MARIA REILE

Estonian demonstratives in exophoric use:
an experimental approach

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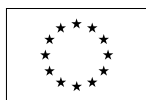University of Tartu, Institute of Estonian and General Linguistics

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I got the 'bug' for demonstrative research from an article that I read during my master's studies in 2009[1]. Based on this article it seemed that in spatial reference the use of English demonstratives is very simple: *this* and *that* are used according to the distance of the referent from the speaker. This got me thinking – how about Estonian? All Estonians use *see* (this) and some of us also use *too* (that), but do we use these demonstratives the same way as English use their demonstrative pronouns? Furthermore, if you do not have the demonstrative pronoun *too* in your active vocabulary, which devices would you then use to indicate entities that are far from you? These questions were so compelling that I decided to change the subject of my master's thesis (The semantics of the verb *olema* 'be') and investigate Estonian demonstratives instead. And with that began my quest in search for *too* that lead my way to academia.

First and foremost, I would like to express my utmost gratitude to my supervisor professor Renate Pajusalu for all of her encouraging words, for answering all the last minute e-mails, and for all the countless times I knocked on her door and she was more than helpful in tackling the problems I had encountered in my research. She can explain the most complex of theories in the simplest of words. She has helped me tremendously to express my ideas concisely and clearly. Most of all, I would like to thank her for introducing the wonderful world of demonstratives to me. It has been great fun!

I am also indebted to the opponent professor Ritva Laury from the University of Helsinki/California State University and the reviewer doctor Heete Sahkai from the Institute of Estonian Language for their helpful comments and suggestions. The thesis has greatly benefitted from them.

Doing research into demonstratives has also introduced me to the amazing world of running experiments. Thank you Nele Põldver, Kristiina Averin, Helen Plado, the whole crew of the project "Referential devices in Estonian and adjacent languages: an experimental approach", Renate Pajusalu, Piia Tarenaa, Helen Hint, Tiina Nahkola, Ninni Jalli and Tereza Špongolts, for sharing your passion to the experimental world. Thank you Ninni and Tiina, and Tereza for your help with the Finnish and Russian data – the experiment of the "Houses" would not have been quite as comparative without you.

When the data is collected, it has to be analysed and written up to a proper science article. However, writing has never come easy to me, but in research this is something that one must master at least at the level that enables to get accepted to a peer-reviewed journal. In my opinion, there are only merits in writing co-authored papers. I am grateful for my co-authors of already published papers, and papers that are half way there. I would like to thank all my co-authors for their advice, helpful comments, suggestions and corrections. Thank

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[1] Coventry, Kenny R., Berenice Valdés, Alejandro Castillo & Pedro Guijarro-Fuentes. 2008. Language within your reach: Near–far perceptual space and spatial demonstratives. *Cognition* 108(3). 889–895.

TABLE OF CONTENTS

LIST OF ORIGINAL PUBLICATIONS

This dissertation is based on four original publications. Throughout the dissertation, the studies will be referred to with the corresponding Roman numerals (**Studies I–IV**).

Study I: Reile, Maria. 2015. Space and demonstratives: an experiment with Estonian exophoric demonstratives. *Eesti ja soome-ugri keeleteaduse ajakiri. Journal of Estonian and Finno-Ugric Linguistics*. 6(2). 137–165.

Study II: Reile, Maria. 2016. Distance, visual salience, and contrast expressed through different demonstrative systems: An experimental study in Estonian. *SKY Journal of Linguistics*. 29. 63–94.

Study III: Reile, Maria, Piia Taremaa, Tiina Nahkola, Renate Pajusalu. *accepted*. Reference in the borderline of space and discourse: free production experiment in Estonian, Russian and Finnish. *Linguistica Uralica*.

Study IV: Pajusalu, Renate, Maria Reile, Helen Hint, Tiina Nahkola, Piia Taremaa. 2018. Relative clauses in a spatial and narrative context in Estonian, Finnish and Russian. *SKY Journal of Linguistics*. 31. 107–138.

Contribution of Maria Reile to the original publications:

Maria Reile was the sole author of **Studies I** and **II**.

In **Study III**, Maria Reile gathered half of the Estonian data and co-ordinated the data gathering in Finnish and Russian. She transcribed half of the Estonian data material. She helped to develop the coding schema and coded half of the Estonian data. She interpreted the results of the data analysis and wrote the first draft of the paper. She acted as the corresponding author of the reviewers, and revised and resubmitted the paper.

In **Study IV**, Maria Reile gathered half of the Estonian "Houses" data and co-ordinated the data gathering in Finnish and Russian. She transcribed half of the Estonian "Houses" data material. She helped to develop the coding schema and coded half of the Estonian "Houses" data. She wrote the "Houses" experiment description in the method section and participated in correcting and reviewing the manuscript.

ABBREVIATIONS IN GLOSSES

2,3	person
ADV	adverb
CNG	connegative
COM	comitative
COMP	comparative
DAT	dative
DEM	demonstrative
ELA	elative
GEN	genitive
IMP	imperative
INF	infinitive
INSTR	instrumental
LOC	locative
NEG	negative
NEUTR	neuter
NOM	nominative
PART	partitive
PL	plural
PREP	preposition
PRON	pronoun
PRS	present
PST	past
SEP	separative
SG	singular

INTRODUCTION

We use language on a daily basis for interaction with others. Much of this interaction takes place in face-to-face conversations and the 'things' talked about are commonly situated in the immediate surroundings of the interlocutors. To identify the intended referent in the surroundings, the speakers have several means at their disposal. One such possibility is to use demonstratives. Demonstratives, used in spatial context, are deictic expressions that are often accompanied with pointing gestures (Diessel 1999). Thus, demonstratives connect the surrounding space and language in the most direct way. Moreover, demonstratives are among the oldest words in languages as the origin of demonstrative roots is generally not traceable to other words (Diessel 2006). They are also among the first words that children acquire (Clark & Sengul 1978) and thus some of the core vocabulary words in human languages. The use and interpretation of demonstratives, though, is heavily dependent on context (Sidnell & Enfield 2017: 229). Nevertheless, interlocutors seem to usually understand each other without too much effort. This raises the question of how the interlocutors can be certain that the demonstratives that the speaker uses in referring denote the same entities for both the speaker and the addressee(s). In other words, what could be the speakers' basis for their demonstrative choice. Many researchers have addressed this question in multiple language studies, but the studies have resulted in contradictory findings. This thesis sheds light on the influencing factors of demonstrative choice in exophoric use in Estonian, and how the influence of these factors relate to findings from other languages.

Based on previous research in different languages, it has been proposed that the choice of demonstratives in spatial context is influenced by the distance of the referent from the speaker (e.g., Lyons 1977). However, further research has challenged this proposition and argue that multiple factors are at play when interlocutors choose between demonstratives in the course of interaction (e.g., Hanks 1992). The debate over what influences demonstrative choice has gained an increasing amount of attention. A number of studies have been conducted implementing different methods, ranging from corpus-based research (e.g., Laury 1997; Enfield 2003; Etelämäki 2009) to studies using experimental methods (e.g., Coventry et al. 2008; Luz & van der Sluis 2011) to specify the parameters that have an influence on demonstrative choice. These parameters can be divided into semantic and pragmatic factors. Semantic factors, or more specifically deictic (referent related) factors, are variables that include distance and visibility of the referent. Pragmatic (speech-situation related) factors relate to factors such as contrast and emphasis (Diessel 1999). The results of the previous studies show that while other tested factors (e.g., the salience of the referent and contrast) have yielded different results in different languages, the distance of the referent has had similarly important impact on demonstrative use.

There is a difference in the methods used to study demonstrative use. Studies supporting the interaction-based approach in demonstrative research use mostly

non-experimental methods (e.g., Laury 1997; Jarbou 2010). Distance-based approach followers, on the other hand, rely more on experimental methods (e.g., Bonfiglioli et al. 2009; Luz & van der Sluis 2011). While corpus-based methods are a good means of establishing the possible parameters that guide the speakers in their demonstrative choice, there are always confounding factors (e.g., the nature of the objects that are referred to, the relationship between the speakers etc.) that can influence the results of the findings. Using experiments minimises the influence of these possible confounding factors. This enables the researcher to test for specific factors that may have an effect on demonstrative choice with more precision. Although, the use of experiments has increased in demonstrative studies, only a few have been conducted in non-Indo-European languages. Moreover, while demonstrative adverbs are important contributors in deictic reference in languages where demonstrative pronouns do not make a distance contrast (e.g., French) (Diessel 1999), research to date has largely focused on the use of demonstrative pronouns.

Estonian is a language that can lack distance contrast on the level of demonstrative pronouns. Since Estonian has at least two demonstrative pronoun systems, it provides interesting material for demonstrative studies. Studying Estonian demonstratives can provide a deeper insight on how variation in the demonstrative pronoun system could have an influence on the use of other demonstratives such as demonstrative adverbs. Up to now, the research on Estonian demonstratives has mainly explored the functions of demonstratives in textual reference. Thus, the use of demonstratives in spatial reference has been relatively understudied. Furthermore, the use and functions of demonstrative adverbs has not yet been explored in depth.

This thesis focuses on two Estonian demonstrative systems: a one-term system that has the demonstrative pronoun *see*, and a two-term demonstrative pronoun system that consists of the demonstrative pronouns *see* and *too*. Experimental methods are used to explore the use of demonstratives (i.e., demonstrative pronouns and demonstrative adverbs), in the one- and two-term demonstrative pronoun systems. The thesis further explores the impact of the demonstrative pronoun system on the use of other referential devices that include noun phrases (NPs), third person pronouns, and more complex referring constructions (i.e., relative clauses).

Considering all the above, the objectives of this thesis are:
1. To study the use of Estonian demonstratives in spatial context.
2. To explore the influence of the absence and the presence of the demonstrative pronoun *too* in the demonstrative pronoun system on the use of other demonstratives in spatial context.
3. To investigate the differences of the influencing factors that have an effect on demonstrative choice in comparison to other languages with different pronoun systems, and to explore the association of demonstrative pronoun systems and the use of other referential devices and referring constructions.

The thesis contributes to previous research on demonstratives in that it enhances the understanding of influencing factors of demonstrative choice and their use in spatial context. It also offers comparable data for further research. The thesis draws upon four separate studies **I–IV** which adopt experimental methods to explore the use of spatial demonstratives in Estonian. **Study I** explores the Estonian one-term demonstrative pronoun system. **Study II** compares the two Estonian demonstrative pronoun systems. **Study III** explores overall referential devices, including demonstratives, in Estonian, Finnish and Russian. **Study IV** examines the impact of demonstrative pronoun systems on the use of referring constructions (i.e., relative clauses) in Estonian, Finnish and Russian.

In addition to comparisons with different languages, the level of control in the experiments differ. The experiments in **Studies I** and **II** have controlled settings in which different factors on the use of Estonian demonstratives are explored. The experiment in **Studies III** and **IV** use a less controlled setting, a field experiment, for exploring the use of demonstratives and reference in spatial context in general.

The thesis is structured as follows. First, Chapter one provides relevant background of demonstrative studies. It gives an overview of the previous work on demonstrative research and factors found relevant in demonstrative choice in different languages using different research methods. Chapter two provides a short overview of Estonian demonstratives and previous findings on the use of Estonian demonstratives. Chapter three presents the methodological considerations and design of the experiments, as well as the procedure and information about the participants. Chapter four provides the results of the original publications that are discussed in Chapter five. The following chapters present the concluding remarks and a summary in Estonian.

1. DEFINING CONCEPTS

1.1. Demonstratives as deictics

Demonstratives belong to the set of words that are classified as deictics. Deictic expressions, such as *this, here* and *now* in English, connect the utterance to the spatio-temporal co-ordinates of the speech event (e.g., Bühler 1990 [1934]; Lyons 1977; Fillmore 1997). Deictics define the point in time and space in relation to the deictic centre; the "centre of co-ordinate system that underlies the conceptualization of the speech situation" (Diessel 2012: 2410). Usually the speaker is considered as the zero-point of the deictic centre or *origo*. In other words, everything is related to the speaker's viewpoint (e.g., Bühler 1990 [1934]; Lyons 1977). Deictics can denote different entities throughout interaction. For example, when the interlocutors take turns, the *origo* shifts constantly and through this shifting deictics, the same pronouns (e.g., *I* and *you*) can denote different people. In addition, *here* and *there* denote different things when the speaker changes his/her location. Similarly, *this* and *that* can be used for different referents throughout interaction. Therefore, unlike content words, the interpretation of deictics is heavily context dependent. Due to this context dependency deictics are also called shifters (Jespersen 1965 [1924]). Silverstein (1976) categorizes shifters further as indexical symbols. Indexicals can be either referential or non-referential. While referential indexicals carry both semantic and pragmatic meaning, non-referential indexicals have only pragmatic meaning (e.g., show the social relationship between the interlocutors). The underlying principle in terms of deictics and referential indexicals is that in using these expressions, the speaker instructs the addressee to focus their attention to the referent and gives cues on how to interpret that referent. Furthermore, indexicals may be used creatively to construct the context (for discussion, see Etelämäki 2005).

Bühler (1990 [1934]) was the first researcher to classify deixis based on the type of referential context or on the nature of the referent (i.e., referents in space and time or of people). Regarding the referential context, Bühler (1990 [1934]) further divides deixis into the following categories: (1) *demonstration ad oculus* (i.e., reference in the immediate surroundings of the interlocutors), (2) *anaphoric* (i.e., text internal reference), and (3) *imagination-oriented deixis* so called *Deixis am Phantasma* (i.e., the reference takes place in an imagined situation created by the speaker). Regarding the nature of the referent, deixis is further classified into: (1) space; (2) time; and (3) person. Fillmore (1997), building upon Bühler's (1990 [1934]) semantic categorisation of deixis, proposes the following five categories: (1) person deixis (e.g., *I, you*) that involves the identity of the interlocutors; (2) place deixis (e.g., *here, there, this, that*) that indicates the location of the speakers; (3) time deixis (e.g., *now, then, today*) that indicates the time when the speech act takes place; (4) discourse deixis (e.g., *the latter, the aforementioned*) which concerns text internal reference; and

(5) social deixis (e.g., *sina* 2nd person singular in Estonian, 'you' informal, and *teie* 2nd person plural in Estonian, 'you' formal) that indexes the social relationship between the participants.

Relevant to this study are place deictics, demonstratives such as the demonstrative pronouns *this*, *that* and the demonstrative adverbs *here, there*. Similarly to deixis, demonstratives can also be classified in many different ways. The possibility to categorize demonstratives in multiple ways shows the multifaceted use of demonstratives and the consequent difficulties in their classification. Nevertheless, a general distinction is made between demonstrative use in text and demonstrative use in the surrounding space of the interlocutors (e.g., Bühler 1990 [1934]; Halliday & Hasan 1976; Himmelmann 1996; Fillmore 1997; Diessel 1999). In the case of textual reference (i.e., *endophoric reference*), demonstratives are used in text-flow to help keep track of the referents. In the case of reference in space (i.e., *exophoric reference*), demonstratives are used in referring to entities in the immediate surroundings (Halliday & Hasan 1976). However, this distinction can be somewhat problematic since the two uses can sometimes overlap. One example is when an entity that is in the immediate surroundings of the interlocutors is referred to several times in a row.

A more elaborate distinction is provided by Fillmore (1997) who differentiates between *gestural, symbolic* and *anaphoric use* of demonstratives. In *gestural use*, the meaning of demonstratives can only be interpreted when taking into consideration some physical aspect of the speech situation. For example, when someone says *take that apple*, the addressee needs to look at where the speaker is pointing to in order to know which apple to take. In *symbolic use*, the interpretation of a demonstrative is dependent on knowing some visual or background information of the speech situation. For example, when the interlocutors are in a cafe and the speaker says *this cafe*, the addressee knows that the speaker is talking about the cafe they are in because they are located in that cafe. In *anaphoric use*, demonstratives are correctly interpreted when knowing to "which proportion of the same discourse the expression is co-referential with" (Fillmore 1997: 63). In this example, the *gestural* and *symbolic use* equate to the *exophoric use* whilst *anaphoric use* is the same as the *endophoric use*.

Diessel (1999), on the other hand, proposes a four-way distinction where demonstratives can have the following uses: (1) exophoric use (according to Fillmore's *gestural* and Halliday and Hasan's *exophoric use*), (2) anaphoric use (according to Fillmore's *anaphoric* and Halliday and Hasan's *endophoric use*) and based on Himmelmann's (1996) classification, (3) discourse deictic use (when a demonstrative refers to a proportion of text such as a sentence or a longer segment), and, (4) recognitional use (the demonstrative refers to some knowledge that the interlocutors share, but it has not been uttered in the previous discourse). While Diessel's (1999: 51) distinction is already quite elaborate, Levinson (2006: 107–108) suggests that the possible uses of demonstratives should be first divided into the categories *deictic* or *not-deictic*, and then proceed with *endophoric* and *exophoric* division. Levinson further points out that, in some cases, the use can be extra-text and not-deictic simultaneously

(e.g., the recognitional use of demonstratives), and, on the other hand, intra-text and deictic (e.g., discourse deictic use) (for more elaborate distinction see Levinson 2006: 108).

Based on Levinson's (2006) most elaborate division of demonstrative use, the current thesis focuses on the deictic exophoric uses of demonstratives in contrastive and non-contrastive settings. The next subsection gives an overview on the theoretical approaches to demonstratives used in exophoric reference, the possible factors that influence the use and choice of demonstratives in exophoric reference, and their association with perceived space.

1.2. Demonstratives in exophoric use

The choice between demonstratives in exophoric use (Halliday & Hasan 1976) is traditionally explained on the basis of the distance of the referent from the speaker (e.g., Lyons 1977; Fillmore 1997; Diessel 1999). That is, proximal demonstratives (e.g., *this* and *here*) are used for the referents that are near the speaker and distal demonstratives (e.g., *that* and *there*) are used for the referents that are far from the speaker. The classification of demonstrative pronoun systems is based on the adnominal demonstrative pronouns[2] (Diessel 1999: 4) and the distance contrasts that these pronouns make. According to Diessel (2013b), spatial contrasts between adnominal demonstrative pronouns can range from no distance contrast, as in French, in which the demonstrative pronouns are distance neutral, to more than five distance contrasts as in Koasati (Kimball 1991 cited in Diessel 2013).

While demonstrative pronoun systems with two-way contrasts seem to be the most common in the world's languages (Diessel 2013), there are languages in which adnominal demonstrative pronouns convey more than two distance contrasts. In such languages, the demonstrative pronoun systems are divided into either distance-oriented or person-oriented systems (Anderson & Keenan 1985; Diessel 2013). In the distance-oriented systems, the terms indicate the referent's distance from the speaker, whereas in the person-oriented systems at least one of the terms also indicates the referent's proximity to the addressee.

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[2]   Based on the syntactic features of demonstratives, Diessel (1999: 57) defines demonstrative pronouns as demonstratives that are independent pronouns (referred to also as *pronominal demonstratives*) and demonstrative determiners as demonstratives that occur with a separate nominal head (referred to as *adnominal demonstratives*). However, dividing demonstrative pronouns and demonstrative determiners into different syntactic categories is somewhat problematic (Diessel 1999). Although some languages distinguish formally between demonstrative pronouns and demonstrative determiners, most languages, including Estonian, do not make this distinction (Diessel 2013a). Thus, it is difficult to say whether or not the pronominals and adnominals make up different syntactic categories in Estonian. This, though, is not the focus of this thesis. As such, I have referred to pronominal and adnominal demonstratives as demonstrative pronouns from hereinafter. To indicate both demonstrative pronouns and demonstrative adverbs, the term *demonstrative* is used.

According to Diessel (2013), systems that have more than three adnominal demonstrative pronouns tend to be person-oriented systems.

In languages with demonstrative pronoun systems with no distance contrast, the distance meaning in demonstrative pronouns is reinforced by adding demonstrative adverbs. However, demonstrative adverbs can also be used to reinforce adnominal demonstrative pronouns in spatially contrastive demonstrative pronoun systems (Diessel 1999: 74). Whereas demonstrative pronouns can be unmarked for distance, demonstrative adverbs are generally distance marked (Diessel 1999: 38). Therefore, the exophoric use of demonstrative adverbs could be more common than the exophoric use of demonstrative pronouns.

1.2.1. The factors influencing demonstrative use

In addition to the different number of demonstratives that languages can have, demonstratives can also encode different semantic and pragmatic information across languages. Diessel (1999) shows in his typological study that there are languages in which the following semantic features are explicitly expressed in addition to distance: visibility (i.e., the referents being either visible or invisible), elevation (e.g., up or down), geography (e.g., uphill or downhill) and movement (e.g., towards the speaker or away from the speaker). The overall tendency is that the more terms a language has in its demonstrative pronoun system, the more information is provided by demonstratives. In addition to the influence of the semantic properties on demonstrative choice, Diessel (1999) proposes that there are also pragmatic factors that influence the choice between demonstrative pronouns as follows: (1) the context of use (i.e., whether demonstratives are used in exophoric, anaphoric, discourse deictic or in recognitional reference), and (2) the nature of reference (i.e., whether the reference is contrastive or non-contrastive; emphatic or non-emphatic; or whether it is concrete or vague).

While in some languages there are specific terms for specific purposes (e.g., encoding for the invisibility of the intended referent), the same factors can have an effect on the use of demonstratives with less complex systems. For example, in the case of visual perceptibility, Jarbou (2010) proposes that in Jordanian Arabic (a language with a two-term system), the use of demonstratives is dependent on the ease by which the addressee is presumed to recognize the intended referent. Proximal demonstrative pronouns are used for referents with a high perceptibility, and distal demonstrative pronouns for referents with a low perceptibility regardless of the distance of that referent. Similar findings have been shown also for English (Coventry et al. 2014) where the distal demonstrative pronoun was used more frequently for visually inaccessible referents as compared to visually accessible referents. However, in Dutch, visual salience proves to have little or no effect on demonstrative choice (Maes & de Rooij 2007) and in the case of cognitive accessibility has provided contradictory results on the strength of the effect on demonstrative pronoun choice. According to Piwek et al. (2008), cognitive access has an effect on

demonstrative choice in Dutch, but this has not been corroborated in a different study by Tóth et al. (2014). This indicates that in languages where either visual or cognitive accessibility is not conveyed by the demonstratives exclusively assigned for that purpose, the strength of the effect of this particular factor varies between languages.

Furthermore, it has been shown that in three-term demonstrative pronoun systems, demonstrative pronouns have multiple functions in several languages. For example, Kornfilt (1997 cited in Muslu 2015) interprets Turkish demonstrative pronouns as follows: *bu* refers to objects that are close to the speaker, *şu* is used when the objects are in the mid-distance or close to the addressee, and *o* is used for the referents that are far from the speaker. Özyürek (1998), and Küntay and Özyürek (2006), however, have shown that the middle term *şu* is used to mark the absence of the addressee's visual attention on the intended referent, and the distal *o* is used to refer to the object that is already in the current focus of joint attention. Another example is in Finnish. In the distance-based approach, the demonstrative pronoun *tämä* refers to the referent near the speaker, the demonstrative pronoun *se* indicates that the referent is near the addressee, and the demonstrative pronoun *tuo* shows that the referent is far from both the speaker and the addressee (Larjavaara 1990). However, Laury (1997) proposes that demonstratives indicate the social and cognitive access to the referents and not the actual physical distance[3]. A similar discrepancy in the description of the demonstrative system in both grammar and everyday usage is also found in Lithuanian (another three-term system language) where the distal term *anas* is rather used for what the author calls "psychological distance" than for actual physical distance (Judžentytė 2017). The difference between the systems of Lithuanian and Turkish seems to be that in Turkish, the middle term is used to mark the absence of the addressee's visual attention. In Lithuanian, on the other hand, it is the distal term that is gaining a new function as a "psychological distance" indicator. Nevertheless, in both languages, the terms seem to have, in addition to distance indication, some other function than referring to referents in the surrounding space.

