Coventry et al. 2014) and Jordanian Arabic (Jarbou 2010), the results from the visual salience series show that this stimulus has no statistically significant association with demonstrative choice in Common Estonian. Although the number of proximal demonstratives increased in the visual salience series in referring to far referents, it was not enough to reach the statistical significance level, which indicates that the effect of this stimulus is weaker on the choice of Common Estonian demonstratives than the effect of distance. Yet, more detailed analysis of the use of demonstrative adverbs showed that while the stimulus does not have enough power to influence demonstrative choice it does have an effect on how demonstrative adverbs are used. More specifically, it changes the position of the distal demonstrative adverbs in the word order of a referential utterance. In the cases when distal demonstrative adverbs were used while referring to non-salient blocks in the far category, the placement of the adverb in an utterance tended to be at the beginning rather than at the end. As word order in Estonian is dependent on what the speaker wishes to emphasize, to focus on (Lindström 2005), it could be concluded that the use of demonstrative adverbs at the beginning of the referential unit emphasizes relevant information and creates joint focus of attention between the instructor and the builder. When joint focus is established by defining the location area of the block on the table, using a demonstrative adverb, the instructor then focuses in on a specific block (example (9) in § 3.2). Also, in endophoric

reference, the connection between word order and a referent's salience has shown to influence the choice of referential expressions in Finnish as well as in Estonian (Kaiser & Hiietamm 2003). Similarly, two empirical studies on Dutch referring expressions (Vogels et al. 2012) and demonstratives (Maes & de Rooij 2007) show that the effect of visual salience of the referent is subtle, as it does not have enough power to influence the choice of referring expressions or demonstratives.

Another important finding is that while in the distance series, the proximal demonstrative adverbs were used clearly in the near distance category in group B, this changed in the visual salience series (Table 1 in § 3.1 and Table 3 in § 3.2). The two series differ on the setting of the blocks on the table. In the distance series, the distance of the blocks from the participants is visually gradual (Figure 1 in the Appendix). In the visual salience series, the blocks are grouped by color, thus making it more difficult to distinguish between them visually. This grouping creates two separate regions, leaving two blocks standing alone in the middle of the table in the far distance category (Figure 2 in the Appendix). Different neurological studies (Berti & Frassinetti 2000; Làdavas 2002; Làdavas & Serino 2008 cited in di Pellegrino & Làdavas 2015) have shown that the range of peripersonal space (space within arm's reach) widens when a tool is used actively. Using a tool while referring to objects also increases the distance in which proximal demonstrative pronouns are used in English and Spanish (Coventry et al. 2008). Therefore, it might be possible that this visual stimulus, the grouping of the blocks and creating two visually salient blocks in the far distance, might stretch the scope of the region that is perceived as peripersonal space, as it does with tool use, and this is expressed in language through the participants' tendency to use the proximal demonstrative adverb rather than the distal one regardless of the distance of the referent. However, due to the small sample size, this cannot be said with full certainty and needs further research.

Like visual salience, contrast stimulus also did not prove to have a statistically significant association with the choice of Estonian demonstratives. Contrary to what was expected and to the results of the study on Hungarian and Dutch demonstratives (Tóth et al. 2014), participants did not use demonstrative pronouns to contrast between two objects of the same kind (Figure 3 in the Appendix). Instead, a proximal demonstrative pronoun was used while indicating both the first and second blocks. Very few instances of distal demonstrative pronoun use occurred in either group. These results might be due to the restricted use of the distal

demonstrative pronoun *too* ‘that’, as it is rarely used in the near distance category (Table 1 in § 3.1 and 3 in § 3.2). The effect of contrast might manifest itself when the contrastive referential act takes place in the far distance category. Thus, the third hypothesis is neither confirmed nor rejected.

Although visual salience and contrast variables had no statistically significant association with the choice of demonstratives, there are statistically significant differences in the use of demonstratives between the experimental series in group B. In comparison to the distance series, the use of the distal demonstratives *too* ‘that’, *seal* ‘there’, and *sealt* ‘thence’ decreases and the use of the proximal demonstrative *see* ‘this’ increases in the visual salience and contrast series. This, though, was not so in group A where due to the effect of more loose experimental instructions, the demonstrative *too* was rarely used. These findings on differences between groups A and B suggest that the use of demonstrative pronouns in Common Estonian is not as unequivocally clear as the use of demonstrative adverbs. While this notion is not surprising, as adverbs refer to places not objects, it suggests that the speakers are not certain in their demonstrative pronoun choice.