Besides semantic factors (e.g., distance and visibility), there are also pragmatic factors that influence demonstrative use. Contrastive context is one pragmatic factor that is relevant to this thesis. As opposed to non-contrastive context where only one referent is mentioned, contrastive context means that two or more referents are explicitly opposed to each other. Several authors (e.g., Meira & Terrill 2005; Levinson 2006; Diessel 2012) have shown the difference between non-contrastive and contrastive use of demonstratives. For example, Meira and Terrill (2005) propose that in a contrastive context true distance-neutral demonstratives are not used. Diessel (2012: 2419) suggests that demonstrative pronouns in English (*this* and *that*) are "often used interchangeably" in a non-contrastive situation regardless of the location of the

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[3]   Nevertheless, Laury (1997: 59) states that the speaker's physical access to the referents often coincides with the cognitive and social access to that referent.

referent and, therefore, do not carry an inherent distance feature. Furthermore, Levinson (2018a) proposes, on the basis of a comparative language study, that not all the terms in demonstrative pronoun systems are spatially anchored across languages in non-contrastive situations. The spatially unanchored terms are unmarked for distance and obtain their distance encoding only from the pragmatic opposition with spatially anchored or marked terms. This applies not only to demonstrative pronoun systems with more than two terms, but also to two-term languages. For example, in English, the spatially unmarked demonstrative pronoun seems to be the distal demonstrative pronoun *that* whilst in the Russian demonstrative pronoun paradigm it is the proximal demonstrative pronoun *etot*. In languages with more than two terms, the so-called medial terms tend to be spatially unmarked and are used in situations when spatially marked forms do not apply. However, Coventry et al. (2008) showed that in English (a two-term system) and Spanish (a three-term system), the use of demonstrative pronouns in these languages is influenced by the distance of the referent from the speaker (and the addressee in Spanish) in a non-contrastive situation. This indicates that there is considerable diversity in the use of demonstratives across languages. There also seems to be a tendency for languages to share a different degree of susceptibility to distance and other factors (e.g., visual accessibility), and these factors can influence different terms. However, distance seems to yield the most consistent results across languages and demonstrative pronoun systems. In addition, the effects of distance seem to be relevant on demonstrative pronoun choice also in a non-contrastive situation in English and Spanish. This suggest that there could be a connection between demonstrative use and spatial perception.

1.2.2. The association between demonstrative use and spatial perception

Neuropsychological studies on spatial perception suggest that different brain regions are associated with peri- and extrapersonal space (e.g. Weiss et al. 2000; di Pellegrino & Làdavas 2015). Peripersonal space is defined as space within our reach. More specifically, objects in peripersonal space can be grasped and manipulated whilst extrapersonal space lies beyond this grasping distance (see di Pellegrino & Làdavas 2015 for an overview). The perception of peripersonal space is flexible and is influenced by different factors. For example, active tool-use (Berti & Frassinetti 2000) and a co-operative partner (Teneggi et al. 2013) can expand the boundaries of peripersonal space. When a tool is used to reach the objects in far space, the tool is considered a part of one's body and the distance which was first perceived as extrapersonal is now perceived as peripersonal (Berti & Frassinetti 2000: 418). A similar expansion of peripersonal space takes place when interlocutors engage in an activity in a co-operative manner. That is, when interlocutors are helpful to each other, their peripersonal

spaces merge and this, in turn, expands the perception of peripersonal space (Teneggi et al. 2013: 409).

In demonstrative studies, the connection between perceptual space and demonstrative use was first suggested by Kemmerer (1999). However, Kemmerer (1999) discarded this connection because demonstratives can be used in multiple contexts as well as there being several languages which have more than two spatially contrastive demonstrative pronouns. However, Coventry et al. (2008) have showed in their study on English and Spanish demonstratives that the influence of active tool-use on demonstrative pronoun choice has a similar effect as it has to the perceiving of peri- and extrapersonal space. More specifically, they found that the region of use of proximal demonstrative pronouns in these languages extended for the participants that used a stick (as a tool) while pointing to the referents as compared to the participants who did not use a stick. In addition, there are reports of other languages, such as Tzeltal (Brown & Levinson 2018), Yélî Dnye (Levinson 2018b) and Dalabon (Cutfield 2018), in which demonstrative pronoun use may be strongly connected to the near-space of the interlocutors. Therefore, the connection between peri- and extrapersonal space division with demonstrative pronoun use is more than plausible. This is especially true for near space boundaries as they seem to be flexible in perception as well as in language (at least in English and Spanish).

In addition to peri- and extrapersonal space distinction, there is also a difference on how humans conceptualize space (see Freundschuh & Egenhofer 1997 for an overview of different psychological models). In general, a division is made between small- and large-scale spaces. Small-scale spaces are defined to be either objects which are smaller than a human body and can be manipulated or spaces that can be viewed from one perspective (e.g., rooms). Large-scale spaces, on the other hand, are considered to be either objects larger than a human body or spaces larger than a room. Furthermore, in order to perceive the large-scale space, one has to be able to move inside of such a space (e.g., buildings and cities). In demonstrative studies, the spatial regions in which demonstratives are used tend to have a similar classification.

Levinson (2018a) gives an overview of the spatial domains of access which are used in the descriptions of demonstrative use in different languages. The definition of the terms proximal, medial and distal should be understood on the bases of three types of spaces. First, small-scale space covers such spaces as personal space and interactional space. Personal space includes (all) body parts, contact with the body, and region within arm's reach that is also called the peripersonal space in neuropsychology. Interactional space, on the other hand, is related to spaces other than those related to the speaker. This space includes regions which are within reach of others and within the social space of conversation. Second, medium-scale space covers space which is defined as within the range of one's own home. This includes immediate lived-in space, (e.g., home), and used space (i.e., the space covered by daily travels). Finally, large-scale space is understood in terms of geographic space. The length of this space is

measured by a distance a person could walk in one day. This indicates the association of distance and the use of demonstratives.

Studies that use experimental methods in the research of demonstratives in exophoric use define the concepts of near and far space similarly to the peri- and extrapersonal space definition in neuropsychology. Small movable referents that are defined as near are situated approximately within one's arm's reach and referents that are defined as far are located outside of grasping distance (Küntay & Özyürek 2006; Maes & de Rooij 2007; Coventry et al. 2008; Bonfiglioli et al. 2009). In addition, models of spatial conceptualization in psychology (see Freundschuh & Egenhofer 1997 for overview) and spatial scaling in explaining demonstrative use (Levinson 2018a) share similar divisions. Nevertheless, it is important to bear in mind when talking about the association between distance and demonstratives that demonstratives do not strictly encode metrical distance. Instead, they indicate that the referent is either in the near region in regards to the speaker (or the addressee) or outside of it (in languages that convey near and far distinction in their demonstratives).

1.3. Demonstratives in text and interaction

In addition to spatial reference, demonstratives are also used in textual refe- rence. While in spatial reference participants rely on their surroundings for the source of information about the referent, in textual reference the context from which the information is retrieved from is in text. The main focus in research on textual reference has not been specifically on demonstrative pronoun use, but rather on which of the referential devices is used (e.g., full NPs, demonstrative pronouns, third person pronouns). A common finding has been that the choice of referential devices is associated with the cognitive accessibility of the referent to the interlocutors (Chafe 1994; Ariel 2001; Gundel et al. 1993). In general, when a referent is new to the addressee, the speaker chooses a full NP to refer to the entity. In the cases when the referent has been mentioned several times and is therefore known to the addressee, the speaker either uses pronouns or does not refer explicitly to the referent. In other words, the more known the referent, the less lexical information is given (however, see Fox 1987). There- fore, the information status of the referent influences the referential expression that is used.

Based on the accessibility theory (Ariel 2001) and the givenness hierarchy (Gundel, Hedberg & Zacharski 1993), demonstrative pronouns (either in pro- nominal or adnominal use) are situated on different levels of accessibility. For example, in English the proximal demonstrative pronoun *this* refers to the more accessible or familiar referents than the distal demonstrative pronoun *that* (Gundel et al. 1993; Gundel et al. 2010). Strauss (2002) reports similar findings in which *this* indicates that the referent is in high focus and *that* signals the low focus of the referent. Although this distinction between the demonstrative pronouns is subtle and may not apply to all the languages of the world, it

suggests possible differences of the functions that demonstrative pronouns fulfil in textual reference. Studies in reference resolution have shown that the choice between demonstrative pronouns and other referential devices, such as third person pronouns, are, in addition to accessibility, also influenced by other different factors such as the syntactic role of the antecedent (Kaiser & Trueswell 2008; Kaiser & Vihman 2010) and contrast (Kaiser 2010). Therefore, information status is not the only influencing factor that affects the choice between referential devices in textual reference.

Although there has been scant research that would focus specifically on the use of demonstratives in text flow, Himmelmann (1996) proposes universal uses of demonstrative pronouns in a narrative discourse.[4] Three such uses apply to non-spatial uses. First, in *discourse deictic use* demonstrative pronouns refer to an adjacent discourse segment. Second, in *tracking use* (i.e., anaphoric and cataphoric use) demonstrative pronouns refer to entities in the narration. Third, in *recognitional use* demonstrative pronouns are used for referents that the speaker presumes to be in the common knowledge of the interlocutors. Even though these are the universal uses of demonstrative pronouns in endophoric reference, Himmelmann (1996) does not address the question of whether in any of these uses there would be a tendency to use more distal demonstrative pronouns or more proximal demonstrative pronouns.

While most researchers distinguish between the textual and spatial use of demonstratives, there are several authors (e.g., Hanks 1992, 2009, 2011; Laury 1997; Etelämäki 2009; Jarbou 2010) who emphasize the importance of studying these two uses together. According to Hanks (2011: 315), demonstratives belong to a deictic field. A deictic field is composed of (1) the relations between the speaker and the addressee; (2) the position occupied by the object of reference; and (3) the dimensions through which the interlocutors have cognitive access to these objects. Since the use of demonstratives is influenced by the changes taking place in the deictic field, their use is complex and dynamic. Therefore, spatial distinction is only one possible influencing aspect among others that include perception, prior talk, and memory.

Adapting Hanks's theory to Finnish, Laury (1997) suggests that demonstrative pronouns convey rather the social and cognitive access than actual physical access to the referents. In this approach, the Finnish demonstrative pronouns *tämä* and *se* are inclusive and the demonstrative pronoun *tuo* is an exclusive demonstrative. Inclusive demonstratives denote that the referent belongs to the speaker's and/or to the addressee's sphere whereas exclusive demonstratives denote that the referent does not belong to either of these spheres. Etelämäki (2009) has drawn similar conclusions in regards to Finnish demonstrative pronouns. In addition, Etelämäki (2009) suggests that *tämä* guides attention to the referent and indicates the need to re-interpret the referent (or the indexical ground) because the participants do not have the same concept about the indexical ground. *Tuo* and *se* imply a continuation of the conversation.

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4   The first one was *situational use*, which equates to exophoric or spatial use (see 1.2.).

Furthermore, *tuo* indicates that the participants share the same access to the referent whereas *se* marks that the referent is adequately known to both interlocutors so that they can continue with the on-going conversation.

Earlier studies have found multiple factors that are thought to influence demonstrative use. However, which of these factors are the most important are connected to the context of use. In textual reference, the information status of the referent and the syntactic role of the antecedent are important factors in demonstrative use. In spatial reference, other factors play an important role (depending on the language). These include the distance of the referent (in most languages) and the visual salience/accessibility of the referent (in some languages). In interaction, the referents can be present in the surroundings of the interlocutors. At the same time, the participants need to follow the conversation which leads to the intertwining of both textual and spatial reference. This means that the influencing factors that have an effect on demonstrative choice start to overlap during the conversation[5]. However, my study will show that when the purpose is to identify the referents or talk about the referents in the surrounding space, distance seems to be the most influential factor in demonstrative use.

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[5] There are of course interactional situations that completely lack spatial reference and in which other factors are more important. That kind of interactional situations could be, for example, political discussions, complaining about weather etc. However, these situations do not fall in the scope of the current study.

2. ESTONIAN DEMONSTRATIVES: AN OVERVIEW

Estonian is a Finno-Ugric language that uses a one-, two-, or more than two-term demonstrative pronoun system depending on the dialectal region of Estonia. Estonian demonstrative pronoun systems have developed from the Proto-Finnic demonstrative pronoun system that consisted of four stems: *tämä, taa, *tō* and *se* (Larjavaara 1986). Estonian uses only the *se-* and *tō-* stem demonstrative pronouns in the two most common demonstrative pronoun systems. However, the use of the *tō-*stem demonstrative pronoun depends on the dialectal background of the speaker. Estonian has two main dialectal regions: Northern Estonian and Southern Estonian (Pajusalu et al. 2018: 77) (see Figure 1, the green line represents the border between the two dialectal regions).
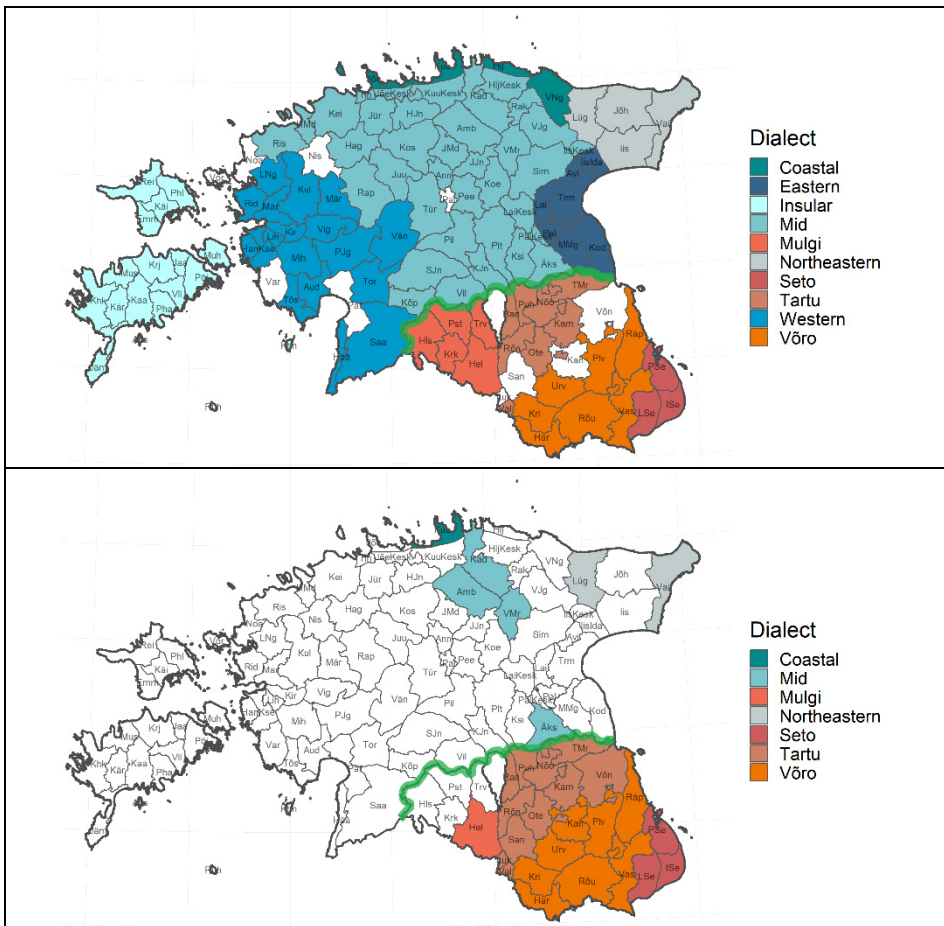
Figure 1. The Estonian dialectal areas where *see* (upper panel) and *too* (lower panel) are used (adapted from Uiboaed 2016)

What is relevant for this thesis, is the difference in the vocabulary between the two dialectal regions. Figure 1 presents the regions of use of *see* and *too*. While *see* is used in Northern and Southern Estonian, *too* is used mostly in Southern Estonian (mostly Tartu and Võro dialects). Therefore, in Northern Estonian, there is a one-term system in which only the demonstrative pronoun *see* is used. In Southern Estonian, *too* is used in addition to *see* and therefore it has a two-term system (Pajusalu 2009). While there are more than these two demonstrative pronoun systems in Estonian dialects, such as in the coastal and north-eastern dialects (Tirkkonen 2007) as well as in Võro[6] (Pajusalu 1998; Keem & Käsi 2002; Tammekänd 2015), this thesis focuses on the two most common demonstrative pronoun systems.

Both demonstrative pronouns, *see* and *too*, can be used pronominally as well as adnominally. The form remains the same regardless on whether the demonstrative pronoun is used independently (example 1) or occurs with a noun in a noun phrase (example 2) (the examples 1 and 2 are constructed for the thesis).

(1) ***See/too***   *meenutab*   *kirikut.*
     this/that.DEM.PRON.NOM   look.like.PRS.3SG   church.PART

     'This looks like a church.'

(2) ***See/too***   *kook*   *maitseb*   *hästi*   *koos*   *kohviga*
     this/that.DEM.PRON.NOM   cake.NOM   taste.PRS.3SG   good   with   coffee.COM

     'This cake tastes good with coffee.'

Although the two demonstrative pronoun systems differ in the number of demonstrative pronouns, they share the same demonstrative adverbs (see Table 1). In Estonian, demonstrative adverbs have developed from the demonstrative pronoun *see* (Metsmägi et al. 2012). The demonstrative adverb paradigm consists of six demonstrative adverbs: the goal-based *siia – sinna*, the locative *siin – seal,* and the source-based *siit – sealt* demonstrative adverbs.

Table 1. Estonian demonstrative pronouns and adverbs and their English equivalents

Demonstratives	1-term demonstrative pronoun system	2-term demonstrative pronoun system
Pronouns	*see* 'this/that'	*see* 'this' and *too* 'that'
Adverbs	*siia* 'to here' – *siin* 'here' – *siit* 'from here'	
	sinna 'to there' – *seal* 'there' – *sealt* 'from there'	

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[6] There is an on-going debate about whether Võro is a minority language (language in Estonia) or a dialect (of Estonian). However, this debate is out of the scope of this thesis and will not be discussed hereinafter.

In both demonstrative pronoun systems, demonstrative pronouns are often accompanied by demonstrative adverbs (examples three to eleven (below) are taken from the corpus etTenTen[7]). In Estonian, adverbs can modify nouns and can occur in both positions (i.e., before and after the noun). In either position, adverbs function as adverbial attributes (Veismann & Erelt 2017: 427). Demonstrative pronoun and demonstrative adverb combinations could therefore be regarded as a one referential unit (see Examples 3, 4 and 6). However, there can be occurrences when it is unclear if the demonstrative adverb modifies the pronoun or the verb (e.g., as in Example 5). Although, this syntactic interpretation deserves a thorough investigation[8], it does not fit in the scope of the current study.

There are differences on which of the adverbs can accompany which of the pronouns. *See* is often accompanied with either proximal (see Example 3) or distal (see Example 4) demonstrative adverbs, while *too* is rarely accompanied with proximal demonstrative adverbs (see Example 5 and Example 6). Furthermore, the addition of a distal demonstrative adverb (see Example 7) to *too* is much more common.

(3) ***See***   ***siin***   *on*   *mingi* *käkerdis*
this.DEM.PRON.NOM **here**.DEM.ADV.LOC be.PRS.3SG some thing.NOM

'This (thing) **here** is a complete cock-up.'

(4) ***See***   ***seal***   *on*   *lollakas*
this.DEM.PRON.NOM **there**.DEM.ADV.LOC be.PRS.3SG stupid.NOM

'This (one over) there is stupid'

(5) *Aga* *ma* *lihtsalt* *ei* *pea*   *väga* *suurt*   *lugu*
but I just   NEG keep.CNG very much.PART respect

neist   *millel* *natukenegi* *vähemalt* *enda*
these.DEM.PRON.ELA that little   at.least self.GEN

arvates *sügavam* *mõte*   *puudub* *ja*
think.GER deep.COMP idea.NOM lack.PRS.3SG and

tollel   ***siin***   *pigem* *puudub*
that.DEM.PRON.NOM **here**.DEM.ADV.LOC rather lack.PRS.3SG

'but I just do not care much for those that lack, even a little, a deeper meaning and **that here** lacks a deeper meaning'

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(6)   *Üritasime   mõistatada   et   mis   **too***
      try.PST.3PL   guess.INF   that   what   **that**.DEM.PRON.NOM

      siin   *teeb*
      here.DEM.ADV.LOC   do.PRS.3SG

      'We tried to guess what **that** was doing **here.**'

(7)   ***Too***   ***seal***   *on*   *lihtsalt*   *nende*
      that.DEM.PRON.NOM   there.DEM.ADV.LOC   be.PRS.3SG   just   they.GEN

      mängurobot   *Zearth*
      toy-robot.NOM   Zearth

      '**That** (one over) **there** is just their toy-robot Zearth.'

The same combinations are also possible if demonstrative pronouns are used adnominally (examples 8–11).

(8)   *Natuke   kummalise   mulje   jätab*
      Little   weird.GEN   impression.GEN   leave.PRS.3SG

      see   ***arutelu***   ***siin***
      this.DEM.PRON.NOM   **discussion**.NOM   **here**.DEM.ADV.LOC

      'This discussion here leaves a bit of a weird impression.'

(9)   *Väga   imelik   et   **see**   **aare***
      Very   strange   that   **this**.DEM.PRON.NOM   **treasure.**NOM

      seal   *alles   oli*
      there.DEM.ADV.LOC   extant   be.PST.3SG

      'It was very strange that **this treasure there** was still in existence.'

(10) ***Too***   ***tekst***   ***siin***   *oli*
      that.DEM.PRON.NOM   **text.**NOM   **here**.DEM.ADV.LOC   be.PST.3SG

      palju   pikem
      much   long.COMP

      'That text here was much longer'

(11) *Õnneks   oli   **too**   **tohter***   ***seal***
      luckily   be.PST.3SG   **that**.DEM.PRON.NOM   **doctor.**NOM   **there**.DEM.ADV.LOC

      vähemalt   asjalik   ja   inimlik
      at.least   competent   and   humane

      'Luckily that doctor there was at least competent and humane.'

In the next two subsections, I will give a brief overview of previous findings in Estonian demonstrative research.

2.1. Endophoric use of Estonian demonstratives

Demonstrative research in Estonian has mostly focused on the use of demonstrative pronouns in endophoric reference, and to a lesser extent with the use of demonstrative adverbs. Nevertheless, the data gathering methods have varied from using different corpora (e.g., Pajusalu 1997a; Pajusalu 2015), situation observations (e.g., Pajusalu 1998), experimentally elicited data from written and oral narratives (Hint et al. 2013; Hint 2015; Hint et al. 2017) to sentence continuation experiments (e.g., Kaiser & Vihman 2010). The endophoric use of demonstratives has been thoroughly researched using different methods, while the exophoric use of demonstratives has received much less attention.

In Estonian, the demonstrative pronoun *see* has multiple functions in discourse. First, *see* can refer to any referent (Pajusalu 2017) although it prototypically prefers inanimate referents (Pajusalu 2005). Nevertheless, *see* can also refer to animate entities (see Example 12, Pajusalu 2017: 577).

(12) *Ruth* *ajas* *ruttu* **Titi** *üles* *ja* ***see***
      Ruth wake.PST.3SG quickly **Titi**.GEN up and **this**.DEM.PRON.NOM

      tegi *kohe* *järelduse:* *„Vist* *lasevad* *jalga."*
      do.PST.3SG immediately conclusion.GEN probably bail.PRS.3PL

      'Ruth woke **Titi** in a hurry and **this** concluded: „They are probably bailing."'

However, it is more common to use *see* in presentational clauses (see Example 13).

(13) ***See*** *on* *Mari*
      this.DEM.PRON.NOM be.PRS.3SG Mary

      'This is Mary'

Second, in time reference, *see* can refer to an on-going time or a previously mentioned time (Pajusalu 1997a). Third, *see* can also be used to mark hesitation (Keevallik 2010) and fourth, *see* can be used to emphasise as well as to "indicate the grammatical role of the associated phrase" (Sahkai 2003:142). Fifth, *see* functions as a definiteness marker. It is used as a definite determiner to denote that the referent was mentioned previously or that the referent is known from context (Pajusalu 2017; Hint et al. 2017). In addition, *see* is in the process of becoming a definite article in Estonian (Pajusalu 1997b). Furthermore, experimental studies (e.g., Kaiser & Vihman 2010) have shown that *see* prefers

more objects and post-verbal referents as in comparison to the third person pronoun *tema/ta*. This suggests that *see* is susceptible also to the grammatical role of the referent as well as to the word order of the sentence. In addition to *see*, all six demonstrative adverbs *siin/seal*, *siia/sinna, siit/sealt* can also be used as definite determiners if the referent is conceptualised as a place (Pajusalu 2005, 2009, 2017: 581).

Unlike *see*, the demonstrative pronoun *too* is an infrequently used demonstrative in Estonian. For example, a search in the written language corpus enTenTen presents 48 133 instances of *too* use as opposed to 4 728 618 instances of the use of *see* in this whole corpus. With both of these demonstrative pronouns, the search included adnominal and pronominal uses in all case forms. Therefore, the functions that *too* fulfils in endophoric reference may be limited. In contrast to *see*, *too* is rarely, if at all, used as a definite determiner in Standard Estonian (Pajusalu 2009; Hint et al. 2017). The main functions of *too* are to indicate past events in time-reference and to refer to the second character in literary narratives (Pajusalu 2006, 2009).

While the main focus of this thesis is on the use of demonstratives, it is also important to mention that in endophoric reference the third person pronoun *tema*/*ta* and zero reference share the same referential domain with demonstratives. The prototypical pronoun for personal reference is the third person pronoun *tema/ta*, although it is also possible to use *see* as well (see example 12 above). In addition, one can use *tema/ta* in referring to animate and inanimate entities if these are mentioned in the previous discourse (Pajusalu 2009). Similarly to *tema/ta*, zero reference is used when the referent is in focus and remains so in further talk (Hint 2015).

2.2. Exophoric use of Estonian demonstratives

Until now, the use of Estonian demonstratives in exophoric reference has received little research attention. Following the distance-based approach in explaining the use of demonstrative pronouns, Estonian reference grammar states that the demonstrative pronoun *see* is the proximal and the demonstrative pronoun *too* the distal demonstrative pronoun (Erelt et al. 1995: 29). On the other hand, *see* can be argued to be a distance-neutral demonstrative (Larjavaara 1986). More recent studies have proposed that *see* is used as a distance-neutral demonstrative if *too* does not belong to the speaker's active vocabulary (Pajusalu 2009). In the two-term demonstrative pronoun system, *see* obtains the proximal meaning when it is used contrastively with *too*. In this case, *too* is considered to be a distal demonstrative pronoun (Pajusalu 2009) which, on rare occasions, can also be used for proximate referents. In addition to demonstrative pronouns, there are two series of demonstrative adverbs used in Estonian in which *siia*, *siin*, *siit* are the proximal demonstrative adverbs and *sinna*, *seal*, *sealt* are the distal demonstrative adverbs (Pajusalu 2009, 2017). The possibility to combine these demonstrative adverbs with demonstrative

pronouns (see Section 2) is especially necessary for the one-term demonstrative pronoun system users. This is because demonstrative adverbs reinforce the spatial meaning of the demonstrative pronoun in its distance neutral use (cf. Diessel 1999).

To conclude, the emphasis of demonstrative research in Estonian has been on the endophoric use through the use of different research methods that complement each other. Research on demonstratives in exophoric use, however, has been largely corpus-based with no experimental methods used. Furthermore, the research of demonstratives in exophoric use should be conducted in actual physical space so that the influence of distance as well as other possible factors (e.g., contrast and visual salience) on demonstrative use can be tested properly.

2.3. Aims of the thesis

This thesis has three aims. First, to study the exophoric use of Estonian demonstratives. Second, to explore the differences of the influencing factors in comparison to other languages with different demonstrative pronoun systems. Third, to investigate the association of demonstrative pronoun systems and the use of other referential devices (e.g., bare NPs and third person pronouns) and referring constructions. These aims will be pursued through the following objectives and research questions:

1. To explore the factors that influence the choice of Estonian demonstratives in exophoric use:
    1.1 Does the choice between the demonstrative pronouns *see* and *too*, and the demonstrative adverbs *siin* and *seal* depend on the distance of the referent (**Studies I–III**) as well as on the visual salience of the referent (**Study II**)?
    1.2 Does the choice between the demonstrative pronouns *see* and *too,* and the demonstrative adverbs *siin* and *seal* associate with change in the deictic field (**Study III**) and contrast in addition to the distance of the referent (**Studies II** and **III**)?
2. To explore the functions of the demonstrative pronoun *too* in the demonstrative pronoun system:
    2.1 Does the use of the demonstrative pronoun *too* have an effect on the functions of other demonstratives (i.e., in the spatial use of *see*, *siin* and *seal*) (**Study II**)?
    2.2 Does the use of *too* in the speech situation correspond to the participants' self-reports (**Studies I–III**)?
3. To study the differences of the Estonian demonstrative pronoun system compared to other systems in different languages, and to explore how these differences relate to the use of other referential devices and referring constructions (i.e., relative clauses):

3.1 Does the use of demonstratives in the Estonian two-term demonstrative pronoun system differ from the use of demonstratives in Russian, a two-term system language (**Study III**)?

3.2 How does the use of demonstratives in the Estonian two-term demonstrative pronoun system differ from the use of demonstratives in Finnish, a three-term system language (**Study III**)?

3.3 Does the use of other referential devices and referring constructions have an association with the elaborateness of demonstrative pronoun system in Estonian, Russian and Finnish (**Studies III** and **IV**)?

3. METHODOLOGY

3.1. Empirical data collection considerations

Many different methods have been used for exploring the endophoric use of demonstratives ranging from corpus studies to experimental research. To study the exophoric use of demonstratives, however, knowledge about the perceptual and situational background that co-occurs with demonstrative use (e.g., location of interlocutors and the entities that are referred to) is needed. In general, available corpora consist of texts of written or colloquial language where the surrounding space of the interlocutors and entities around them are usually not discussed. Therefore, it would be difficult to use already available corpora in studies of demonstratives in exophoric use in this thesis. Although feasible, it would be a very time-consuming and challenging process to create a corpus of different spatial situations. The option of gathering comparable corpus data of different languages for use of this thesis would be an even more demanding process. For these reasons, the use of corpora is not the best option for this study. This leaves three possible methods: (1) introspection where linguists rely on their own intuition about the linguistic phenomenon under investigation, (2) observational methods (e.g., taking field notes); and (3) conducting experiments (Clark & Bangerter 2004).

Introspection is useful in postulating the hypotheses as well as interpreting the results (Gibbs 2007; Arppe & Järvikivi 2007; Jucker 2009), but it is not enough for answering research questions. Thus, introspection is best used as a starting point for empirical research. Data that are gathered using observational methods in a natural setting (e.g., recordings of everyday conversations, field notes taken from everyday situations etc.) are considered authentic, but there is a possibility that the linguistic unit under investigation occurs rarely, or not at all, in the data (Yuan 2001). In addition, it is difficult to tease apart the direct influencing factors of the phenomenon in question (Gibbs 2007). To ensure that the linguistic unit is present in the gathered data, one can conduct experiments. Using experiments enables one to test specific hypotheses whilst holding the confounding variables under control (Gibbs 2007). Although the naturalness of the answers that people provide during experiments is thought to be questionable, the unnaturalness of the experimental situation can be lessened by using field-experiments or quasi-experiments (Bednarek 2011). This is because the experiments take place in a more naturalistic setting such as a classroom rather than in a laboratory.

Ground-breaking work on demonstrative studies has been achieved using corpus-based methods (e.g., Hanks 1990; Enfield 2003) which have greatly benefitted our understanding on the use of demonstratives in spatial reference. However, we need to employ both corpus-based and experimental methods to obtain an even better insight into demonstrative use (Bohnemeyer 2012).

In the next subsections, I will give a brief overview of experimental designs and types relevant for the thesis. I will also discuss the benefits and drawbacks of using different experiment types.

3.1.1. Types of experiments

In general, we can speak about off-line and on-line experiments. On-line experiments measure real-time linguistic processing and provide the means to explore the time-course of comprehension and production of linguistic units. Two common ways of achieving this is through using either reaction time measurements (i.e., how quickly the participants perform linguistic tasks) and/or eye-tracking which records the participant's eye-movements while producing or interpreting some linguistic unit. In off-line experiments, there are no time constraints and the data gathered using these types of experiments "provide crucial information about final interpretations, i.e., the final outcome of language processing" (Kaiser 2013: 137).

An important distinction between the off-line experiments that is relevant for this thesis is the one between production experiments and comprehension experiments. In comprehension experiments, the participants interpret linguistic units (or the meanings of these units) whereas in production experiments, the participants themselves produce the linguistic units being researched (Vorweg 2012). Production experiments can be divided into fixed or open-ended production experiments (Carlson & Hill 2007). In fixed production (also called forced-choice) experiments, the possible linguistic units that the participants can use are limited (i.e., the participants have a limited set of means that they can choose from). In the open-ended production (also called free-production) experiments the participants have total control over which linguistic means to use. In designing either forced-choice or free-production experiments, there are different factors to bear in mind. With forced-choice experiments, the researcher has to carefully consider which choices to add to the set of possible responses. This consideration is important as the set of responses has to give the participants enough flexibility, but at the same time, gather sufficient information. With free-production experiments, the main difficulty lies on designing the stimuli and the tasks of the participants in such a way that the data obtained would give information about the manipulations under investigation (Carlson & Hill 2007). The strength of the free-production experiments is that the obtained data are produced in a naturalistic setting although there is no guarantee that utterances of interest will be produced. This weakness, however, can be eliminated by restricting the choices of the participants through a forced-choice design, but this will decrease the naturalness of language use (Carlson & Hill 2007). Therefore, there is no perfect design and the researcher has to decide whether the free production or forced-choice experiment is the best match for the research question.

3.1.2. Types of experiment designs

Experimental methods belong to the quantitative branch of empirical research. In quantitative studies, the researchers have to ensure that the study is valid, reliable, and replicable. Furthermore, the study has to be valid internally as well as externally. Internal validity means that the researcher has to ensure (within acceptable limits) that the stimuli itself has caused the observed effects rather than these effects occurring due to some other variables (e.g., participants' fatigue and learning effects). A study is externally valid when the results can be generalised to the population. In other words, the effect of the stimulus would have the same results if different participants were to participate in the study. The study is reliable when the measurements are carried out consistently and it is replicable. Replicability means that the results of the study can be repeated using subjects from another population and in different contexts (Abbuhl et al. 2013).

The main idea of conducting experiments is to test whether there is a causal relationship between the variable under investigation (i.e., the dependent variable), and the possible influencing factors that are manipulated by the researcher (i.e., the independent variables). In addition, there is a third type of variables that can influence the dependent variable, but which do not belong to the experimental design (i.e., extraneous or cofounding variables). Within this study, the independent as well as the extraneous variables can influence the participant's choice of demonstratives. More specifically, independent variables influence the dependent variable and this effect is measured. The effect of confounding variables is not directly measured in the study and, therefore, should be avoided as much as possible. One example of confounding variables is order effects in which the previous condition has an influence on how the participants behave in the subsequent condition (Myers et al. 2010). To minimize the effect of confounding variables, the researcher can use different techniques such as randomisation (i.e., assigning participants randomly to the study), counter-balancing in the experimental design (i.e., participants undergo different conditions in different order), or both (Vorweg 2012; Abbuhl et al. 2013).

There are two major types of experimental designs to consider in conducting these types of experiments: a between-subjects design and a within-subjects design (also known as repeated-measures design). For the between-subjects design, each level of the independent variable is tested on a different group of participants with each participant being tested once. Thus, the groups of participants need to be carefully balanced with only one 'condition' being applied to each group. The only difference between the participants in the groups should be the condition that they are assigned to. For within-subjects design, multiple measurements using the same participants are made in order to enable a better control over inter-individual differences. Furthermore, as all the subjects participate in all the conditions, less participants are needed in a within-subjects design than in a between-subjects design (Vorweg 2012; Van Peer et al. 2012; Abbuhl et al. 2013). In addition to between-subjects and within-

subjects experimental designs, researchers can also use a mixed-design experiment. A mixed-design combines both a between-subjects and a within-subjects design to minimise the disadvantages and maximise the affordances each design can offer. In mixed-designs, there have to be at least one or more within-subjects variable and one or more between-subjects variable present (Elmes et al. 2012: 244). Then, at least one variable is manipulated between the participants (i.e., one group participates in one level of a condition and the other group participates in the other level of the same condition) and one variable is manipulated within the participants (i.e., all the participants in both groups participate in all the levels of the same condition).

From the two major experimental designs, the within-subjects design is much more commonly used despite having certain limitations of which order effects are the most significant (Van Peer et al. 2012; Abbuhl et al. 2013). However, the order effects can be avoided, or at least minimised, by using a technique called counterbalancing that can either be complete or partial. In complete counterbalancing, the participants go through the levels of the independent variables in different orders. This might present a problem when there is more than one independent variable and the independent variables have more than two levels. This is because the number of required participants can become impractically high. In these circumstances, partial counterbalancing may be a more desirable technique. In partial counterbalancing, the participants undergo a "subset of possible orders from the total set of possible orders" (Abbuhl et al. 2013) chosen from the levels of the independent variables. One example of partial counterbalancing is the Latin squares design in which a table of numbers or letters is composed. In this table, each number or letter in a cell presents a condition of the experiment and there are as many rows and columns in the table as there are conditions (e.g., if the experiment has three conditions there would be a 3×3 table). In each row and column, the numbers or letters are in a different order. For each row, there would be minimum of at least one participant assigned (Abbuhl et al. 2013).

In the current thesis, I chose to conduct three off-line production experiments: two forced-choice experiments (**Studies I** and **II**) and one free-production experiment (**Study III**). In addition, I used mixed and within-subjects designs with partial counterbalancing. The use of forced-choice production experiments enabled me to gather direct information about the influencing factors that have an effect on the choice of Estonian demonstratives. This was especially true concerning the use of the demonstrative pronoun *too* which is a rarely occurring demonstrative pronoun (see Chapter 2). Furthermore, to test for the differences in the use of *too*, I used a mixed design (**Study II**) where the participants were divided into forced-choice and free-production groups (between-subjects variable) that were tested for the same independent variables (within-subjects variables). The data from the forced-choice production experiments were complemented with the data from the free-production experiment. The use of a free-production experiment enabled me to gather language data in as naturalistic setting as possible on the use of demonstratives and other

referential devices (e.g., NPs, third person pronouns), and referring constructions (i.e., relative clauses). Therefore, this data provided information about spatial reference in general and, thus, offers a deeper insight on the associations between demonstrative pronoun systems and the use of other referential devices, and referring constructions.

3.1.3. Additional empirical considerations

To investigate the use of demonstratives in spatial context in Estonian, there is one main aspect to be considered. Namely, due to dialectal variation within the Estonian language, the use (or rather non-use) of the demonstrative pronoun *too* varies between the speakers. While the current thesis does not, in itself, use sociolinguistic methods for studying Estonian spatial demonstratives, particular tendencies of Estonian still need to be taken into consideration. First, the origin of the participants had to be accounted for since *too* is actively used by speakers originating from South-East Estonia and South-Estonia. Furthermore, and even when the participants originated from the region where *too* is used, there was no guarantee that this demonstrative pronoun belonged to the active vocabulary of that participant. To account for whether *too* was used, or not used, because of the experimental stimuli, the participants were asked to complete a questionnaire after each experiment about their socio-demographic background and their own perceived use of demonstratives in different contexts and situations.

Second, the use of the demonstrative pronoun *too* is not only area-specific, but *too* is also a highly marked demonstrative. This is one of the words that can differentiate the North-Estonians from the South-Estonians. Thus, the information about the participants' demonstrative use was obtained after the experiments so as not to influence their responses during the experiment. To minimise the possibility that the participants would guess the aim of the experiments and change the way they use demonstratives, the participants were not told explicitly that demonstratives were the focus of this study. Instead, they were given the following general description about the research question: "Is there an association between language use and spatial cognition?"

The experiments conducted for the thesis are presented in the next subsection. It gives a detailed account of the experimental design and procedure, and an overview of the participants.

3.2. Experiments conducted for the thesis

The empirical data for the dissertation originate from three experiments conducted between 2011 and 2016. While the limitation in the design of these experiments is that the participants share minimal interaction (as much as is needed in order to identify the intended referent and successfully complete the

task), they offer a controlled setting to investigate the influencing factors of demonstrative use in spatial reference.

The first experiment "House-building game" (**Study I**) was a forced-choice production experiment. The second experiment "Construction-building game" (**Study II**) involved the participants being divided into two groups: a free-production group and a forced-choice production group. Thus, this experiment was partly a free-production experiment and partly a forced-choice experiment. The third experiment "Houses" (in **Studies III** and **IV**) was a free-production experiment. The first and third experiments (in **Studies I** and **III**) followed a within-subjects design, whilst the second experiment (**Study II**) followed a mixed design.

On the basis of previous research presented above, the independent variables chosen for the studies are as follows: (1) the distance of the referent form the speaker, (2) the visual salience/accessibility of the referent, (3) the need for contrast, and (4) the change in the deictic field (see Table 2). Since many studies have suggested that distance does have a strong influence on demonstrative choice in exophoric reference (e.g., Coventry et al. 2008, 2014; Bonfiglioli et al. 2009) it is used as the base-line factor in designing the experiments. In other words, the influence of the other variables is measured through the change in demonstrative use in the same spatial setting. Thus, the introduction of other independent variables into the same spatial setting should change the pattern of demonstrative use. Furthermore, and in contrast to distance, the visual salience/ accessibility of the referent has yielded contradictory results across languages (e.g., Maes & de Rooij 2007; Jarbou 2010; Coventry et al. 2014). As for the contrast and the change in the deictic field, there have been only a few experimentally implemented empirical studies investigating these variables despite the fact that these are the base-line parameters in the demonstrative literature. It should be noted that in testing for the influence of change in the deictic field, only one domain of the deictic field was manipulated (see 3.3.3. for a detailed account).

Therefore, these four independent variables are manipulated and their effect is measured on the two dependent variables (i.e., the use of demonstrative pronouns and the use of demonstrative adverbs). These independent variables are further divided into referent-related and speech-situation related variables (see Table 2). The variable 'the distance of the referent' is tested in all three experiments. The influence of contrast (i.e., explicitly opposing two or more referents) is explored in the "Construction-building game" experiment (**Study II**) and in the "Houses" experiment[9] (**Study III**). Other referent and speech-situation related independent variables were tested once in the studies. The

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[9] The "Houses" experiment can be classified as a field experiment or a quasi-experiment where the influence of contrast is not measured numerically. The setting created for this experiment is contrastive in its nature (see the design of this experiment in 2.1.1). It is through this setting that the influence of contrast on demonstrative choice is detectable in the data.

variable 'the visual salience of the referent' is tested only in the "Construction-building game" experiment (**Study II**) and the variable 'the change in the deictic field' is tested in the "Houses" experiment (**Study III**).

Table 2. Dependent and independent variables used in the experiments

Variables used in the experiments	„House-building game"	"Construction-building game"	"Houses"
Dependent variables			
Demonstrative pronouns	x	x	x
Demonstrative adverbs	x	x	x
Independent variables			
Referent-related			
The distance of the referent	x	x	x
The visual salience of the referent		x	
Speech-situation related			
Contrast		x	x
The change in the deictic field			x

The next subsections present the design and procedure of each experiment, and the information about the participants that is followed by the description of the data preparation and analysis. The descriptions of the experiments are presented in chronological order according to when the data was collected.

3.3. Design, procedure and participants of the experiments

3.3.1. "House-building game" experiment (Study I)

The design of this experiment was based on previous studies by Coventry et al. (2008) and Piwek et al. (2008). The idea of varying distance (Coventry et al. 2008) and the interactive role-play game with a shared goal of the participants (Piwek et al. 2008) were adapted from these studies. The aim of this study was to explore whether distance has an effect on Estonian demonstrative use.

Design. The participants were divided into pairs where they shared a mutual goal to build together a house on the basis of a pre-built model using Lego bricks. Within each pair, the participants assigned themselves without the experimenter's influence the role of being either a director or a builder.

There were 45 numbered Lego bricks in three sizes (small, medium and big) and in four colours (green, blue, red and yellow) placed on a big round table at varying distances from the participants (see Figure 2, adapted from **Study I**).