The use of the distal demonstrative *too* ‘that’ is remarkably scarce if the participants are not told to use demonstratives before the experiment. This infrequent use of the demonstrative *too* ‘that’ is surprising as the experiments were carried out in regions where the distal demonstrative pronoun is used. In addition, all the participants also confirmed after the experiment that they do use the demonstrative *too* ‘that’. The limited use of the distal demonstrative pronoun in group A suggests that distal *too* ‘that’ has more restricted use than proximal *see* ‘this’ which stands in contradiction to other languages with two-way demonstrative systems such as Hungarian (Tóth et al. 2014) and English (Strauss 2002) where the distal demonstrative pronoun is used considerably more than the proximal one. These findings suggest that either the two-way demonstrative pronoun system is not that fixed in Estonian, giving speakers more liberty in the use of the proximal demonstrative pronoun by combining it with adverbs, or that the participants chose to use the demonstrative pronoun system with one demonstrative pronoun *see* ‘this’ in the experiment. This finding shows that the use of exophoric reference of the distal demonstrative pronoun *too* ‘that’ is considerably rarer than one would expect on the basis of the Estonian reference grammar or Estonian language dictionaries. Thus, it might be that the use of distal *too* is weakening, as it has already in

endophoric use, as proposed by Pajusalu (2006). Therefore, it is possible that there are changes taking place in the Estonian two-way demonstrative pronoun system.

This is the first experimental study testing the effect of distance, visual salience, and contrast on the choice of Common Estonian demonstratives. The design of the experiment made it possible to gather data on natural demonstrative use, while holding possible confounding factors to a minimum. However, due to the small sample size and to possible changes taking place within the two-way pronoun system of Common Estonian, the findings might be somewhat limited. Furthermore, the statistically insignificant outcome of the contrast stimulus is probably due to the design of the experiment, as the distal demonstrative pronoun *too* seems to be used only in the far distance category. Thus, the contrast stimulus seemed rather to reinforce the effect of distance not to elicit contrastive use of demonstratives. To confirm or reject the third hypothesis further research is needed. Regardless of the limitations, the experiment did confirm that there is an association between distance and demonstrative choice, and between visual salience and the use of demonstrative adverbs.

5 Conclusions

The present study has shown that the strongest factor which has an effect on the choice of Common Estonian spatial demonstratives is distance. This finding is consistent with the results from studies in other languages and gives more proof that distance might be the primary influential factor in demonstrative choice in spatial context. The results from the visual salience and contrast series have contradictory results compared to other languages. Although visual salience (or accessibility) seems to have an effect on the choice of demonstratives in languages such as English (Coventry et al. 2014) and Jordanian Arabic (Jarbou 2010) it did not have a statistically significant association with the choice of Common Estonian demonstrative pronouns and adverbs. Yet, more detailed analysis of demonstrative adverbs, which were used while referring to the salient and non-salient objects, revealed that visual salience has an influence not on the choice of demonstratives, but rather on the position of demonstrative adverbs in the word order of an utterance. Thus, it seems that visual salience has a subtler effect on demonstratives than distance, influencing not the choice of demonstratives, but rather the way demonstratives are used. In addition, this finding on visual salience suggests that not only demonstrative

pronouns are used to create joint focus of attention, but demonstrative adverbs, as well. In contrast condition, the association with the choice of Common Estonian demonstratives did not reach the statistical significance level. However, since the demonstrative *too* seems to be marked for far distance, the design of the experiment probably had an influence on the results and thus the effect of contrast on demonstrative choice requires further research.

The experimental findings also show that there seems to be mutual influence between demonstrative pronouns and adverbs, which was manifested through the division of space into near and far regions between experimental groups as well as in reference to visually salient and non-salient referents in both groups. Thus, to get a more detailed overview of the mechanisms of demonstrative choice, it is important to include adverbs in empirical demonstrative research.