C – camera   M – model   D – director   B – builder
b – big   r – red
s – small   y – yellow
m – medium   b – blue
    g – green
(The first and second letters denote the size and the colour of the brick respectively)

- - - 75 cm line
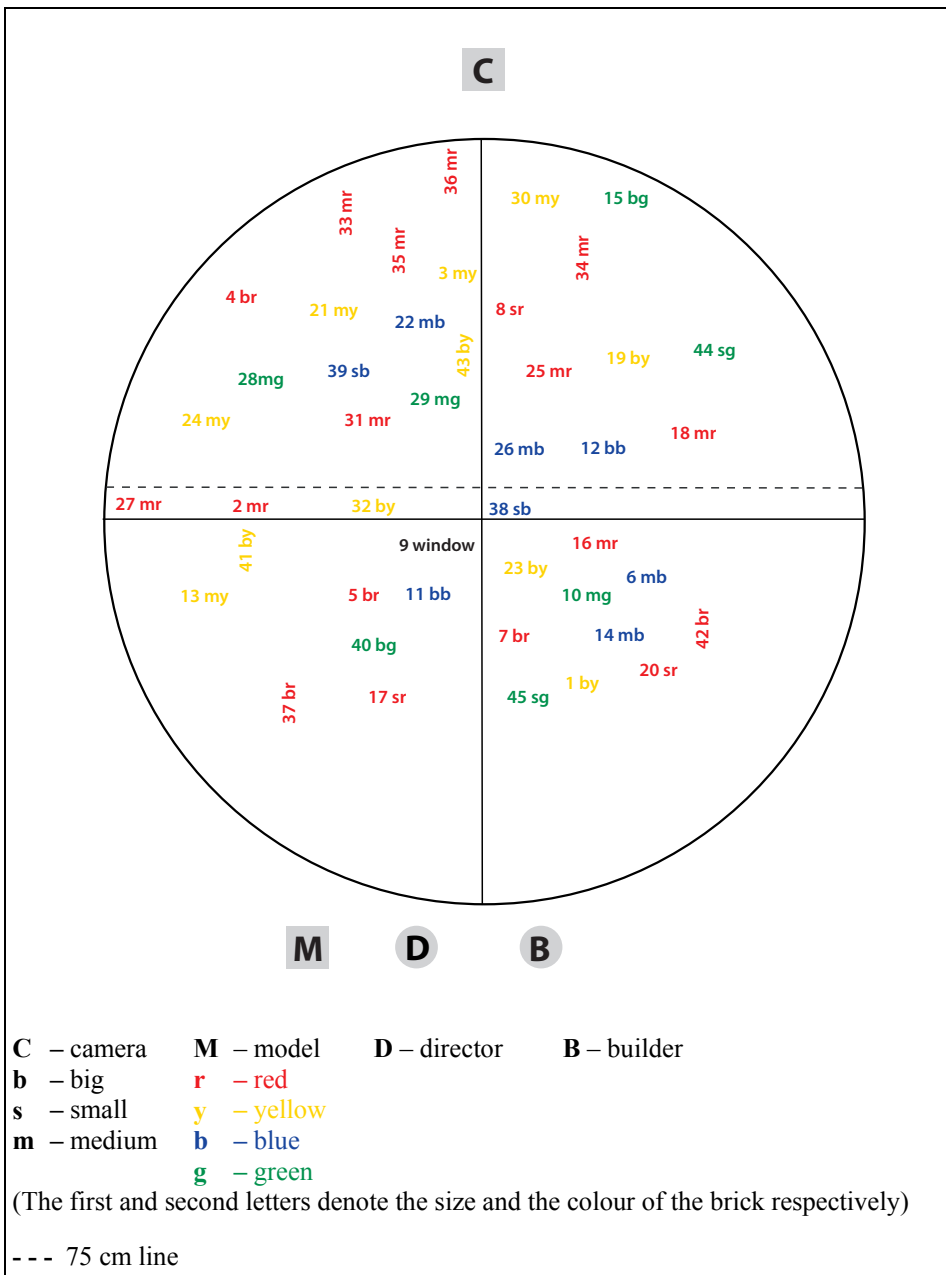
Figure 2. The initial placement of the bricks on the table in **Study I**

The anchor-point for the switch for proximal demonstratives to distal demonstratives was taken as 75 cm based on a previous study by Coventry et al. (2008). The bricks were divided evenly on the table: 22 of the bricks lay before the 75 cm line and 23 of the bricks were positioned beyond the 75 cm line (the line marked as a dashed red line in Figure 2). This line, of course, was not visible for the participants). The space before the 75 cm is defined as the near distance (i.e., the space in one's arm's reach). The space after the 75 cm is defined as the far distance (i.e., the space outside grasping distance)[10]. To ensure that the bricks were taken from the table in the same order and, thus, the visual scene remained the same for all the participants, the bricks were numbered on the model and on the table. In addition, all the participants were asked to start building the house with the same brick and move from there clockwise around the walls of the Lego-brick house. While referring to the bricks, the directors were instructed not to use the numbers on the bricks nor descriptive phrases like "the last one", "the first one" and "on the left" and "on the right". However, they were allowed to use the colours and sizes of the bricks as well as pointing gestures. This was done in order to limit the choices of descriptive utterances and to direct the participants to unconsciously use demonstratives.

Procedure. Standardised oral instructions[11] were given prior to the experiment with additional clarifications provided when needed. Participants were informed that the experiment was going to be video-recorded. During the experiment, the directors referred to the bricks one-by-one. When the builders were certain that they knew which of the bricks was the intended referent, they took the brick from the table and returned to their initial position. When the correct brick was taken and the builders had returned to their seat, the directors told the builders where, and in which way, the brick fitted in the construction. After that, the directors indicated the next brick. Only the directors saw the model and only the builders were allowed to touch and move the bricks.

The experiment was recorded with a video-camera to capture the gestures as well as the use of demonstratives. The trials lasted approximately ten minutes. Written consent of the participants was obtained to video-record the experimental

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[10] One could argue that the distance of the bricks from the director and the builder was not strictly equal (i.e., some of the bricks that were located before the 75 cm line were closer to the builder than to the director and vice versa), such as in the case of the brick number 20sr (see Figure 2). However, Estonian demonstrative pronoun system could be considered rather as a distance-based than person-based system (Pajusalu 1996). Therefore, this minimally unequal distance of the bricks from the participants was not considered as a possible confounding factor. The same considerations were made in the design of the experiment of **Study II**.

[11] First, the instructions for the participants were written down. Then, the experimenter memorised and rehearsed the instructions. This procedure was followed to ensure that all the participants would get the same instructions. The experimenter gave memorised and rehearsed oral instructions (rather than reading them out loud from script) as to ease the discomfort and to encourage the participants to ask questions about the instructions (if need be). This same procedure was followed in **Study II**.

trials. After the experiment, the participants were asked to complete a question-naire about their socio-economic indicators (e.g., age, education, place of origin etc.) as well as their knowledge and perceived use of the demonstrative pronouns *see* and *too*.

Participants. A respondent-driven sampling technique was used to enrol 20 native speakers of Estonian into the study. This resulted in ten pairs of participants. Since the builders referred to the bricks rarely and mostly carried out the instructions given by the directors, only the data from the ten directors, aged 19–27 (mean age = 20), were analysed. All the directors were students, with eight of them originating from a region where only one demonstrative pronoun *see* is used and two from a region where both the demonstrative pronouns *see* and *too* are used.

Prior conducting the experiment, all the participants were informed that their participation in the experiment was entirely voluntary and they can leave the experiment at any point. After the experiment, written consent was taken from the participants to use the gathered data for language research.

3.3.2. "Construction-building game" experiment (Study II)

The design of this experiment is developed from the results of the previous study (i.e., "House-building game"). In this experiment, the influence of the distance of the referent from the speaker is examined further. More specifically, the aim of this experiment was to test the influence on demonstrative choice in the Estonian two-term demonstrative pronoun system with regards to the following independent variables: (1) the distance of the referent from the speaker (in the distance series), (2) the visual salience of the referent (in the visual salience series), and (3) the need to contrast two similar referents (in the contrast series). Furthermore, the study also explored how the use of the demonstrative pronoun *too* differed between two groups of similarly matching participants: the free production group and the forced-choice production group.

Design. The participants, a director and a builder, shared a mutual goal to build together a construction on the basis of a pre-built model using Lego-bricks. There were 14 bricks in total that were placed on a big table (275 cm in length) in a seemingly random order for the participants. To ensure that the bricks are taken from the table in the same order and, thus, the visual scene remains the same for all the participants, the bricks were numbered on the model and on the table. In addition, the participants were asked to start building the constructions from left to right, and from bottom to top. The participants' roles were randomly assigned to them. Only the directors saw the model and only the builders were allowed to touch and move the bricks.

In the distance series, the distance from the participants was manipulated: six bricks lay in near distance, that is, approximately with-in arm's reach of the participants (in peripersonal space). The nearest and farthest brick was located

34 and 95 cm respectively from the participants. The brick that was located in 95 cm from the participants was considered as located in the near distance since it was possible to reach to it without standing up. Eight bricks lay in the far distance, that is, outside the grasping distance of the participants (outside peripersonal space). The nearest of these bricks was 122 cm from the participants, the farthest was 262 cm from the participants (see Figure 3).

Figure 3. Initial placement of the bricks in the distance series of the experiment and the pre-built model (upper left corner)

In the visual salience series, the visual salience (i.e., the differentiability) of the referents was manipulated by placing the bricks on the table either in groups or separately using colour matching (see Figure 4 for details). The bricks that were not grouped as well as the different coloured bricks in the groups of four were visually easily differentiated and, therefore, they were considered visually salient referents (eight bricks in total). The same coloured bricks in the groups were not easily differentiated and, thus, they were visually non-salient bricks (six bricks in total). The distance of the bricks from the participants varied from near to far distance (i.e., from 43 to 262 cm).
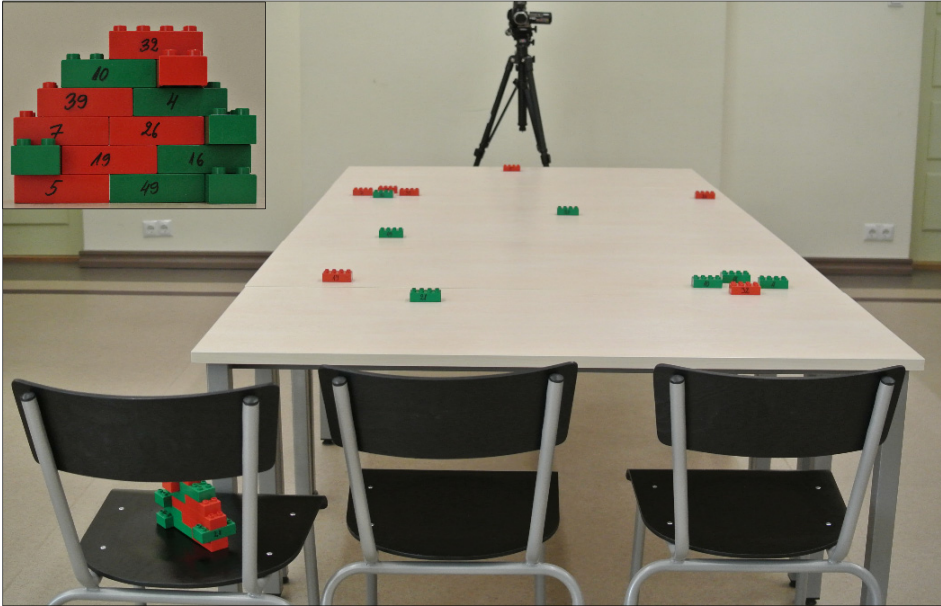
Figure 4. Initial placement of the bricks in the visual salience series of the experiment and the pre-built model (upper left corner)

In the contrast series, the layout of the bricks was the same as in the distance series, but an additional contrastive situation (i.e., the need to differentiate between two similar objects in explicitly opposing them) was created in the near distance of the participants (i.e., 65 cm) (see Figure 5).

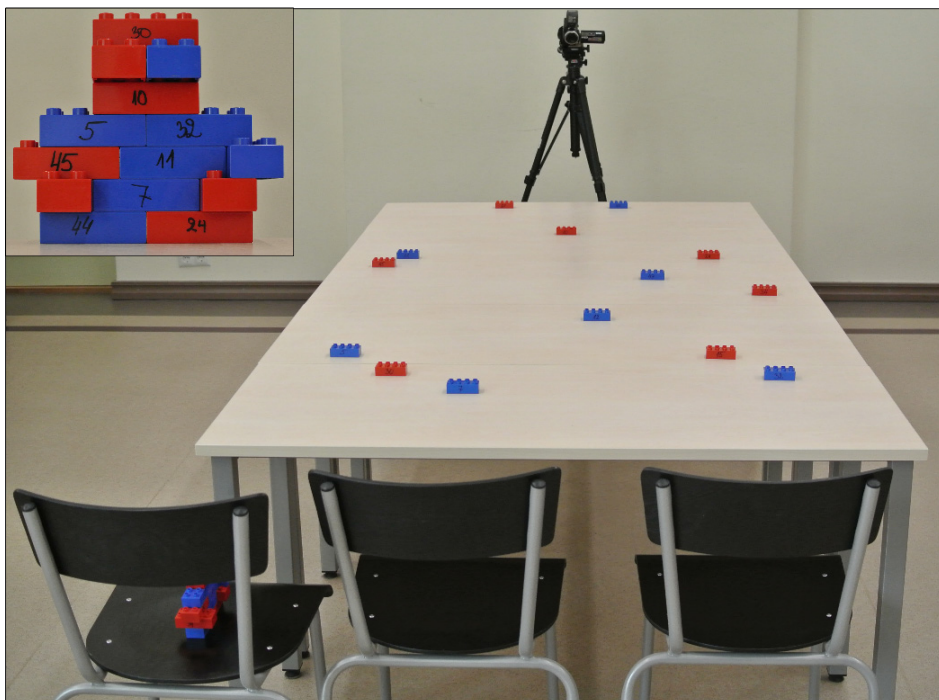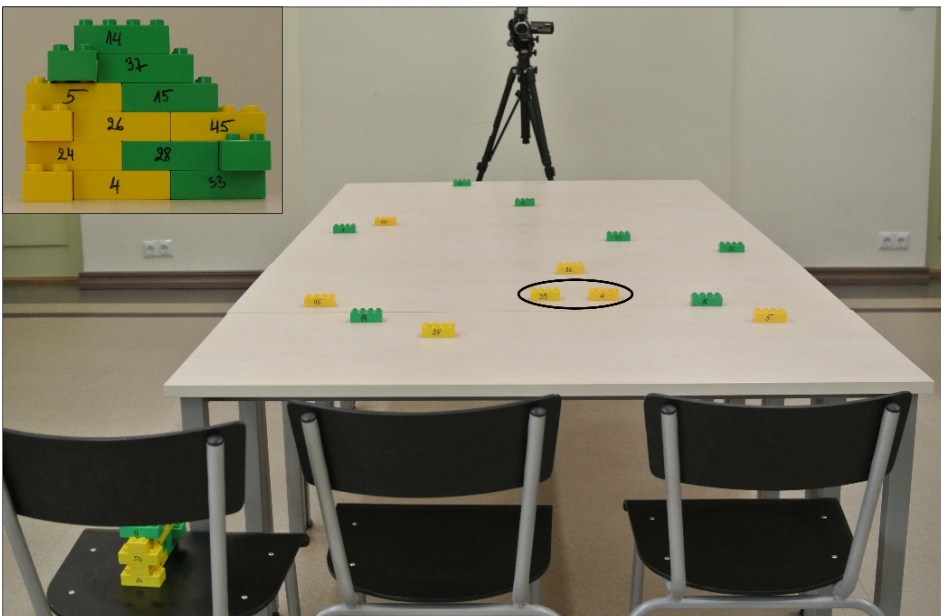**Figure 5.** Initial placement of the bricks in the contrast series of the experiment and the pre-built model (upper left corner). The circle denotes the place of the contrastive situation

The directors were instructed to indicate two bricks sequentially. Then, the builders were asked to place the bricks on the marked spots on the table so that the bricks were located next to each other and, therefore, creating a need to contrast between the same coloured bricks. The directors were to indicate, again one-by-one, which of the bricks to place to which location in the construction.

To avoid a carry-over effect, a Latin squares design was used (i.e., the pairs of participants were randomly assigned to do the experimental series in a different sequential order; see 3.1.2 for the detailed explanation of the technique). To test for the use of the demonstrative pronoun *too*, the participants were randomly assigned into two groups: the forced-choice production group and the free production group. In the forced-choice production group, the directors had only limited linguistic means to instruct the builders in that they were only allowed to use demonstratives, brick descriptive phrases and pointing. They were not allowed to use descriptive phrases that semantically included the description of the brick's location (e.g., *kõige lähem/esimene klots* 'the nearest/first brick'; *kõige tagumine/kaugem klots* 'the one at the back /the farthest brick'). The directors in the free-production experiment group were allowed to use whatever linguistic means they saw fit. The only constraint that both groups had was not to use the numbers on the bricks while instructing the builders.

Procedure. Standardised oral instructions were given before each experiment series with additional clarifications provided when needed. Participants were informed that the experiment was video-recorded. During the trials, the directors referred to the bricks one-by-one. When the builders were certain that they knew which of the bricks was the intended referent, they took the brick from the table and returned to their initial position. When the correct brick was taken and the builders had returned to their seat, the directors told the builders where and in which way the brick fits in the construction. After that, the directors indicated the next brick. The experiment was over when all three constructions were put together. Each of the three experiment series lasted approximately four minutes (12 minutes overall).

Participants. A non-randomised sampling technique (invites to three high-schools located in South-Estonia) was used to enrol 74 native speakers of Estonian into the study. This resulted in 37 pairs of participants. Furthermore, and in order to keep the data balanced for regional differences, as well as between groups, an equal number of pairs of participants from the South-Estonian towns of Antsla, Põlva and Võru were included in the analysis. In addition, since the builders referred to the bricks rarely and mostly carried out the instructions given by the directors, only data from the 24 directors, aged 17–19 (mean age = 17), were analysed.

Written consent from the participants was taken before the experiment. All the participants were informed that their participation in the experiment was entirely voluntary. As this experiment was conducted with adolescents, the permit for conducting the experiment was obtained from the Ethics Committee of the

University of Tartu (Approval No. 248/M-19). In addition to the written consent form, the participants completed a socio-demographic questionnaire and information sheet about their perceived everyday use of demonstrative pronouns after the experiment.

3.3.3. "Houses" experiment (Studies III and IV)

In the "Houses" experiment, a semi-interactional setting was created to elicit referential devices (e.g., noun phrases and demonstratives) in three different languages: Estonian, Russian and Finnish. The experiment was designed to explore both the influence of distance, and the effect of change in the deictic field in a contrastive spatial setting on demonstrative choice. In testing for the effect of change in the deictic field, the dimensions through which the participants had cognitive access to the referent were manipulated. This is only one dimension of the deictic field (see 1.3. for the descriptions of the other domains). However, if one aspect of the deictic field is changed, then the deictic field should change as a whole. Admittedly, if all the dimensions of the deictic field were to manipulated, the effects could be stronger, but not as easily assessed.

In addition to exploring demonstrative use, the possible association of the elaborateness of the demonstrative pronoun system on the use of other referential devices (e.g., demonstratives, noun phrases, third person pronouns) and referring constructions (i.e., relative clauses) was investigated. Unlike the previous two experiments where the referents were small movable objects, in this experiment large immobile entities were chosen for the referents.

Design. The experiment was carried out next to a window overlooking the town square on the fourth floor of one of the University of Tartu buildings. The view from the window included several houses located near and far from observation site. The experiment consisted of two parts where the participants had to describe and compare pre-defined houses one-by-one. In the first part, the assignment for the participants was to describe and compare the two pre-defined houses. One of the houses was located relatively near and the other house was located relatively far from the university building where the participants were located in. In the second part, the participants had to describe the building that they were located in and compare it one-by-one with the other two previously described houses (see Figure 6 for details, the list of original instructions are given in Appendix).

Situation 1: There are two houses on the picture. Look out of the window and describe and compare the houses that have circles around them.

Situation 2: Now describe the house we are in and compare it one-by-one with the houses that have circles around them.
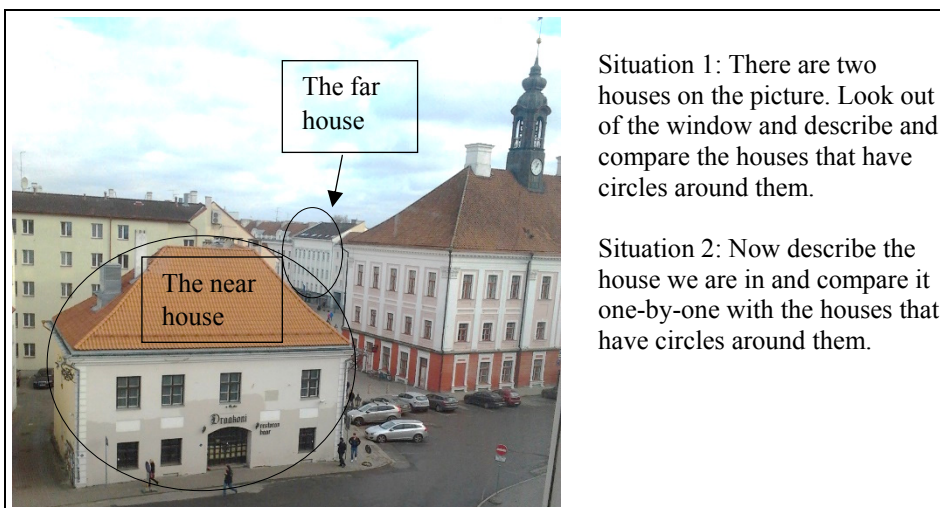
Figure 6. The view from the window and instructions given to the participants

The location of the two pre-defined houses enabled us to test for the influence of distance on the use of demonstratives. With regards to the contrastive situation, the task of comparing the different houses made it possible to detect whether there is an influence of contrast on demonstrative use. Furthermore, adding a new referent to the referential scene allowed us to test for the influence of the change in the deictic field on the use of demonstratives. By adding the third referent to the referential scene, made it possible to manipulate the dimensions through which the participants had cognitive access to the referents. This manipulation manifested in two ways. First, they had no visual access to the outside of the building, so they had to describe it by memory. Second, since the house they were located in was now the closest referent, the surrounding space had to be redefined. As we had gathered data from three different languages (i.e., Estonian, Russian and Finnish) that have different level of elaborateness in their demonstrative pronoun systems, we were further able to explore the association between the elaborateness of the demonstrative pronoun system and the use of other referential devices and referring constructions.

Procedure. Each participant was shown to a large window that was located on the fourth floor of a university building. Before the commencement of the experiment, s/he was given the information sheet and then written consent was obtained from the participant.

Each participant was given standardised written instructions either in Estonian, Russian, or Finnish, depending on her/his native language. The instruction sheet included a photo of the view from the window of the university building. The houses that s/he was to describe and compare with each other were circled on the instruction sheet (see Figure 6). Each participant was asked to look out from the window and describe and compare the real-life houses, and not the houses

on the given photo. The experimenter listened to the descriptions and gave minimal feedback. Furthermore, she only asked the participant to specify the referent on the rare occasions she did not understand which of the houses was being referred to. When the participant had completed the first part of the experiment, s/he was asked to turn the instruction sheet over and read the instructions. After that, the participant described the house s/he was situated in and compared it with the other previously described houses.

Each experiment was conducted by a native speaker of the language under investigation. All the trials were video-recorded. The participants were allowed to speak as much or as less as they saw fit to ease the discomfort brought on by the video-camera. After the experiment, socio-demographic information was obtained from the participants with one question aimed at Estonian speakers regarding their use of demonstratives in their everyday life. More specifically, this question was intended to elicit their perceived use of the demonstrative pronoun *too*.

Participants. Non-randomised sampling techniques (invites in social media and respondent-driven sampling) were used to enrol Estonian, Finnish and Russian native speakers to this study. From the 33 Estonian speakers, nine reported that they do not use the demonstrative pronoun *too* and, therefore, we excluded the data from these nine participants from the analysis. In total, the data from 24 Estonian (age range 19–56, mean = 30.0), 28 Finnish (age range 19–79, mean = 51.2), and 25 Russian speakers (age range 18–37, mean = 21.9) were included in the analysis. The Estonian and Russian speakers were permanent residents in Estonia. The Finnish speakers were either visiting Estonia or were students temporarily living in Estonia.

3.4. Data preparation

3.4.1. "House-building game" data (Study I)

The experimental trials of the "House-building game" experiment that was conducted for **Study I** were video-recorded and manually transcribed and coded. In the data, a pointing gesture was considered to be a referential unit. This resulted in a total of 539 referential units (available for analysis). The data was coded for the following five variables: (1) demonstrative use, (2) distance (i.e., the placement of the bricks), (3) gesture use, (4) description of the bricks, and (5) description of the location of the bricks. The dependent variable (i.e., the choice of demonstratives) was coded as three separate binary variables. First, demonstrative pronouns were coded as the proximal demonstrative pronoun *see* as opposed to other referential devices (i.e., description of the bricks and

demonstrative adverbs). Second, demonstrative adverbs[12] were coded as the proximal demonstrative adverb *siin* as opposed to other referential devices (i.e., description of the bricks, the demonstrative pronoun *see*, and the demonstrative adverb *seal*). Third, the distal demonstrative adverb *seal* was coded as *seal* as opposed to other referential devices (i.e., description of the bricks, the demonstrative pronoun *see*, and the demonstrative adverb *siin*). There were also three binary independent variables as follows: (1) distance: placement of the bricks closer than 75 cm as opposed to further than 75 cm, (2) use of gesture: gesture use as opposed to no gesture use, and (3) use of location description of the bricks: location description as opposed to no location description. For the data analysis, binomial mixed-effects logistic regression was used (see 3.6. for a full description).

3.4.2. "Construction-building game" data (Study II)

The experimental trials of the "Construction-building game" experiment that was conducted for **Study II** were video-recorded and manually transcribed and coded. As the purpose of this study was to test the possible influencing variables on demonstrative choice, referential phrases without demonstratives were excluded from the analysis. The resulting data included 324 units of analysis for the distance series (112 and 212 units in the free-production and forced-choice production groups respectively), 321 for the visual salience series (106 and 215 units in the free-production and forced-choice production groups respectively), and 218 for the contrast series (64 and 154 units in the free-production and forced-choice production groups respectively).

The data was tagged for the following six variables: demonstrative use, distance of the bricks from the participants, visual salience of the bricks, the order in which the bricks were indicated in the contrastive situation, experimental series, and experimental group. The dependent variable was coded as two separate variables being either demonstrative pronouns or demonstrative adverbs. Demonstrative pronouns were further tagged as the demonstrative pronoun *see* or as the demonstrative pronoun *too*. Demonstrative adverbs were tagged as the demonstrative adverb *siin* as opposed to the demonstrative adverb *seal*. The use of demonstrative adverbs was also coded according to its position in the utterance[13]. When the utterance started with a demonstrative adverb, then the position of the demonstrative adverb was tagged as 'First'. If the utterance did not start with a demonstrative adverb, but the demonstrative adverb was used in

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[12]   Note that there were also source-based demonstrative adverbs used (i.e., *siit* 'from here' and *sealt* 'from there'). However, and for the purpose of clarity, demonstrative adverbs are presented in the locative form (i.e., *siin* 'here' and *seal* 'there') hereinafter.

[13]   This dependent variable was an additional variable that was added to the study after the data was gathered. It was not part of the initial experimental design, but the pattern of use of demonstrative adverbs indicated that this might have an association with one of the independent variables, and more specifically, with the visual salience of the referent.

another position of that utterance, then the position of the demonstrative adverb was tagged as 'Not first'.

The independent variables were tagged as follows:

1) the experimental group: Group A (the free-production group) as opposed to Group B (the forced-choice production group),
2) distance: near (bricks with-in the participants' arm's reach) as opposed to far (bricks outside the participants' hand reach),
3) the visual salience of the bricks (in the data of the visual salience series): salient (the bricks that were easily differentiated from the other bricks by either being in different colour or located as a single brick) as opposed to non-salient (the bricks that were not easily differentiated from other bricks),
4) the order of indication to the bricks in the contrastive situation: first (referred to first from the two bricks) as opposed to second (referred to second from the two bricks).

For the data analysis, chi-squared and Fisher's exact tests were used with phi coefficient measures (see 3.6. for a full description).

3.4.3. "Houses" data (Studies III and IV)

Overall, the data of the "Houses" experiment consisted of three hours of Estonian, two hours and 29 minutes of Finnish, and two hours and 26 minutes of Russian recorded material. The video-recordings of this experiment were manually transcribed using EasyTranscript and coded by a native speaker of the language under investigation. The Estonian, Finnish and Russian data contained 1678, 1341 and 1094 referential units used to refer to the houses respectively. From the coded referential units, only those that were used to refer to one house at a time (single reference) were included in the analysis. In addition, nine of the Estonian participants stated that they do not use the demonstrative pronoun *too*. Data from these participants were left out from the analysis. Consequently, 1078 referential units from the Estonian data, 947 referential units from the Russian data, and 1213 referential units from the Finnish data were included in the analysis.

In the Estonian and Russian data, the dependent variables were coded as two separate variables: as demonstrative pronouns and demonstrative adverbs. In Estonian, demonstrative pronouns were further tagged as the demonstrative pronoun *see* as opposed to the demonstrative pronoun *too*. Demonstrative adverbs were tagged as the demonstrative adverb *siin* as opposed to the demonstrative adverb *seal*. Similarly, in Russian, the demonstrative pronouns were tagged as either the demonstrative pronoun *eto* or the demonstrative pronoun *to*. Demonstrative adverbs were tagged as either the demonstrative adverb *tut* or the demonstrative adverb *tam*. In the Finnish data, the dependent variable was tagged as demonstrative stems, either *tämä*, *tuo* or *se* (i.e., the level of demonstrative pronouns and demonstrative adverbs was not differentiated). This was

done since the locative case forms of demonstrative pronouns can overlap with demonstrative adverbs and differentiating between demonstrative pronouns and demonstrative adverbs can be sometimes difficult (Laury 1996).

The independent variables tested for the influence of demonstrative choice were the same in all three languages. The independent variables were as follows: (1) distance: near as opposed to relatively near, and far, (2) the change in the deictic field: Situation 1 (two competing referents) as opposed to Situation 2 (three competing referents).

One of the aims of this experiment was also to explore the influence of the demonstrative pronouns system's elaborateness on the use of other referential devices. Therefore, the data was also tagged for the use of NPs without demonstratives, third person pronouns, and zero reference. The coding schema of the referential devices in this experiment with an example of occurrence in each language is presented in Table 3 (adapted from **Study III**). In testing the influence of independent variables on demonstrative choice, the referential devices tagged as bare demonstratives and noun phrases with demonstratives were taken as one group.

For the data analysis, chi-squared and Fisher's exact tests with phi coefficient and Cramer's V measures as well as correspondence analysis (CA) were used (see 3.6. for a full description).

In addition to exploring the use of demonstratives and other referential devices in **Study III**, the same data was used in **Study IV** to explore and compare the use of referring constructions in Estonian, Finnish and Russian. The data of the referring construction in **Study IV** comes from two experiments (see **Study IV** for further details), but in this thesis, the data and results from the "Houses" experiment is presented. For exploring and comparing relative clauses in spatial context, all instances of the use of relative clauses were extracted from the data (with the head noun phrases). The extracted data was analysed qualitatively focusing on the following three factors:

1) the head that the relative clause modified: whether it was (i) an NP without a demonstrative, (ii) an NP with a demonstrative, or (iii) a demonstrative without a separate nominal head,
2) which of the possible relativisers were used, and
3) which of the houses were referred to.

There were 91 units of analysis in the Estonian data, 26 units in the Finnish data and 150 units in the Russian data.

Table 3. Overview of the referential devices coded and their abbreviation with examples in its corresponding language

Referential device	Comment	Examples		
		Estonian	**Russian**	**Finnish**
Bare NPs (BareNP)	Noun phrases without demonstratives	*tagumine maja* '(the) house at the back'	*zadnii dom* '(the) house at the back'	*toinen talo* 'the other house'
Bare demonstratives (BareDem)	Demonstrative pronouns and demonstrative adverbs without a separate nominal head	*see* 'this/that', *too* 'that', *siin* 'here', *seal* 'there' etc.	*eto* 'this', *to* 'that', *zdes'* 'here', *tam* 'there' etc.	*tämä* 'this', *tuo* 'that', *se* 'it, that' *täällä* 'here', *tuolla* 'there' *etc.*
Noun phrases with demonstratives (DemNP)	Demonstrative pronouns and adverbs with a separate nominal head	*see maja* 'this/that house', *seal majas* 'there (in that) house', but also *see maja seal* 'this house (over) there'.	*etot dom* 'this house', *tot dom* 'that house, *v tom dome* 'in that house'	*tämä talo* 'this house', *siinä talossa*, 'in that house', *tuo taaempi talo tuolla* 'that farther house over there'
3rd person pronouns (PersPron)	3rd person pronouns	*tal on suured uksed* 'it has big doors'.	*u nego bol'shije dveri* 'it has big doors'.	
Zero reference (Zero)	The subject of the sentence is not explicitly expressed	*on suur* '(it) is big'.	*bol'shoi* '(it is) big'	*on hyvin hyvässä kunnossa* '(it) is in very good condition'

3.4.4. Self-reports of the participants (Studies I–III)

After each of the three experiments, the participants were asked to complete an open-ended questionnaire about their demonstrative use. For the "House-building game", "Construction-building game", and "Houses", the participants gave information about their perceived use of the demonstrative pronouns *see* and *too*. In addition, the participants also described their use of the demonstrative adverbs *siin* and *seal* in "Houses". The question regarding the use of demonstratives was similar in all the three experiments and was worded in Estonian as follows: *Kas kasutate järgmisi viitelisi asesõnu ja mis situatsioonides te seda teete?* "Do you use the following demonstratives and in which

situations do you use them?". Although, there is uncertainty on how well the self-reports about the usage of a linguistic form match with the actual usage of that form (Shilling 2013: 106), experimental data are always limited in some way and should be complemented with other data, such as "responses to questions about attitudes and perceptions" (Shilling 2013: 107). The data from the questionnaires were gathered for the purpose of obtaining additional information about possible influencing factors of demonstratives that could be used in further research. In addition, the questionnaire also helped to assess better the possible reasons for the non-use of *too*.

The additional information on demonstrative use was analysed qualitatively. The gathered data was grouped and categorised based on the answers given by the participants (i.e., there were no pre-defined categories). If a use was mentioned by less than five participants, then these uses were grouped together as 'other'). The demonstrative pronouns and adverbs were analysed separately.

3.5. Statistical analysis methods used in Studies I–IV

The data gathered with the three experiments is categorical. In other words, all the variables in the data have a "measurement scale that consist of a set of categories" (Agresti 1996: 1) such as the use of proximal or distal demonstratives as opposed to measurements on a continuous scale (e.g., weight and tempera-ture). Furthermore, the variables in the data are unordered in their scales. This means that they have no inherent order as is, for example, in an evaluation "bad", "fair" and "good". As the variables have unordered scales that are classi-fied as *nominal* variables (Agresti 1996: 1–2). Due to the nature of the data, mostly non-parametric methods that test whether the variables are independent or dependent from each other (i.e., whether they are associated or not associated) were chosen for the data analysis.

For measuring the association between the choice of demonstratives (depen-dent variable) and the tested stimuli (independent variables), chi-squared test and Fisher's exact test were used in the data analysis of the "Construction-building game" (**Study II**) and "Houses" experiment (**Study III**). The chi-squared test of independence is the most common test for measuring the association between categorical variables (Levshina 2015: 200). The chi-squared test can be used nearly always as it has "the widest possible applications" (Van Peer et al. 2012: 242) and is one of the few tests that can be used with nominal data (Van Peer et al. 2012). Despite its wide range of possible applications, it is not recommended to use the chi-squared test with data where the expected frequencies of each cell in the contingency table is smaller than five. For small samples, Fischer's exact test is a suitable alternative (Field et al. 2012: 816). While these tests measure the statistical significance of the association between the variables, they do not measure the strength of this association. Measuring

the strength of the association enables us to assess how strong the effect that the independent variable has on the dependent variable. The calculated values of the phi coefficient (φ) and the Cramer's V measure show the effect sizes of the association. The phi coefficient is used for 2 × 2 contingency tables and the Cramer's V for larger contingency tables (e.g., 2 × 3). According to Cohen (1988: 224–225), the effect sizes can be interpreted as follows: 0.1 small, 0.3 moderate and 0.5 large.

While the chi-squared test and the Fisher's exact test are good methods for calculating whether there is an association between variables, they cannot be applied for analysis where there are more than two variables, as is the case in the data analysis of the "House-building game" experiment (**Study I**). For this analysis, a binomial mixed effects logistic regression with odds ratios of 95% CI (confidence interval) was used. Binomial logistic regression is a suitable analysis technique for data with a categorical dependent variable (also known as the response variable) and in situations when we want to test for the effect of multiple independent variables (also known as predictor variables) on that dependent variable (Levshina 2015: 253). A binomial logistic regression model predicts the success or failure of an outcome of interest. In **Study I**, success is the event of using the demonstrative under investigation and failure is not using that demonstrative. The model can be improved by using a mixed-effects model that takes into account both fixed and random-effects. Random effects are the non-repeatable variables (e.g., the participants in **Study I**). Fixed effects are the independent variables, or in other words, the repeatable variables in the experiment that can be replicated (Baayen 2008: 241).

An important indicator in the binary logistic model is the value of the odds ratio. This is an association measure between the outcome and the independent (predictor) variable. Thus, the odds ratio presents the odds for an outcome to occur because of the influence of the independent (predictor) variable as opposed to when the influence is absent (Szumilas 2010). For example, concerning **Study I**, the odds ratio presents the odds for using a distal demonstrative adverb when the referent is far from the speaker as opposed to when the referent is near the speaker. The precision of the odds ratio measure is estimated using a 95% confidence interval. A large confidence interval shows that the precision of the odds ratio is low, while a small confidence interval presents a high precision (Szumilas 2010).

In addition, correspondence analysis was used in the "Houses" experiment data to explore the tendencies of the use of referential devices between languages with different demonstrative pronoun systems. Correspondence analysis is a multivariate data analysis technique applied to categorical data to find structure in the data and to display relationships between the categorical variables (Everitt & Skrondal 2002; Baayen 2008). The distances or dissimilarities of the rows and columns in the data are calculated and then plotted on a two-dimensional scatterplot. The dissimilar rows and columns are plotted far apart (the larger the dissimilarity, the further away the rows/columns are plotted) and similar rows and columns close together (Baayen 2008: 129). Thus, the referential devices of

which their use is characteristic for a particular language are plotted near that language, and those devices which are seldom used are plotted far from that language, on the scatterplot.

For analysing the data, statistical analysis software R (R Core Team 2017) and the packages 'lme4' (Bates et al. 2015). 'Epi' (Carstensen et al. 2018), 'sjplot' (Lüdecke 2017), and 'FactoMineR'(Le et al. 2008) were used.

4. FINDINGS FROM STUDIES I–IV

Overall, the most consistent effects were found for the distance of the referent from the speaker. The variable had statistically significant associations with demonstrative choice in **Studies I–III**. In addition, there was a statistically significant association between the use of demonstratives and the visual salience of the referent (**Study II**). It can also be concluded that demonstrative choice can be associated with a contrastive situation (**Study III**). However, the change in the deictic field proved to have no effect on the choice and use of Estonian demonstratives (**Study III**). The following subsections present, in detail, the results of the three experiments and the section concludes with an overview of the results of the questionnaires across the conducted experiments.

4.1. Findings from the "House-building game" (Study I)

Study I tested for the effects of the following three independent variables: the distance of the referent from the speaker, the use of gesture, and the use of location description on demonstrative choice. For this purpose, three different mixed-effects binary logistic regression models were built in order to predict the use of the Estonian demonstrative pronoun *see*[14]; and the demonstrative adverbs *siin* and *seal* as compared to the other referential devices.

For the demonstrative pronoun *see*, the statistically significant predictors (see Table 4) in the model were *gesture use*, *distance*, and interaction between the two variables. The use of *see* to refer to a brick in *near distance* with an accompanying *gesture* is presented in example 14 (the arrow presents the pointing gesture and the dotted line shows the duration of that gesture).

(14)   →…………………………

    Nüüd   *läheb*   **see**   **sinine**

    now   go.PRS.3SG   **this**.DEM.PRON.NOM **blue**

    'Now goes **this blue** (one)'

The relative odds for using *see* as compared to the other referential devices was almost eight times higher when the referent was situated *near* (< 75 cm) and a *gesture* was used than when the referent was situated *far* (> 75 cm) and no accompanying *gesture* occurred. Importantly, though, distance (i.e., placement either closer than or farther than the 75 cm) was not a statistically significant variable in predicting the choice of *see* as a main effect (see Table 3 in **Study I**).

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[14] None of the participants in this experiment used the demonstrative pronoun *too*. Therefore, this demonstrative pronoun was not investigated in this study.

This suggests that variable *distance* does not predict the use of the demonstrative *see* independently, but rather reinforces the effect of *gesture*. When the referent is located near the speaker, it is easier to point precisely to the intended referent than when the referent is located far from the speaker.

Table 4. Adjusted odds ratios for the use of the demonstratives *see*, *siin*, and *seal* compared to other referential devices

Fixed effects	*see* vs other Odds ratio[a]	*siin* vs other Odds ratio[a]	*seal* vs other Odds ratio[a]
distance[b] (<75 cm vs >75 cm)	0.37**	2.94**	16.22***
gesture use (yes vs no)	2.05*	6.07***	ns
location description (yes vs no)	ns	ns	ns
distance*gesture use	7.62**	ns	ns
distance*location description	ns	18.71*	ns
location description*gesture use	ns	ns	7.65**

Statistical significance is marked with *. p<0.05 *, p<0.01 **, p<0.001 ***, ns – not significant
[a] Adjusted for distance, gesture use, location description and their interaction terms.
[b] The reference category was <75 cm in the model predicting *seal.*

Gesture use itself, however, was a statistically significant predictor as a main effect. The relative odds for using *see* as compared to other referential devices was two times higher when the use of *gesture* coincided with the use of a referential device in referring to the brick as to when there was no accompanying *gesture*.

Similarly, in the model for predicting the choice of the demonstrative adverb *siin*, as compared to the other referential devices, statistically significant associations were found for *distance*, *gesture use*, and the interaction between *distance* and the use of a *location description* (see Table 4). The use of *siin* in *near distance* with an accompanying *gesture* and *location description* is presented in example 15.

(15) →………………………….......

Suur	*sinine*	**siit**	**eest**
big.NOM	blue.NOM	**from here.**DEM.ADV.SEP	**in front**

'The big blue (one) from here at the front'

Siin was almost three times more likely to be used when the referent was situated near the speaker (< 75 cm) as opposed to when the referent was located far from the speaker (> 75 cm). In addition, when a *gesture* was used together with a referential expression in referring to the brick, then the relative odds for

the use of *siin* was six times higher than when a *gesture* was not used. While interaction between *distance* and *location description* proved to be statistically significant, the variable *location description* was not statistically significant as a main effect (see Table 6 in **Study I**). This suggests that the variable *location description* does not predict the use of *siin*, but rather reinforces the effects of *distance*. When the referent is located *near* and *location description* is added, it is almost 19 times more likely that *siin* is used than when the referent is situated *far* from the speaker and no *location description* is added.

For the demonstrative adverb *seal*, the statistically significant predictors were *distance*, and an interaction between the use of *location description* and *gesture use* (see Table 4). The use of *seal* in *far distance* with an accompanying *gesture* and *location description* is presented in example 16.

(16) →.……………………………………………………………

Sealt   **tagant**   *pikk*   *roheline*

there.DEM.ADV.SEP **back**   long.NOM   green.NOM

'From back there (the) long green (one)'

Seal was 16 times more likely to be used when the referent was situated *far* from the speaker (> 75 cm) as opposed to when the referent was located *near* the speaker (< 75 cm). In the interaction term, *location description* and *gesture* use, *gesture use* was not statistically significant as a main effect (see Table 8 in **Study I**) in predicting the use of *seal*. This means that the use of *gesture* reinforces the influence of the use of *location description* in predicting the use of *seal*. When a *location description* was given with an accompanying *gesture* while referring to the referent, it was seven times more likely that *seal* was used than when no *location description* was added and no accompanying *gesture* occurred. This suggests that to identify distant referents, it is not enough to use only *seal* since it would be too vague. Therefore, more referential means are used (adding a *gesture* and a *location description*) to successfully complete the referential act.

Overall, the results show that *distance* differentiates the choice of the demonstrative adverbs. The use of the demonstrative adverb *siin* is more likely, and the use of the demonstrative adverb *seal* less likely, when the referent is situated near the speaker as opposed to being located far from the speaker. The demonstrative pronoun *see*, however, is more likely to be used in referring to entities in the surrounding space of the speaker when a pointing gesture occurs.

4.2. Findings from the "Construction-building game" (Study II)

The distance-related functions of Estonian demonstratives were explored further in **Study II** by introducing the additional variables of the visual salience of the referent and the need to contrast. Furthermore, the use of the demonstrative pronoun *too* was investigated through the comparison of a free-production experiment in one group and a forced-choice experiment in the other group.

4.2.1. Distance

The results show that there is a statistically significant and strong association between the *distance of the referent* and the choice of demonstrative adverbs in the free-production group (p<0.01, φ=0.49[15]) as well as in the forced-choice group (p<0.001, φ=0.82) (Group A and Group B respectively as depicted in Table 1 in **Study II**). Bricks in the *near distance* were referred to with the demonstrative adverb *siin* (see Example 17) and bricks in the *far distance* with the demonstrative adverb *seal* (see Example 18).

(17) *Jälle* **siit**   *kõige* *äärest*   *punane*   *klots*
      again **here**.DEM.ADV.SEP most   edge.ELA   red.NOM   brick.NOM

      'Again from here (the) red (one) that is the most on the edge'

(18) *Siis* **seal**   *nurgas*   *punane*
      then   **there**.DEM.ADV.LOC corner.INE   red.NOM

      'Then **there** in the corner (the) red (one)'

A similar association was found between the *distance* and the choice of demonstrative pronouns (p<0.001, φ=0.553) in the forced-choice group. *See* was used proportionally more to refer to the bricks in the *near distance* (see Example 19) (59 times out of 89) and *too* to refer to the bricks in the *far distance* (see Example 20) (51 times out of 55).

(19) *Siis* *võta*   **see**   *sinine*
      then   take.IMP.2.SG   **this**.DEM.PRON.NOM blue.NOM

      'Then take **this** blue (one)'

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[15] The phi coefficient (φ) was calculated for statistically significant associations after the **Study II** paper was published.

(20) *Nüüd* ***too***   *punane*
      now   **that**.DEM.PRON.NOM red.NOM

      'Now **that** red (one)'

The same does not apply for demonstrative pronoun use in the free-production group since the association between the variables was not statistically significant. Furthermore, this group used *see* in equal measure for referents in both the *near* and the *far distance*. Therefore, there was an effect of *distance* on demonstrative adverb choice, but not on demonstrative pronoun choice.

4.2.2. Visual salience

There was no statistically significant association found between the *visual salience of the referent* and the choice of demonstratives (see Table 4 in **Study II**) in either group. However, an interesting pattern of use concerning the demonstrative adverb *seal* was detected in both the free-production and the forced-choice groups. While referring to the *visually non-salient* referents, *seal* was used in the first position of that utterance (see Example 21). When the referent was *visually salient*, then *seal* was not used in the first position of that utterance (see Example 22).

(21) ***Sealt***   *rühmast*   *kõige* *parempoolsem* *klots*
      there.DEM.ADV.SEP group.ELA   most   right.side.COMP brick.NOM

      'From (those) three **there**, the one that is the nearest to you.'

(22) *Kõige* *viimane* *punane*   ***sealt***   *otsast*
      most   last   red.NOM   **there**.DEM.ADV.SEP end.ELA
      'The hindmost red one from **there** at the end.'

The association between the position of *seal* in the referring phrase and the *visual salience* of the brick was statistically significant, and the measure of association was strong in the free-production ($p<0.05$, $\varphi=0.55$) and in the forced-choice group ($p<0.001$, $\varphi=0.66$). In other words, *visual salience* did not change the overall pattern of demonstrative use, but had an influence on the distal demonstrative adverb's *seal* position in the word order of the referring utterance.

4.2.3. Contrast

There was no statistically significant association between the choice of demonstrative pronouns[16] and the *need to contrast* between two similar referents in either group. However, the use of the demonstrative pronoun *too* in this experimental series was infrequent overall (17 out of 154 in the forced-choice group and 6 out of 64 in the free-production group). It is important to note that the contrastive referential act was performed in the peripersonal space of the participants which may have been the cause for the infrequent use of *too* across the participant groups.

4.2.4. Between-group differences

The comparison of the use of demonstratives between the two participant groups shows that there is a statistically significant difference in the use of demonstratives in the distance and visual salience series, but not in the contrast series (see Table 8 in **Study II**) where the use of the demonstrative pronoun *too* is infrequent overall.