Appendix

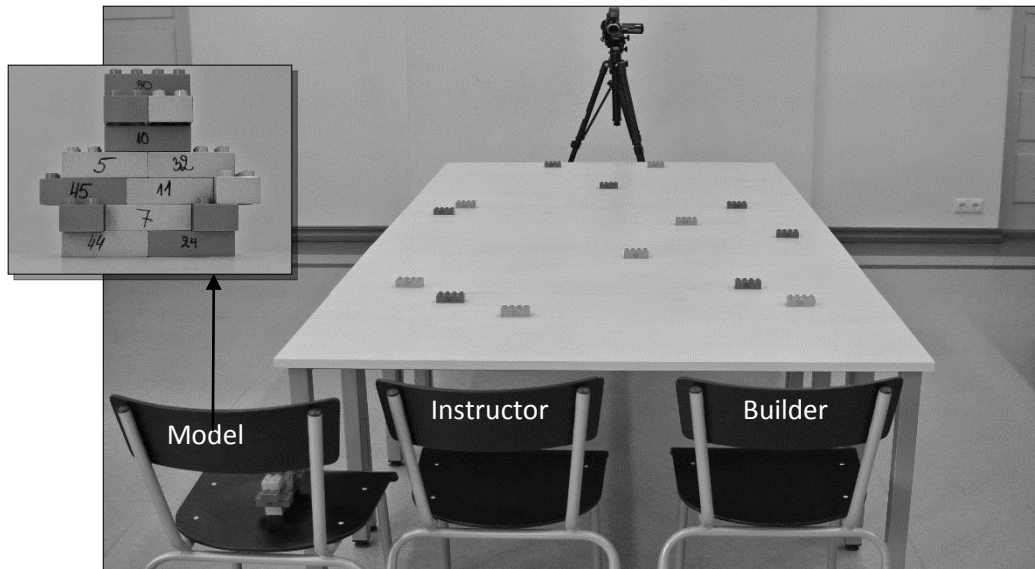


Figure 1. The initial position of the blocks on the table in the distance series

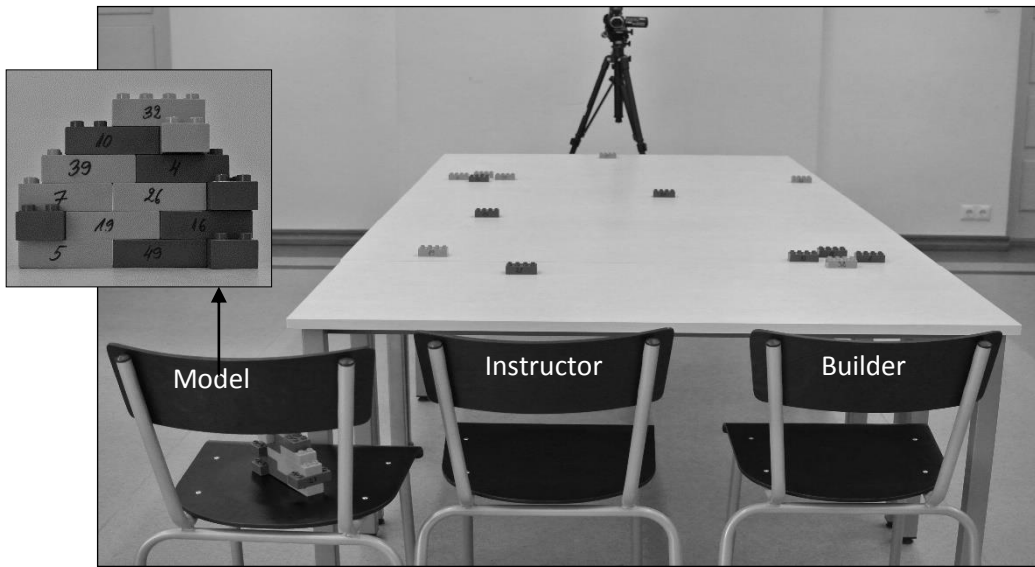


Figure 2. The initial position of the blocks on the table in the visual salience series

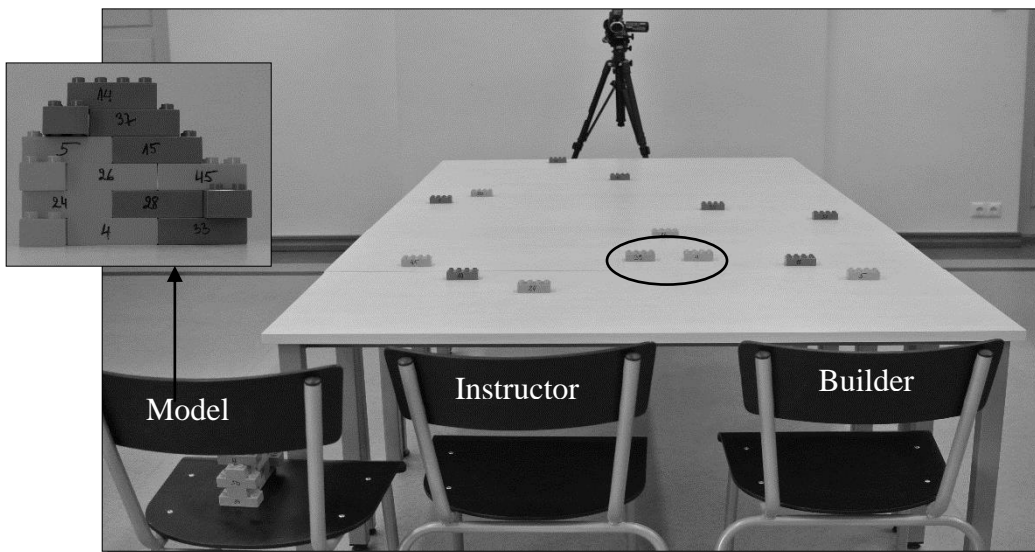


Figure 3. The position of the blocks in creating contrast in the contrast series. The circle denotes the place where the contrastive referential act took place.

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