In the distance series, the frequency of use of both demonstrative pronouns ($p<0.001$, $\varphi=0.34$) and both demonstrative adverbs ($p<0.001$, $\varphi=0.41$) differ between the participant groups. In the forced-choice group, the participants used both demonstrative pronouns *see* and *too* much more frequently than the participants did in the free-production group. In fact, the use of *too* in the latter group was extremely infrequent (only four uses out of 69 demonstrative pronoun uses in the distance series) despite the fact that the participants from both groups originate from the region where *too* is used. As for the use of demonstrative adverbs, in the forced-choice group *seal* was used much more frequently than *siin*, whereas a contrary tendency was evident in the free-production group where *siin* was used more frequently than *seal*. More importantly, in the free-production group *siin* was also used to refer to the bricks in the *far distance* (12 out of 29), whereas in the forced-choice group *siin* was clearly restricted to the *near distance*. In fact, *siin* was used only once to refer to a brick in the *far distance*. In other words, the use of demonstrative adverbs in the forced-choice group is spatially more restricted than in the free-production group. This could be connected to the use of *too*.

In the visual salience series, there was a statistically significant difference only in the frequency of use of demonstrative pronouns ($p<0.001$, $\varphi=0.27$) and not in the use of demonstrative adverbs. The forced-choice group participants used both demonstrative pronouns *see* and *too* much more frequently than the participants in the free-production group.

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[16] Since the bricks in the contrastive situation were already found by the builder, there was no need to specify the bricks' location and, therefore, no demonstrative adverbs were used.

The overall findings of **Study II** show that from the independent variables, the only variable that had an effect on the choice of Estonian demonstratives was *distance of the referent*. *Too* was rarely used by participants in the free-production group and, therefore, the association between the distance of the referent and the demonstrative choice was not found on the level of demonstrative pronouns. In the forced-choice group (group B in Table 1 in **Study II**), conversely, the use of *too* is much more frequent and, thus, the influence of distance on demonstrative choice is apparent with both demonstrative pronouns and demonstrative adverbs. In addition to *distance*, *visual salience* had an effect on demonstrative adverb use. In other words, the *visual salience of the referent* influenced the position of demonstrative adverbs in the word order of the referring utterance, but did not change the overall pattern of demonstrative use. Finally, the *need to contrast* between two similar referents did not have an effect on demonstrative pronoun choice.

4.3. Findings from the "Houses" (Studies III and IV)

In this experiment, the referents in spatial contrastive setting were located well beyond the peripersonal space of the participants. This setting increased the likelihood that the participants would use the demonstrative pronoun *too* so that the influence of contrast could be detected. In addition to *contrast*, other variables, such as the effects of the *change in the deictic field* as well as *distance*, were introduced to the study. In order to gain a better understanding of the workings of the Estonian two-term demonstrative pronoun system, comparative data from two neighbouring languages, Finnish (a three-term system) and Russian (a two-term system), were obtained. In addition, the data from the experiment enabled us to explore the possible impact of demonstrative use on other referential devices and more complex referring constructions (i.e., relative clauses).

4.3.1. Distance and contrast

The *distance of the referent* had a strong association with the choice of demonstratives in all three languages and in both situations with two possible referents in Situation 1(S1) and with three possible referents in Situation 2 (S2) (Table 4 in **Study III**). In all three languages, the distal demonstratives were used to refer to the farthest referent and the proximal demonstratives were used to refer to the nearest referent. However, there was a difference on the level of strength of that association between these languages as well as between both the use of demonstrative pronouns and demonstrative adverbs (i.e., the two dependent variables). In Estonian, the association between the variables is stronger for demonstrative adverbs ($\varphi=0.72$ in S1, $\varphi=0.86$ in S2) than for demonstrative pronouns ($\varphi=0.33$ in S1, $\varphi=0.45$ in S2). In Russian, however, the strength of the

association between the variables is strong for both demonstrative adverbs (φ=0.56 in S1, φ=0.92 in S2) and demonstrative pronouns (φ=0.64 in S1, φ=0.88 in S2). In Finnish, the locative forms of the demonstrative adverbs overlap with the inner case forms of the demonstrative pronouns. As such, it can sometimes be difficult to say whether the used demonstrative is a demonstrative pronoun or a demonstrative adverb (Laury 1996). Therefore, Finnish demonstratives were not differentiated into demonstrative pronouns and demonstrative adverbs. Instead, the influence of the independent variables was tested on the demonstrative stems. In Finnish, the strength of the association between the *distance of the referent* and the demonstrative stems is strong in both situations (φ=0.50 in S1, φ=0.59 in S2). Comparing the strength of the association between the three languages, it is evident that Estonian differs from Russian in that the association between the variables is much stronger in the demonstrative adverbs as compared to the demonstrative pronouns.

In the Russian data, the use of demonstratives was as expected on the basis of the distance-based approach (i.e., the proximal demonstratives *eto* and *tut* were used to refer to the near referent and the distal demonstratives *to* and *tam* were used to refer to the far referent). In the Estonian and Finnish data, however, one of the demonstratives, or demonstrative stems, was used frequently for all the referents in both situations. In the Estonian data, it was possible to use the demonstrative pronoun *see* for all the referents. Despite this, *see* was used most frequently when referring to the closest referent. It is also important to note that in the Estonian data, the demonstrative pronoun *too* was used quite infrequently (14 times out of 166 demonstrative pronoun uses in S1 and 13 times out of 269 demonstrative pronoun uses in S2). Nevertheless, the referent that was mentioned using *too* was almost exclusively the farthest referent (13 out of 14 in S1, and 12 out of 13 in S2). In the Finnish data, the *se*-stem demonstratives were used in equal measure for both referents in S1 and also quite evenly for all three referents in S2. These findings indicate that the use of *see* in Estonian is less attuned to the effects of *distance* as compared to the use of the demonstrative pronoun *eto* in Russian. Furthermore, the *se*-stem demonstratives in Finnish seem to have no susceptibility to the effects of *distance*. This indicates that the *se*-stem demonstrative was not used exophorically in the experiment (this will be discussed in detail in 5.3.).

In all three languages, the effect of *contrast* is evident in the use of demonstratives. However, this effect was smaller in the use of the demonstrative adverbs where the influence of distance is stronger. The nearest referent, the building the participants were situated, was never referred to with the distal demonstratives, either with pronouns or adverbs (in S2), whereas the farthest referent was never referred to with the proximal demonstrative adverbs (not in S1 and neither in S2). However, it was possible to use also proximal demonstrative pronouns in referring to that referent. The referent in relative proximity, however, was referred to with both distal and proximal demonstratives in all three languages (in both S1 as well as in S2). Despite this, the participants preferred to use more proximal than distal demonstratives.

4.3.2. The change in the deictic field

While there was an effect of *distance* and *contrast* on demonstrative choice in all three languages, the influence of the *change in the deictic field* was detected only in Finnish. When comparing the proportional use of demonstrative stems in S1 as compared to S2 (see Table 5 in **Study III**), the results show that the use of the demonstrative stem *tämä* remained constant. However, the use of the demonstrative stem *se* decreased and *tuo* increased when referring to the farthest referent (p<0.001, φ=0.27), and this was especially true when referring to the referent in relative proximity (p<0.001, φ=0.35). This indicates that there may be an association between the *change in the deictic field* (adding a new referent to the scene) and the demonstrative stem use in Finnish.

4.3.3. The impact of demonstratives on the use of other referential devices and referring constructions

Overall, the results from **Study III** show (see Table 5) that in Estonian, a two-term demonstrative pronoun system language, demonstratives (BareDems and DemNPs) are used quite frequently (slightly over 55% of all referential device usage).

Table 5. The frequency of referential devices used in the "Houses" experiment (single reference)[17] (adapted from **Study III**)

Referential device	Language (column %)		
	Estonian	Russian	Finnish
BareDem[1]	279 (25.9)	186 (19.7)	723 (59.6)
DemNP[2]	320 (29.7)	115 (12.2)	361 (29.8)
BareNP[3]	322 (29.9)	344 (36.4)	108 (8.9)
PersPron[4]	123 (11.4)	243 (25.7)	0 (0)
Zero[5]	34 (3.2)	58 (6.1)	21 (1.7)
Total	1078 (100)	946 (100)	1213 (100)

[1] demonstrative without a separate nominal head; [2] demonstrative with a separate nominal head; [3] noun phrase without a demonstrative; [4] third person pronoun; [5] zero reference

In Finnish, however, the use of demonstratives is even more frequent. Demonstratives with or without a separate nominal head make up the vast majority of all the devices used (almost 90%) with the use of NPs without demonstratives

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[17]   Note that these are absolute frequencies. As the amount of data differs across the three languages, the languages cannot be compared one-to-one.

and zero reference being used much less frequently (only 8.9% and 1.7% respectively). Although it is possible to use third person pronouns to inanimate and non-human referents in Finnish (Laitinen 2005), this referential device is mostly reserved for persons and it also did not occur in our Finnish data. In Russian, and contrary to Finnish, NPs without demonstratives and third person pronouns were the most used devices (36.4% and 25.7% respectively), followed by the use of demonstratives with or without an accompanying NP (12.2% and 19.7% respectively) with zero reference being the least used device (6.1%).

Correspondence analysis was used to compare the three languages with regards to their referential systems (see Figure 7). There seems to be an association between the elaborateness of the demonstrative pronoun system and the preference of use of the other referential devices.
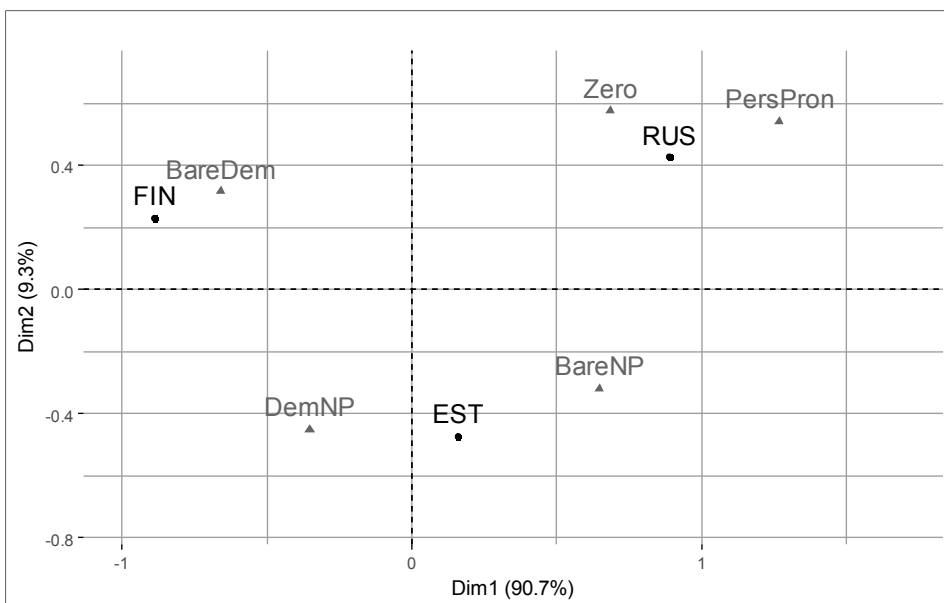
Figure 7. Correspondence analysis on the overall uses of referential devices in the "Houses" experiment (adapted from **Study III**)

Furthermore, there are different biases for using different referential devices in each of the three languages. Finnish is more prone to using bare demonstratives as compared to the other referential devices (see Example 22, adapted from **Study III**). Finnish was also the language with the most elaborate demonstrative pronoun system.

(22) *tää*   *on*   *vanhempi*   *talo*
      this.NOM   be.PRS.3SG   older.NOM   house.NOM
      'This house is older'

Conversely, Russian, a two-term system language, is more biased towards the use of bare noun phrases, third person pronouns, and zero reference (see Examples 23, 24 and 25 respectively, adapted from **Study III**).

(23) v   ***zdanii***   *nahodjaschemsja*   *na*   *ratyshe*
      PREP   **building.**LOC   being situated   PREP   town hall

     'In the building situated on the town hall square'

(24) *po*   *sravneniju*   *s*   *drugimi*   ***ono***
      PREP   comparison.DAT   PREP   other.INSTR   3SG.NEUTR

    namnogo   *bol'she*
    much   big.COMP

     'Compared to the others, it is much larger'

(25) *ono*   *bol'she*   *i*   Ø   *kazhetsia*   *men'she*
      3.SG.NEUTR   big.COMP   and   Ø   seem.3SG   small.COMP

     'It is bigger and Ø seems smaller'

In this regard, Estonian lies somewhere between Finnish and Russian. Similarly to Finnish speakers, Estonian speakers tend to use noun phrases with demonstratives. However, Estonian speakers also use almost as frequently bare noun phrases like Russian speakers do (see Examples 26 and 27 respectively, adapted from **Study III**).

(26) ***siin***   ***lähemal***   ***majal***   *on*   *ka*
      here.DEM.ADV.LOC   **closer.ADE**   **house.ADE**   be.PRS.3SG   also

    üks   *silt*
    one.NOM   sign.NOM

     'The nearer house here has also a sign on it'

(27) ***draakonimajal***   *on*   *palju*   *vähem*   *aknaid*
      dragon.house.ADE   be.PRS.3SG   much   less   window.PL.PART

    kui   ***tagumisel***   ***majal***
    than   **hinder**.ADE   **house**.ADE

     'The dragon house has much fewer windows than the one at the back'

In addition to the differences in the use of referential devices between the three languages, there is also a difference in the use of more complex referring constructions[18] (**Study IV**) that were used to identify the referent. Between the three languages, the proportional occurrence of relative clauses was greatest in the Russian data. From the 1094 expressions in the Russian data, 150 (13.7%) were modified by a relative clause. The least relative clauses were present in the Finnish data where only 26 (1.9%) expressions from a total of 1340 expressions were modified by a relative clause. In the Estonian data, 91 (5.4%) of the expressions from a total of 1647 expressions were modified by a relative clause (for details see Table 3 in **Study IV**)[19]. More importantly, in the Finnish and the Estonian data, relative clauses modified NPs which had a demonstrative determiner in most of the cases (67% and 73% respectively) as compared to the Russian data where NPs with a demonstrative determiner were modified only 18% of the times. Furthermore, in the Russian data, relative clauses were used the most frequently (69% from overall use of relative clauses in Russian) to modify NPs without demonstrative determiners, whereas in the Finnish and Estonian data, relative clauses modified NPs without demonstrative determiners considerably less frequently (8% and 12% from the overall use of relative clauses in Finnish and Estonian respectively). In other words, in the Russian data, there seems to be a tendency to use NPs without determiners and to modify these NPs with relative clauses. However, in the Finnish and Estonian data relative clauses, if used at all, tended to modify NPs with demonstrative determiners rather than other referential devices such as bare NPs.

In addition, in all three languages, the referent that was indicated the most frequently with relative clauses was the house where the participants were located in (House 3, in situation 2) (see Table 5 in **Study IV**). From the three houses that were used in the experiment, this house was the hardest to refer to with only demonstratives. This was probably because the participants were located in the house so that visual input from the outside of the house as well as the possibility to point to the house as a whole was absent. For Estonian and Russian speakers using only demonstratives could also have resulted in ambiguous referential act since the house in relative proximity could also have been understood as the intended referent. To avoid this ambiguity, the participants used a larger number of other referential means to refer to the house. In contrast to Estonian and Russian participants who had to use relative clauses to achieve this, the Finnish participants managed reasonably well to do this without the use of relative clauses.

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[18] In all three languages, the participants used mainly restrictive relative clauses. Only a few of the relative clauses used were clearly non-restrictive relative clauses (see **Study IV**).

[19] In **Study IV**, the whole data were analysed concerning the use of relative clauses (this includes all the Estonian participants and single as well as plural reference to the houses, i.e., reference to multiple houses at the time). Therefore, the overall frequency number of referential devices in the data differ between **Study IV** and **Study III**. In **Study III**, only the data from the Estonian two-term demonstrative pronoun system users and single references (in three languages) were analysed.

All in all, the results indicate that Russian is, in addition to its tendency to use bare NPs, and third person pronouns (**Study III**), also biased to using more relative-clauses (**Study IV**) as compared to Finnish and Estonian. Finnish, however, is strongly biased to using demonstratives (**Studies III** and **IV**). Estonian, on the other hand, is situated in the middle between Finnish and Russian in its use of both referential devices (**Study III**) as well as using relative clauses in spatial reference (**Study IV**).

4.4. Self-reports of the participants (Studies I–III)

After each experiment, additional data on demonstrative use were collected using open-ended questionnaires with two aims in mind. First, the self-reports allowed assessment on whether the non-use of the demonstrative pronoun *too* was due to the stimuli or because this particular demonstrative did not belong in the participants' perceived and/or actual active vocabulary. Second, the self-reports allowed potential input for use of possible stimuli for further studies.[20]

21 out of 106 participants (nine, three, and nine participants from the "House-building game", the "Construction-building game", and the "Houses" respectively) stated that they either rarely, very rarely or never used the demonstrative pronoun *too*. Furthermore, five participants (two, one, and two participants from the "House-building game", the "Construction-building game" and the "Houses" respectively) reported that they use *too* under the influence of South-Estonian dialect. From the 36 participants from the free-production experiments (free-production group in **Study II** and in **Study III**) whose data was included in the quantitative analysis and who stated that they use *too*, only 15 used *too* during the experiments. This indicates that the use of *too* is infrequent and it is probably used in specific contexts.

The overlapping categories that were mentioned across the three experiments are presented in Table 6. The category 'other' represents those answers that were mentioned by less than five participants and, therefore, did not constitute a separate category in itself. The answers were, for example, in specifying something, in describing an event, in reference to time. The two most mentioned categories that are associated with demonstrative use are 'referring to things and abstract entities', and 'spatial reference'. In mentioning spatial reference, the participants either specified the spatial dimension (i.e., stating whether the

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[20] Please note that only data from the directors were included in the quantitative analysis of the "House-building game" and "Construction-building game". The results reported in this chapter are based on the analysis of self-reports from both the directors and the builders. The data from the nine participants excluded from the "Houses" data analysis were also included in the self-reports' analysis.

referents are located near or far from the speaker) or just stated that they use the demonstratives in indicating to something[21].

Table 6. Categories associated with the use of demonstratives across the three experiments based on the self-reports of the participants

	see	*too*	*siin*	*seal*
Categories	n (%)	n (%)	n (%)	n (%)
Things/abstract entities	76 (34.2)	46 (23.6)	15 (21.4)	19 (27.1)
Referring in space (no specification)	48 (21.6)	43 (22.1)	0 (0.0)	0 (0.0)
Near space	24 (10.8)	0 (0.0)	19 (27.1)	0 (0.0)
Far space	2 (0.9)	31 (15.9)	1 (1.4)	26 (37.1)
Human referent	13 (5.9)	25 (12.8)	0 (0.0)	0 (0.0)
Reporting to use the demonstrative	15 (6.8)	13 (6.7)	3 (4.3)	0 (0.0)
Contrast	3 (1.4)	10 (5.1)	4 (5.7)	2 (2.9)
Connection to dialects	0 (0.0)	13 (6.7)	0 (0.0)	0 (0.0)
Other	41 (18.5)	14 (7.2)	7 (10.0)	7 (10.0)
Location	0 (0.0)	0 (0.0)	12 (17.1)	16 (22.9)
Speaker's location	0 (0.0)	0 (0.0)	9 (12.9)	0 (0.0)
Total	222 (100)	195 (100)	70 (100)	70 (100)

Despite the fact that the use of demonstratives is associated with spatial reference, the tendency not to mention the spatial dimension while describing the use of demonstrative pronouns was quite frequent (22% of the overall mentioned categories). However, when the spatial dimension was mentioned, then the demonstrative pronoun *see* was associated with near space and the demonstrative pronoun *too* was associated with far space. The same applies to the demonstrative adverbs in that near space was associated with the demonstrative adverb *siin* and far space was associated with the demonstrative adverb *seal*. In addition to spatial reference, both the use of demonstrative pronouns and the use of demonstrative adverbs are associated with creating contrast.

Although the spatial categories seem similar for the demonstrative pronouns and the demonstrative adverbs, there are, based on the results of the self-reports, three important differences between these referential devices. First, the spatial dimension was always specified in the case of demonstrative adverbs, but this was frequently unspecified regarding the use of demonstrative pronouns. Second, demonstrative adverbs could be used to refer to both locations and things,

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[21] Please note that most participants used the construction: *viidates/osutades millelegi* 'in indicating to something'.

whereas demonstrative pronouns were never mentioned of being used to refer to locations. Third, the speaker's location was mentioned when describing the use of the demonstrative adverb *siin*, but it was not mentioned when describing the demonstrative pronoun *see*. In other words, *siin* denotes the location where the speaker is situated.

According to the results (see Table 6), there is also a slight difference on how the speakers perceive their use of demonstrative pronouns. First, there were 21 participants who stated that they do not use *too*, while none of the participants stated that they never use *see*. Second, none of the participants associated *see* nor demonstrative adverbs with dialectal use despite *too* being associated with dialectal use. Third, *too* is more preferred for human referents than *see*. *See*, on the other hand, seems to be associated more with referring to things and abstract entities.

In the category 'other' (see Table 6), there are less frequently mentioned uses of which I will present the most relevant for this study. First, the participants mentioned that the demonstrative pronoun *see* can be used while referring to something that is i) *mentioned before*, ii) if one is trying to *explain something,* and iii) *if you cannot remember the name of something*. Therefore, it could be inferred from these answers that *see* is used to indicate the speaker's or listener's cognitive access to the referent. In addition, in order to use *see*, the object referred to has to be visible. Second, and in contrast to *see*, the demonstrative pronoun *too* can be used in referring to i) referents that are close-by but not visible or ii) referents that are not in the immediate surroundings of the interlocutors. Third, in addition to reference in space, *too* can be used in reference in time, in referring to something vague, and it can be used as emotional distancing tool.

As for demonstrative adverbs, the participants also mentioned the referent's visibility in their use of *siin*. Thus, *siin* can be used to refer to locations not visible to the speaker as well as when one is explicitly referring to something. More importantly, it was stated that *siin* can be used for referring to objects in the far distance if the speaker is indicating very explicitly to the referent. Regarding the use of the demonstrative adverb *seal*, *seal* can be used to convey spatial distance but also for indicating emotional distance.

Overall, the most mentioned category for demonstrative use was spatial reference. If the participants further specified their use of demonstratives in spatial reference, then far distance was associated with distal demonstratives and near distance with proximal demonstratives. Therefore, similarly to the findings from the experiments, the distance of the referent is also the variable that differentiated the participants' perceived use of demonstrative pronouns *see* and *too* as well as differentiating between the use of the demonstrative adverbs *siin* and *seal*. In addition to distance, other variables that were tested in the experiments, visual salience/visibility of the referent and the need for contrast, were also associated with demonstrative use in Estonian. These factors were mentioned less frequently and with less consistency than distance. However, it is noteworthy that visibility was associated with demonstrative adverbs rather

than demonstrative pronouns which also aligns with the results from the experiments (although the results of the experiment show susceptibility for *seal* rather than *siin* for visual salience of the referent). This shows that although there is diversity in the participants' responses, their perceived use of demonstratives aligns with the results of the experiments as well as with previous findings of Estonian demonstrative research (e.g., Pajusalu 2006). Nevertheless, the responses also provided new insights into the possible functions of demonstratives in Estonian (e.g., emotional distancing) that could be used in further research.

5. DISCUSSION

The following section discusses the key-findings and future research impli-
cations of **Studies I–IV**. Each of the three subsections corresponds to the main
research question of the current thesis as follows:
1. Which factors influence the choice of Estonian demonstratives in spatial
   context (**Studies I–III**)?
2. How does the absence and presence of the demonstrative pronoun *too* in
   the demonstrative pronoun system influence the use of other demon-
   stratives in spatial context (**Study II**)?
3. What are the differences of the Estonian two-term demonstrative pronoun
   system as compared to other systems in different languages (**Study III**)
   and how do these differences relate to the use of other referential devices
   (**Study III**) and referring constructions in a spatial setting (**Study IV**)?

5.1. The factors that influence
the use of Estonian demonstratives

The experiments tested for the influence of both the referent and speech-
situation related variables on demonstrative use in spatial context. The two
referent related variables used in the experiments were the distance and the
visual salience of the referent. The two speech-situation related variables were
the need for contrast and the change in the deictic field (i.e., adding a new
referent to the referential scene).

Throughout the experiments (**Studies I–III**), the distance of the referent
from the speaker had the strongest effect on influencing the choice of Estonian
demonstratives, both demonstrative pronouns and demonstrative adverbs, in
spatial context. The visual salience of the referent only showed an association
with the use of distal demonstrative adverbs rather than influencing the choice
of demonstrative adverbs. From the speech-situation related factors, only the
contrastive setting had an influence on the choice of demonstratives (on both
pronouns and adverbs). In the following subsections, I will discuss the effects of
each variable in detail.

5.1.1. Distance

The use of Estonian demonstratives seems to be consistent with the overall
principles of a distance-based approach (e.g. Diessel 2013: 20; Dixon 2003). If
the demonstrative pronoun *too* belongs to the active vocabulary of the
participants, then the demonstrative pronoun *too* and the demonstrative adverb
seal are the distal demonstratives (i.e., they are used for referring to the distal
referents) and the demonstrative pronoun *see* and the demonstrative adverb *siin*

are the proximal demonstratives (i.e., they are used for the proximate referents). However, the demonstrative pronoun *too* is more attuned to the distance of the referent than the demonstrative pronoun *see*.

In the one-term system, *see* is used to indicate all the referents regardless of their distance from the speaker (**Study I**). Thus, in this system, *see* is a distance-neutral demonstrative pronoun. This finding is in line with previous research into Estonian demonstrative studies (Larjavaara 2007; Pajusalu 2009). In the two-term system, however, *see* is used mostly to refer to the near referents and *too* to refer to the far referents. Nevertheless, it is also possible to use *see* to indicate a far referent and *too* to indicate a near referent. However, *too* is used to refer to nearer referents much less frequently than *see* is used to refer to the farther referents. More importantly, when *too* is not used by the participants despite their confirmation in the questionnaire that they do use this particular demonstrative (in **Studies II** and **III**), *see* is used for all referents regardless of their distance from the speaker. Given the somewhat special status of Estonian demonstratives (i.e., the possibility to use a one-term demonstrative pronoun system and a two-term demonstrative pronoun system), there are two explanations for this asymmetric use of demonstrative pronouns.

First, this asymmetry suggests that in the two-term system, *too* is marked for distance and *see* is a distance-neutral demonstrative pronoun. In this case, *see* does not indicate the distance of the referent from the speaker, but is rather used to guide the attention of the addressee to the intended referent. The location of that referent is mediated through other means such as through the use of demonstrative adverbs or NPs. This concurs with previous research in Estonian for the one-term demonstrative pronoun system (Larjavaara 2007; Pajusalu 2009), as well as what has been suggested for demonstrative pronoun systems with no distance contrast (Diessel 1999, 2013). However, the overall results in this thesis suggest that this may not be the whole case.

There are several reasons why *see* in the two-term system may not be a distance-neutral demonstrative pronoun. First, in a non-contrastive context of demonstrative use, both demonstrative pronouns in the two-term demonstrative pronoun system, *see* and *too*, were clearly connected to near and far space respectively (in the forced-choice production group of **Study II**). Second, and also in a contrastive context of demonstrative use, *see* was rather used for the more proximal referent and *too* was used for distal referent (**Study III**). Even though *see* can be used more in far distances than *too* in locations that are within reach (**Study II**), there is at least some degree of distance encoding in the semantics of both demonstrative pronouns. Thus, *see* cannot be considered as, what Meira and Terrill (2005) call, a true distance-neutral (i.e., a demonstrative that does not occur in a spatially contrastive context). It is more plausible that both demonstrative pronouns are spatially anchored. However, under the influence of the one-term demonstrative pronoun system where *see* is undoubtedly used distance-neutrally, *see* is also beginning to lose its distance dependent use in the two-term system. Therefore, *see* could be considered more as a

proximal demonstrative with weak spatial anchorage or even as the unmarked form of the system.

Third, in addition to the results found in the studies conducted for this thesis, the second explanation of the asymmetric use of Estonian demonstrative pronouns is supported by the tendency for two-term systems to have an unmarked form rather than a distance-neutral one. The difference between an unmarked and distance-neutral demonstrative is that and unmarked form is used in a spatially contrastive setting, whereas distance-neutral form is not (Meira & Terrill 2005). This tendency to have an unmarked form is quite common in empirically studied Indo-European languages with two-term systems although which of the terms is unmarked varies between the languages. It is proposed that in English and Dutch, the distal demonstrative pronoun is the spatially unmarked form, whereas in Russian it is the proximal demonstrative pronoun, and only Italian seems to convey the grammar-book distance anchorage (Levinson 2018a: 21). Distance-neutral demonstrative pronouns, however, are quite rare. For example, from the well-studied European languages, only French and German (Diessel 2013) are proposed to possess this kind of demonstrative pronoun system (seven in total from all the languages investigated in Diessel's 2013 study).

There is also variability between the languages on how much flexibility the spatially unmarked form has (i.e., how much overlap there is between the forms in different contexts of use). Much flexibility might leave an impression that one of the demonstrative pronouns is distance-neutral (as for the Estonian two-term system *see*). Therefore, distance neutrality and spatial unmarkedness should not be taken as binary categorical values, but rather as a continuum. Hence, within the demonstrative pronoun systems, we could speak about a continuum of distance neutrality. In this concept, demonstrative pronoun systems with a strong and clear spatial anchorage are located at one end of the axis, whereas the distance-neutral demonstrative pronoun systems are located at the other end. Those demonstrative pronoun systems with an unmarked form are located somewhere in between these two extreme points of the axis. The more flexibility in use the unmarked term has, the nearer to the end of distance-neutrality this system is located. The Estonian two-term demonstrative pronoun system would, thus, be located relatively near the distance-neutral end of that continuum.

While the effect of distance gave similar results across studies in determining the choice of demonstrative pronouns, admittedly with a certain flexibility, this effect is even stronger for demonstrative adverbs (**Studies I–III**). Although, at first glance, the direction of the effect seems to be the same for the demonstrative adverbs as it is for the demonstrative pronouns (i.e., *siin* is used for the proximal referents similarly to *see*, and *seal* is used for far referents similarly to *too*), the scope of distance regions where the proximal and distal demonstrative adverbs can be used is stricter than for the demonstrative pronouns. In other words, there is less overlap in the distances where the demonstrative adverbs *siin* and *seal* are used than there are for demonstrative pronouns

in the same spatial settings (**Studies II** and **III**), suggesting a stronger spatial anchorage for the demonstrative adverbs. While this finding is perhaps not surprising since demonstrative adverbs indicate locations and are, therefore, presumably inherently more strongly associated with distance than demonstrative pronouns, there are differences on how they connect to surrounding space across languages. In addition to reinforcing demonstrative pronouns in referential utterances as in the Estonian two-term system, and particularly so in the Estonian one-term system, demonstrative adverbs can also divide space into more specific categories than demonstrative pronouns. A good example is Brazilian Portuguese where demonstrative adverbs are added to demonstrative pronouns to specify whether the referent is located near the speaker or near the addressee (Meira & Guirardello-Damian 2018: 120). In addition, demonstrative adverbs may be used for different conceptualisations of space as compared to demonstrative pronouns. An interesting example is Finnish where the locative-adverbial forms are used to conceptualize the referent more as ground than as a figure (Laury 1996). This shows that although only a few studies have paid attention to these demonstratives (Laury 1996; Maes & de Rooij 2007; Meira & Guirardello-Damian 2018), it is important to include these into demonstrative research to obtain more elaborate knowledge on how demonstrative systems work, and especially in the languages with no distance contrasts between demonstrative pronouns.

5.1.2. Visual salience

While distance had a strong effect on the choice between Estonian demonstratives (for both demonstrative pronouns and demonstrative adverbs), the same does not apply for visual salience. The non-salience of the referents did not change the overall pattern of demonstrative use. Distal demonstratives were used for far referents and proximal demonstratives were used for near referents. For visually not salient referents NPs were the preferred referential device. Nevertheless, the use of demonstrative adverbs seems to show some susceptibility to visual salience. When the visually non-salient referents were referred to with an utterance which included the distal demonstrative adverb *seal*, then this utterance began with that demonstrative adverb. That is, the participants first narrowed the region where the addressee should look for the referent and then the speakers described the referent using an NP. For distal demonstrative adverbs, the association between visual salience and the position of the distal demonstrative adverb in the utterance had a strong effect in both groups. This indicates that the effect of visual salience is the same across the two systems in Estonian.

Across languages, though, the effect of visual salience/accessibility of the referent has provided contradictory results. For example, in English, visually inaccessible referents are referred to with a distal demonstrative pronoun more frequently than with a proximal demonstrative pronoun (Coventry et al. 2014).

The same applies to visually non-salient referents in Jordanian Arabic (Jarbou 2010). In Dutch, on the other hand, the visual salience of the referent seems to play a marginal role, if at all, in demonstrative choice (Maes & de Rooij 2007). Similarly to Estonian, locative adverbs are used when the referent is not easily identifiable in Yucatec (Bohnemeyer 2012; 2018: 197). Therefore, the question with regards to visual salience should not be only on how it influences the demonstrative choice (i.e., whether to use a proximal or distal demonstrative), but also on how it influences the way demonstratives are used. The effect of visual salience is there in Estonian, but to a wider degree than in both Jordanian Arabic and English. This is because it relates to the distal demonstrative adverbs and their position in the word order of an utterance that is used in referring to the entity. The word order in Spoken Estonian is influenced by what the speaker intends the addressee to focus on (Lindström 2005). Therefore, in the case of non-salient referents, the speaker first guides the addressee's attention to the location of the referent, using distal demonstrative adverbs, so that next it would be possible to specify the referent itself.

5.1.3. Contrast

The two speech-situation related factors, the contrast between two similar referents and the change in the deictic field (i.e., adding a new referent to the referential scene), tested in **Studies II** and **III** seem to have almost no effect on demonstrative use in Estonian. Only the use of a contrastive setting shows some influence in the use of Estonian demonstratives. While it is not impossible to use the demonstrative pronoun *too* in a near distance region in a contrastive setting, this use is rather rare and seems to be speaker-specific (**Study II**). However, if the referents that are contrasted are situated in a far distance region, the influence of contrast is evident (**Study III**). Despite the fact that both referents were situated far from the speaker, it was more likely for the more proximal of the two distal referents to be indicated with *see* and *siin,* and the distal referent to be indicated with *too* and *seal.* Therefore, the infrequent use of *too* in both a contrastive setting and in the near distance is due to its high susceptibility to distance. In addition, there was also a difference in the use of demonstrative adverbs as compared to demonstrative pronouns (**Study III**). As the farthest referent was never referred to with the proximal demonstrative adverb *siin*, but could be referred to with the proximal demonstrative pronoun *see*, the use of demonstrative adverbs is more susceptible to distance.

All in all, the use of Estonian demonstratives in a spatial context seems to be influenced by distance, contrastive setting, and, to a smaller extent, the visual salience of the referent. Furthermore, the effects of the contrastive setting and the visual salience of the referent seem to be in accordance with the effects of distance on demonstrative use. That is, the influence of the need for contrast was evident in the setting where the referents were both separated by some

distance from each other and located in the far distance from the speaker, but they were not positioned side-by-side[22]. Regarding visual salience, the demonstrative adverbs were used congruently with the location of the referents. The effect of the visual salience manifested itself not on the choice of demonstrative adverbs, but in the change of the prototypical word order in the utterance that was used to refer to entity. Therefore, the choice of Estonian demonstratives does not seem to be influenced by the visual salience. In addition, the effect of the need for contrast manifests itself only in specific settings. The distance of the referent, however, exerts the strongest influence.

5.2. The absence and presence of the demonstrative pronoun *too*

Languages which employ a demonstrative pronoun system that does not convey a distance contrast generally add demonstrative adverbs to spatially reinforce adnominal demonstrative pronouns in the referential phrase (Diessel 1999, 2013; Levinson 2006). Regardless of this concept, there have been few studies into how the absence of distance contrast in demonstrative pronoun systems can influence the use of demonstrative adverbs. Estonian is a particularly interesting language in this respect since it employs one-term and two-term demonstrative pronoun systems. The demonstrative adverbs can be, and often are, added to the demonstrative pronouns in both systems. In addition, it seems that in exophoric reference the distal demonstrative pronoun *too* is restricted to encoding distance. Moreover, *too* does not seem to be susceptible to the influence of the change in the deictic field and the visual salience of the referent. Therefore, it is safe to assume that differences in the use of demonstrative adverbs in Estonian are linked to the use or non-use of *too*.

There were three key findings across the three experiments in regard to the mutual influence of the demonstrative pronouns and the demonstrative adverbs. First, the use of *see* becomes distance-neutral if the participants do not use *too* (see 5.1). Although it is hard, if not impossible, to know whether the participants switch from the two-term demonstrative pronoun system to the one-term system, the results show that the demonstrative pronoun *see* can be used to refer to the referents regardless of their distance. This might lead us to conclude that Estonian may be an example of a rare demonstrative pronoun system where there is no speaker-based proximal demonstrative pronoun, as is concluded for the Lao language. In the Lao language's demonstrative pronoun system, one demonstrative *nan* means approximately that the referent is 'not here' whereas the other demonstrative *nii* can be used for any referent apart from the most distal ones (Levinson 2018a: 22–23). On the other hand, and similarly to English

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[22] Whether or not the influence of contrast is apparent in a situation where the two referred entities are located in far distance and side-by-side should be further researched.

(Coventry et al. 2008), both Estonian demonstrative pronouns are associated with the peripersonal-extrapersonal space division (Reile et al. *submitted*) since the distance of the referent exerts a strong influence on the choice of demonstrative pronouns. Therefore, it is more likely that the two-term Estonian demonstrative system is on the verge of change rather than being a demonstrative pronoun system without a speaker-based proximal demonstrative.

Second, the use or non-use of the demonstrative pronoun *too* influences also the use of demonstrative adverbs. Most importantly, when *too* is not used, the scope for the use of the demonstrative adverb *siin* is wider as compared to when *too* is used (**Study II**). This indicates that when *too* is not actively used, the space is divided into two on the basis of the use of the demonstrative adverbs. *Siin* is used to refer to the near referents and *seal* is used to refer to the far referents, but the location where the switch from *siin* to *seal* occurs differs from when *too* is used. When *too* is used in the small-scale spatial setting, the scope of *siin* is clearly marked for grasping distance (**Study II**), and when *too* is not used, the scope of use for *siin* is wider. Since demonstrative adverbs can be added to demonstrative pronouns, the two-way contrast that results of combining *see* with *siin* and *seal* can be made more fine-grained with combinations such as *see siin* (near), *see seal* (far), and *too seal* (the farthest). Therefore, it is safe to conclude that when *too* belongs to the active vocabulary of the speaker, then the space is divided into at least three, and maybe more than three, different spatial regions.

Third, it is possible that this unstable presence of *too* makes the Estonian demonstrative pronoun system less attuned to other factors that are reported to influence the choice of demonstrative pronouns in other languages. In English (Coventry et al. 2014) and Jordanian Arabic (Jarbou 2010), the visual accessibility affects the use of demonstrative pronouns. In Estonian, however, the visual salience of the referent has an effect on the use of distal demonstrative adverbs. Therefore, in Estonian, this part of the labour seems to be transferred from demonstrative pronouns to demonstrative adverbs.

5.3. The Estonian two-term demonstrative pronoun system in a comparative perspective

When comparing different demonstrative pronoun systems, there is a tendency that the more terms a system employs, the more information is conveyed through these terms (Diessel 1999: 54). This tendency also seems to hold for Estonian. This study (see 5.2.) has suggested that there are less options of distance encoding with both demonstrative pronoun and demonstrative adverb combinations in the Estonian one-term demonstrative pronoun system as compared to the two-term system. There is further evidence to support this general trend when two-term systems are compared to systems that have more than two terms. Systems with more than two terms can have more precise

spatial division through either accounting for the position of the addressee or by dividing the space that surrounds the speaker in a more refined way. Furthermore, there may be even more ways to distance encoding as the speaker can also add demonstrative adverbs to demonstrative pronouns.

Nevertheless, recent studies into demonstrative pronouns in exophoric use have shown that dividing the space is not as precise and universal in demonstrative pronoun systems as one would believe. Levinson (2018a: 24) suggests that in multiple languages which use a three-term distance-based demonstrative pronoun system, the supposed middle term is not actually a spatially anchored middle term, but it is used when the spatially anchored proximal and distal terms do not apply to the particular referent. This is because the referent is located in a spatial region where spatially anchored terms cannot be used for referring. Its use can also overlap with the proximal and distal term. This means that there is no specific spatial region of use for the so-called middle term. An alternative idea is that the terms that have previously been considered as middle distance markers may serve some other function. For example, Küntay and Özyürek (2006) propose that the Turkish middle term *şu* indicates the absence of the addressee's visual attention on the intended referent rather than marking the middle distance.

Studies III and **IV** compared the Estonian two-term demonstrative pronoun system to both Finnish (a three-term system) and Russian (a two-term system), and found a strong association between the distance of the referent and demonstrative choice for all three languages. However, these languages also differed in their use of demonstratives. Concerning the use of demonstrative pronouns and demonstrative adverbs, the association between distance and demonstrative choice is more homogenous in Russian. The association between the distance of the referent and demonstrative choice was equally strong for demonstrative pronouns and demonstrative adverbs. Moreover, the association between the distance of the referent and demonstrative pronoun choice was much stronger in Russian. This indicates that although both languages implement two-term systems, Estonian demonstrative pronouns are less susceptible towards distance influence as compared to Russian. Russian, on the other hand, seems to have a strong binary demonstrative pronoun system. The same has been suggested by Mendoza (2015) when comparing Russian to both Polish and German.

The fact that Russian demonstrative pronouns show a stronger association to distance than Estonian demonstrative pronouns is an interesting finding. This is because the proximal demonstrative pronoun (*etot* in Russian and *see* in Estonian) in both systems could be considered as a spatially unmarked form (Levinson 2018a: 21 for Russian; Pajusalu 2009; **Study III**, for Estonian). Therefore, while both systems have an unmarked form, the form in the Estonian system is much more loosely connected to the referent's distance than in the Russian system. This, in turn, has an effect on the use of Estonian demonstrative adverbs. The unstable use of demonstrative pronouns in regard to distance ties the demonstrative adverbs more closely to the referent's distance.

According to Levinson (2018a: 21), English is another two-term system language that has a spatially unmarked form. However, and unlike Russian and Estonian where the unmarked form is the proximal demonstrative pronoun, the spatially unmarked form in English is the distal demonstrative pronoun. Despite having a spatially unmarked form, demonstrative pronouns in English are strongly associated with near and far space distinction (Coventry et al. 2008). In addition, previous research into English demonstratives has shown that the use of demonstrative pronouns can be influenced by factors that are explicitly expressed by demonstrative pronouns in other languages. For example, Diessel (1999) has shown that visibility is a common characteristic to Native American languages and ownership is expressed through Supyire demonstratives. Similarly, visual access and ownership proved to be factors that influence the use of English demonstrative pronouns (Coventry et al. 2014). Therefore, English demonstrative pronouns also show great sensitivity to factors other than distance. Estonian, however, showed sensitivity to distance not to visual salience. This indicates considerable diversity in the influencing factors that have an effect on demonstrative pronoun use already in two-term systems.

Study III compared Estonian to the Finnish three-term system in addition to the Russian two-term system. The study showed that while the influence of distance and contrast had an effect in both languages in a spatial setting, only Finnish demonstrative stems proved to be susceptible to the change in the deictic field. This difference between Estonian and Finnish is in contrast to the general idea that change in the deictic field should evoke changes in the use of demonstratives (Hanks 2011). Moreover, the study found no difference in the choice of demonstratives after an additional referent was added to the referential scene for both Estonian and Russian. This finding concurs with Diessel's (1999) study that states that the more terms a system has, the more information is conveyed by demonstratives in that system. It also fits in with Levinson's (2018a) proposition about the general diversity between demonstrative pronoun systems.

Despite the differences between the Estonian and Finnish demonstrative pronoun systems, the Estonian demonstrative pronoun *see* and the Finnish demonstrative stem *se* can be used similarly. In **Study III**, the Estonian *see* and Finnish *se* were both used to refer to all three referents regardless of their location. As the flexible use of Estonian *see* can be explained by the changes taking place in the demonstrative pronoun system as shown in **Studies I** and **II** (see 5.2), this is not the case for the Finnish *se*. In the distance-based approach, the *se*-stem demonstratives are considered as the addressee-proximal demon-stratives (Larjavaara 1990). In **Study III**, the speaker and the addressee stood side-by-side during the experiment and, thus, the referents were at the same distance from both the speaker and the addressee. Therefore, it is likely that the *se*-stem demonstratives were not used spatially, but were rather used to indicate that the referent is known, which is in line with previous research with Finnish demonstrative pronouns (Laury 1997; Etelämäki 2009). Overall, the Finnish three-term system shows more variety in its use of demonstratives than the Estonian or Russian two-term system.

In addition to the varying ways of using demonstratives, Estonian, Russian and Finnish speakers differ also in their use of other referential devices (e.g., NPs, third person pronouns, and zero reference) and referring constructions (i.e., relative clauses). Estonian and Russian speakers were more prone to using bare NPs (i.e., NPs without accompanying demonstratives) as compared to Finnish speakers. However, Finnish speakers tended to use demonstratives the most. Furthermore, compared to Finnish, relative clause constructions were used more in both Estonian and Russian. This was especially true for Russian where its speakers used bare NPs much more frequently than Estonian and Finnish speakers. Since demonstratives can fulfil different functions (e.g., indicate distance, visibility, and cognitive access), it is plausible that this also influences the use of overall referential devices that a language has. In other words, the more functions that demonstratives fulfil in a language, the less the speaker needs to use other referential devices (e.g., NPs without demonstratives, third person pronouns) (**Study III**) as well as referring constructions (**Study IV**). While this may be a simplification, demonstratives are considered to be as one of the core elements of language (Diessel 2006; Levinson 2018a). Moreover, results from **Studies III** and **IV** indicate that there seems to be a certain tendency for Finnish, the three-term system language, to use less bare NPs and relative clause constructions than Estonian and Russian, the two-term system languages. Therefore, the association of demonstrative pronoun systems and the use of other referential devices and referring constructions should be studied further by including a larger number of languages.

5.4. Speakers' intuitions and further research implications

Studies I-III used experimental methods to test for the influence of distance, visual salience, contrastive setting and the change in the deictic field on demonstrative use and choice in Estonian. However, the limitation in the use of these methods is that obtained results can only answer hypotheses as postulated by the researcher. They cannot answer the question on whether there are more influencing factors besides the tested ones that would have an effect in demonstrative use. To complement the experiments (and to gather additional information about possible influencing factors of demonstrative use), the participants were asked to complete a questionnaire regarding their use of demonstrative pronouns (in **Studies I–III**) and demonstrative adverbs (in **Study III**). This information could be used for further research on Estonian demonstratives in conducting further experiments or corpus studies. In addition, the self-reports helped to assess whether the use of demonstratives was influenced by either the stimuli or because this demonstrative did not belong in the participants' perceived and/or actual active vocabulary.

All in all, the results from the self-reports concerning demonstrative use from **Studies I–III** are in line with the overall results of the experiments. First and foremost, the use of demonstrative pronouns and demonstrative adverbs is

associated with spatial reference. Since this self-reporting information was obtained after the experiment, it is highly likely that spatial reference was the most salient aspect of demonstrative use for the participants in that particular moment. Nevertheless, the responses also contained other interesting uses (e.g., indicating visibility of the referent, referring to persons, emotional distancing etc.), but these uses were much less mentioned as compared to the use of demonstratives in spatial reference.

The most noteworthy aspects of demonstrative use that were not tested in the experiments, but could be inferred from the self-reports were cognitive access and emotional distancing. The influence of cognitive accessibility to the referent on demonstrative choice has been attested in different languages (Gundel et al. 1993, 2010). Furthermore, emotional distancing has been reported to be one factor that plays a role in demonstrative pronoun use in Polish (Rybarczyk 2015). Therefore, future studies could examine whether cognitive accessibility to the referent and emotional distancing also play a noticeable role in the use of Estonian demonstratives, or whether these factors are more language and speaker specific.

According to the self-reports, *too* is also used in reference to people. Similarly, a small-scale corpus study has shown that *too* is used to indicate the second human character of a literary narrative (i.e., the character that is not in focus) (Pajusalu 2006). Since *see* as well as the third person pronoun *tema*/*ta* are productive anaphoric devices in Estonian (Pajusalu 1997b; Pajusalu 1997a; Pajusalu 2005), future research could examine how the referential labour is divided between these pronouns as well as in the use of *too*. This could be achieved by using, for example, forced-choice written experiments to study the preference of use between the pronouns or analysing written and spoken corpus data. Furthermore, eye-tracking methods could be employed to explore the processing of the semantics of these pronouns as has been done in Finnish (Kaiser & Trueswell 2008).

In regard to demonstrative adverbs, they were proportionally more frequently associated with near and far distance than demonstrative pronouns. One surprising finding concerning *siin*, as reported by the participants, was that it could also be used to indicate something in far distance if the speaker was intensely indicating to the referent. This suggests that another function of *siin* could be of guiding the attention of the addressee as has been reported in other studies for demonstrative pronouns (Diessel 2006; Sidnell & Enfield 2017). Therefore, further research on demonstrative adverbs could open up whole new questions regarding the use of demonstratives such as how the labour of indicating different functions (e.g., guiding the attention of the addressee and indicating distance of the referent) is divided between demonstrative pronouns and demonstrative adverbs. Furthermore, this division of labour could differ between demonstrative pronoun systems.

CONCLUSIONS

The objective of the thesis was to investigate the factors that influence the use of Estonian demonstratives (i.e., demonstrative pronouns and demonstrative adverbs) in exophoric reference. This thesis is the first study that implements experimental methods to explore Estonian demonstratives in spatial reference. Estonian, a Finno-Ugric language, has multiple demonstrative pronoun systems. In the Estonian one-term system, only the demonstrative pronoun *see* is used, whereas the two-term system also includes the demonstrative pronoun *too*. This use of multiple demonstrative pronoun systems makes Estonian an intriguing language in which to investigate demonstrative use. It is also a particularly interesting setting for comparative analyses on determining which factors can influence demonstrative choice in different demonstrative systems and languages. The main research questions were as follows:

1. Which factors influence the choice of Estonian demonstratives in spatial context (**Studies I–III**)?
2. How does the absence and presence of the demonstrative pronoun *too* in the demonstrative pronoun system influence the use of other demonstratives in spatial context (**Study II**)?
3. What are the differences of the Estonian two-term demonstrative pronoun system as compared to other systems in different languages (**Study III**) and how do these differences relate to the use of other referential devices (**Study III**) and referring constructions in a spatial setting (**Study IV**)?

The findings of this study contribute to the on-going debate over the factors that have an influence on demonstrative choice in spatial reference. More specifically, on whether the primary influencing factor that determines demonstrative choice is the distance of the referent from the speaker (and the addressee). However, distance is not the only influencing factor that is investigated in this respect. This thesis also explores the importance of demonstrative adverbs in spatial reference. This further contributes to the body of knowledge concerning demonstrative research, as previous research has mainly focused on the use of demonstrative pronouns. In addition, this study compares the Estonian two-term system with the Russian and Finnish demonstrative pronoun systems as well as how these languages use other referential devices (e.g., NPs and third person pronouns) and referring constructions. This comparison provides a greater insight into the connection of demonstrative use and reference system in general.

The overall findings support the distance-based approach. The main factor that influences the choice of Estonian demonstratives, both demonstrative pronouns and demonstrative adverbs, is the distance of the referent from the speaker. The other three factors that were tested for their influence on demonstrative use were the visual salience of the referent (a referent-related factor), the need for contrast, and the change in the deictic field (the speech-situation related factors). From these factors, the visual salience of the referent and the

need for contrast yielded some effect on Estonian demonstrative use. Moreover, the influence of both the visual salience and the need for contrast seem to be closely associated with the influence of distance on demonstrative use. This further highlights the overall importance of distance in spatial reference.

Even more importantly, the visual salience of the referent is neither conveyed in the choice between demonstrative pronouns nor between demonstrative adverbs, but rather in the word order of the utterance that is used while referring to the entity. More specifically, the influence of visual salience is related to the first position of the distal demonstrative adverb *seal* in the word order of that utterance. This suggests that the speakers use distal demonstrative adverbs to focus the addressee's attention to the location of the non-salient referent and to signal that the referent is not easily definable. This use of demonstrative adverbs indicates that the same influencing factors that have an effect on demonstrative pronoun use in other languages (e.g., visual accessibility in English (Coventry et al. 2014)), can also have an effect on the use of different demonstratives in Estonian (e.g., demonstrative adverbs) without yielding any effect on demonstrative pronouns. Furthermore, visual salience of the referent did not change the choice of demonstrative adverbs in Estonian, but rather influenced the use of them (i.e., their position in the word order of an utterance). This shows that the effects of visual salience can be subtle and harder to detect than the effects of distance. Therefore, future research should investigate demonstrative pronouns together with demonstrative adverbs in order to obtain a deeper insight into which factors influence demonstrative use.

Due to the peculiarities of Estonian (i.e., the use of a one-term system and a two-term system), the findings also provide information on how variation in the demonstrative pronoun system can have an influence on the use of demonstrative adverbs. This reciprocal influence of the two demonstrative pronoun systems can affect their susceptibility to distance as well as to other factors that, in turn, can have an effect on the use of demonstrative adverbs. Although the association between the influence of distance and Estonian demonstrative choice is relatively straightforward, the way how distance influences this choice may be more complex than originally thought. This is because of the regional-specific use of the demonstrative pronoun *too*.

In the Estonian one-term demonstrative pronoun system, the demonstrative pronoun *see* has no term to make a spatial contrast with. Thus, *see* is used distance-neutrally and is, therefore, a distance-neutral demonstrative pronoun. However, in the Estonian two-term demonstrative pronoun system, *see* makes a spatially contrastive opposition with *too*, but still can have an overlap in its use with *too*. In this case, *see* could be considered as a spatially relatively unmarked form (with a weak spatial anchoring). *Too*, on the other hand, has a clear distance anchoring and is, therefore, the distal demonstrative pronoun of the system. However, the use of *too* is infrequent.

This unstable presence of the demonstrative pronoun *too* in Estonian has two main effects on the demonstrative system. First, due to the possible influence of the one-term system, *see* has more flexibility in its use than *too*. This, in turn,

may explain why demonstrative pronouns in Estonian are less attuned to other influential factors than demonstrative pronouns are in other languages. Second, due to the variation in use of demonstrative pronouns (whether or not *too* is used), functions that are associated with demonstrative pronouns in other languages (e.g., indicating visual salience) are, in Estonian, transmitted to demonstrative adverbs.

The comparison of the Estonian two-term demonstrative pronoun system with another two-term system (Russian) and a three-term system (Finnish) showed that distance has an effect on demonstrative use in all three languages. However, the impact of contrast and change in deictic field showed a different level of influence in Estonian, Finnish and Russian. This suggests that other tested factors seem to be much more language specific than the effect of distance. Nevertheless, while the effect of distance was apparent in all the tested languages, the strength of the association between demonstrative use and the distance of the referent from the speaker differed between these languages. This indicates that demonstratives also have varying degrees of susceptibilities to distance in different languages and demonstrative pronoun systems.

In addition, the findings suggest that the number of terms that a demonstrative pronoun system has, as well as the functions that these demonstrative pronouns fulfil, may also have an impact on the use of other referential devices (e.g., NPs without demonstratives) and referring constructions (i.e., relative clauses). This could be because the more demonstrative pronouns that a language has, the more information demonstrative pronouns can convey. This, in turn, makes the use of other referential devices and referring constructions less needed. Therefore, the demonstrative pronoun system seems to have an impact on the whole referential system in general (at least in Estonian, Russian and Finnish) and further supports the claim that demonstratives are one of the core elements of human language.

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SUMMARY IN ESTONIAN

Eesti keele demonstratiivide kasutamine ruumis.
Katsed demonstratiivpronoomenite ja demonstratiivadverbidega

Demonstratiivid (nt *see* ja *too* ning *siin* ja *seal*) on deiktilised väljendid, mille tähendus selgub kontekstis. Konteksti põhjal saab demonstratiivide kasutust kõige laiemalt jagada kaheks: (1) eksofooriliseks ehk olukorraks, kus viitamine toimub füüsilises ruumis, ja (2) endofooriliseks ehk olukorraks, kus entiteetidele viidatakse teksti sees (Halliday & Hasan 1976). Traditsiooniliselt on eksofoorilisel ehk ruumis viitamisel peetud demonstratiivide valikut mõjutavaks teguriks referendi kaugust kõnelejast (ja mõnes keeles ka adressaadist).

Ka demonstratiivpronoomenite süsteemid põhinevad tüüpiliselt just kauguse kontrastidel. Teisisõnu see, kui mitu liiget demonstratiivpronoomenite süsteemi kuulub, sõltub sellest, mitme adnominaalse (ehk koos noomeniga esineva) demonstratiivpronoomeni vahel esineb kauguskontrast (Diessel 2013). Näiteks on inglise keeles kahene demonstratiivpronoomenite süsteem, mis koosneb lähedale viitavast demonstratiivpronoomenist *this* ja kaugele viitavast demonstratiivpronoomenist *that*. Kahesed demonstratiivpronoomenite süsteemid on maailma keeltes kõige levinumad, kuid on ka keeli, kus süsteemi moodustavad näiteks kolm või rohkem adnominaalset demonstratiivpronoomenit (Diessel 2013). Rohkema kui kahe kontrastiga demonstratiivpronoomenite süsteeme jagatakse veel distantsipõhisteks ja osalejapõhisteks (Anderson & Keenan 1985). Distantsipõhises süsteemis sõltub demonstratiivpronoomeni valik sellest, kui kaugel asub referent kõnelejast. Osalejapõhise süsteemi korral arvestatakse ka adressaadiga, see tähendab, et vähemalt üks demonstratiivpronoomen märgib referendi kaugust adressaadist. Lisaks neile on olemas keeli, kus demonstratiivpronoomenite vahel kauguskontrast kas puudub (Diessel 2013) või on süsteemis vaid üks liige. Selliseid demonstratiivpronoomeneid võib pidada distantsneutraalseteks, mistõttu referendi kaugust kõnelejast märgitakse enamasti demonstratiivadverbide abil (Diessel 1999).

Lisaks kauguskontrasti eristatavatele demonstratiividele on maailmas keeli, kus on eraldi demonstratiivpronoomenid, mis annavad edasi näiteks referendi nähtavust (visuaalset ligipääsetavust) või referendi kuuluvust kõnelejale (Diessel 1999). Viimaste aastate uurimused on näidanud, et ka keeltes, kus puudub eraldi demonstratiivpronoomen visuaalse ligipääsetavuse märkimiseks, on sellel teguril demonstratiivide valikul siiski oma roll. Näiteks kui referent on kõneleja pilgu eest varjatud, kasutatakse inglise keeles kaugele viitavat demonstratiivpronoomenit *that* sagedamini kui lähedale viitavat demonstratiivpronoomenit *this* (Coventry *et al.* 2014). Sarnaseid tulemusi on leitud ka araabia keele demonstratiivide uurimustes (Jarbou 2010). Peale visuaalse ligipääsetavuse mõjutab demonstratiivide valikut kontrastiivne olukord. Näiteks kolmese

demonstratiivpronoomenite süsteemiga trio[23] ja lavukaleve[24] keeles on kontrastil oluline roll eristamaks distantsneutraalseid demonstratiivpronoomeneid ruumis ankurdatud demonstratiivpronoomenitest (Meira ja Terrill 2005). Tõelisi distantsneutraalseid demonstratiivpronoomeneid ruumiliselt kontrastiivses olukorras lihtsalt ei kasutata.

Kuigi indoeuroopa keeltes on demonstratiivide ruumilise kasutuse uurimine olnud tõusvas trendis, siis eesti keele demonstratiive on uuritud eelkõige endofoorilises ehk tekstisiseses kasutuses (näiteks Pajusalu 2006, 2009; Hint *et al.* 2017*)*. Nendest uurimustest selgub, et eesti keele demonstratiivpronoomenite süsteem on küll kaheliikmeline, kuid demonstratiivpronoomeni *too* kasutus on piirkondlikult seotud Lõuna-Eestiga (Pajusalu 2009). Lisaks sellele on *too* kasutus endofoorsel viitamisel harv (Hint *et al*. 2017) ning selle demonstratiivpronoomeni peamine funktsioon on viidata ilukirjanduslikes jutustustes teisele tegelasele või märkida ajaväljendites minevikku, näiteks väljendis *tol ajal* (Pajusalu 2006). Demonstratiivpronoomen *see* võib aga viidata ükskõik millisele referendile (Pajusalu 2017). Eesti keeles ja mujal maailma keeltes on pööratud tähelepanu eelkõige demonstratiivpronoomenitele, demonstratiivadverbide kasutuse seaduspära on aga jäänud suurema tähelepanuta. Siinne töö käsitleb eesti keele demonstratiivide, nii demonstratiivpronoomenite *see* ja *too* kui demonstratiivadverbide[25] *siin* ja *seal* eksofoorset ehk ruumilist kasutamist.

EESMÄRK

Doktoritöö eesmärgiks on välja selgitada, kas ja kuidas mõjutavad eesti keele demonstratiivide kasutust ruumis järgmised tegurid: (1) referendi kaugus kõnelejast, (2) referendi visuaalne esilduvus, (3) kontrastiivne olukord ja (4) muutus deiktilises väljas (artiklid I, II, III) (vt tabel 1). Lisaks sellele on eesmärgiks vaadelda, kuidas mõjutab demonstratiivpronoomeni *too* mittekasutamine ülejäänud demonstratiivide (*see*, *siin* ja *seal*) ruumilist kasutamist (artiklid I ja II), võrrelda nende tegurite mõju erinevate demonstratiivpronoomenite süsteemide vahel (artiklid II ja III) ja vaadelda, kuidas mõjutab demonstratiivpronoomenite süsteemis olevate liikmete arv ning nende täidetavad funktsioonid teiste viitevahendite ja viitekonstruktsioonide ruumilist kasutamist (artiklid III ja IV).

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[23] Kariibi keelte hulka kuuluv Brasiilia põhjaosas kõneldav keel.

[24] Paapua isolaat, Saalomoni saartel kõneldav keel.

[25] Andmestikes esinesid demonstratiivadverbid nii separatiivses (*siit* ja *sealt*) kui lokatiivses vormis ning demonstratiivpronoomenid erinevates käänetes, kuid teksti ühtluse huvides esitan demonstratiivadverbid lokatiivses vormis ning demonstratiivpronoomenid nominatiivis.

UURIMISTÖÖ METOODIKA

Doktoritöö empiiriline materjal on kogutud kolme moodustuskatsega. Esimene katse, „Majaehitus", on sunnitud valikuga moodustuskatse. Teine, „Konstruktsioonide ehitus", kombineerib kaht katsetüüpi, st katsealused on jagatud kahte gruppi. Üks grupp teeb sama katse sunnitud valiku moodustuskatsena, teine grupp vaba moodustuse katsena. Kolmas katse, „Majad", on vaba moodustuse katse. „Majaehitus" ja „Majad" järgivad sõltuvate katserühmade katseplaani ja „Konstruktsioonide ehitus" segakatseplaani.

Tabel 1. Katsetes kasutatud sõltuvad (uuritavad) ja sõltumatud (selgitavad) tunnused

Katsetes kasutatud tunnused	„Majaehitus"	„Konstruktsioonide ehitus"	„Majad"
Sõltuvad tunnused			
Demonstratiivpronoomenid	x	x	x
Demonstratiivadverbid	x	x	x
Sõltumatud tunnused			
Referendi kaugus kõnelejast	x	x	x
Referendi visuaalne esilduvus		x	
Kontrast		x	x
Muutus deiktilises väljas			x

Katsetes kasutati nii väikeseid liigutatavaid (artikkel I ja II) kui ka suuri liikumatuid objekte (artikkel III). Nii „Majaehituse" kui „Konstruktsioonide ehituse" katses ehitasid osalejad koos Lego klotsidest maja või erikujulisi konstruktsioone. „Majade" katses oli aga katsealuste ülesandeks kirjeldada ja võrrelda nii kaht aknast paistvat maja kui ka maja, kus nad ise asusid. Lisaks eesti keele demonstratiivide valikut mõjutavate võimalike tegurite väljaselgitamisele koguti samade katsete käigus ka võrdlusmaterjali teistest keeltest. Kui esimesed kaks katset keskendusid eesti keelele (artiklid I ja II), siis kolmas katse (artiklid III ja IV) viidi läbi ka soome ja vene keeles (vt tabel 2). Sama katsega andmete kogumine soome, vene ja eesti keelest võimaldas võrrelda omavahel nii erinevaid demonstratiivpronoomenite süsteeme kui ka teiste viitevahendite ja viitekonstruktsioonide kasutust.

Tabel 2. Katsetes osalejate ja analüüsitavate üksuste arv artikli järgi

Artikkel	I	II	III, IV*		
Katse	„Maja-ehitus"	„Konstrukt-sioonide ehitus"	„Majad"		
Keel	eesti	eesti	eesti	soome	vene
Katsealused	10	24	24	28	25
Analüüsitavate üksuste arv kokku	539	755	1078	1213	946

* IV artiklis keskenduti relatiivlausete kasutamisele. Need üksused võeti andmestikust välja käsitsi ning vastavad arvud on: 91 eesti keeles, 26 soome keeles, 150 vene keeles.

Katsetega kogutud andmestikes puudusid arvulised tunnused, mistõttu kasutati andmeanalüüsil statistilisi teste ja meetodeid, mis sobivad kategoriaalsete andmete analüüsimiseks. „Majaehituse" andmete analüüsil rakendati binomiaalset logistilist segamudelit, mis ennustas demonstratiivide *see*, *siin* ja *seal* kasutamise tõenäosust võrrelduna teiste viitevahenditega (näiteks ilma demonstratiivita leksikaalsed noomenifraasid). „Konstruktsioonide ehitus" ja „Majade" katse andmete analüüsil kasutati aga χ^2-testi ja Fisheri täpset testi[26]. „Majade" katse andmeid analüüsiti samuti korrespondentsanalüüsi abil, et võrrelda eesti, vene ja soome keele viitevahendite (nii demonstratiivide, kolmanda isiku pronoomenite kui ka nimisõnafraaside) kasutamise tendentse. Peale kvantitatiivse andmeanalüüsi kasutati „Majade" katse andmetel ka kvalitatiivset analüüsi, et uurida, kas ja kuidas erineb eesti, vene ja soome relatiivlausete kasutus ruumilisel viitamisel.

TULEMUSED JA ARUTELU

Katsete tulemused näitavad, et eesti keele demonstratiivide valikul on peamine mõjutav tegur referendi kaugus kõnelejast. Mida kaugemal asub referent, seda rohkem kasutatakse demonstratiivpronoomenit *too* ning demonstratiivadverbi *seal*. Ka kontrastiivne olukord mõjutab eesti keele demonstratiivide valikut, kuid ainult siis, kui referendid paiknevad nii kõneleja kui ka üksteise suhtes kaugel. Lisaks referendi kaugusele ja kontrastiivsele olukorrale mängib rolli referendi visuaalne esilduvus, kuid seda vaid demonstratiivadverbi *seal* puhul. Mis veelgi tähtsam, siis visuaalse esilduvuse mõju ei avaldu mitte niivõrd demonstratiivadverbi valikul (kas kasutada demonstratiivi *siin* või *seal*), kuivõrd selles, kuidas demonstratiivadverbi kasutatakse. Kui referent oli visuaalselt mitteesilduv, alustasid katsealused referendile viitamist demonstratiivadverbiga *seal*, millele järgnes täpsem referendi kirjeldus. Näiteks, ***sealt** rühmast kõige*

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[26] Kuna andmestikus esines teatud katsetingimuste korral nullvariatiivsust (näiteks ei kasutatud lähedale referendile viitamisel kordagi demonstratiivadverbi *seal*), otsustasime andmeanalüüsil kasutada χ^2-testi ja Fisheri täpset testi.

parempoolsem klots. Kui referent oli visuaalselt esilduv, alustati referendile viitamist demonstratiivpronoomeniga (mis võis esineda koos noomeniga või üksinda) või lihtsalt leksikaalse noomenifraasiga, millele järgnes demonstratiiv-adverb *seal*. Näiteks, *kõige viimane punane **sealt** otsast*.

Peale referendi kauguse ja visuaalse esilduvuse osutus eesti keele demonstratiivide valikut mõjutavaks teguriks ka kontrastiivne viiteolukord, st olukord, kus tuleb eristada kaht või rohkemat ühesugust referenti. Kuigi artiklis II ei osutunud kontrasti vajaduse roll demonstratiivpronoomenite valikul statistiliselt oluliseks, avaldus see seos siiski artiklis III. Sellisel tulemuste lahknemisel on kaks võimalikku põhjust. Esiteks on demonstratiivpronoomeni *too* kasutus selgelt seotud referendi kaugusega. Lähedal ruumis (st kõneleja käeulatuses) olevale referendile viitamisel kasutatakse *too*-d äärmiselt harva ning selle kasutus on pigem kõnelejaspetsiifiline. Teiseks asusid viidatavad referendid artiklis II üksteise kõrval. Selline paiknemine aga ei tekitanud relatiivset kaugust, mille mõju on tõestatud nii itaalia (Bonfiglioli *et al.* 2009) kui trio ja lavukaleve (Meira & Terrill 2005) keele demonstratiivpronoomenite valikul. Eesti keeles ilmnesid sarnased tulemused vaid siis, kui referendid asusid ruumis kaugel ning paiknesid kõneleja ja üksteise suhtes eri kaugusel (artikkel III). See tähendab, et kõnelejast kaugel, kuid teise referendiga võrreldes kõnelejale lähemal asuvale referendile viidati demonstratiividega *see* ja *siin*, ning kõnelejast kaugemal asuvale referendile demonstratiividega *too* ja *seal*.

Eesti keele kontekstis on oluline märkida ka, et demonstratiivpronoomeni *too* kasutus sõltub kõneleja murdetaustast, st Põhja-Eestist pärit inimesed *too*-d ei kasuta (vähemalt mitte ruumis viitamisel) (Pajusalu 2009). Selline keeleline olukord võimaldab uurida, kuidas mõjutab ruumis viitamise korral ühe demonstratiivpronoomeni puudumine tervet demonstratiivide süsteemi. Artiklist I selgus, et üheses demonstratiivpronoomeni süsteemis ei olnud kaugusel *see* valikul teiste viitevahenditega võrreldes mõju, st seda demonstratiivi kasutati kõikidele referentidele viitamisel sõltumata referendi kaugusest kõnelejast. Järelikult on *see* ühese demonstratiivpronoomeni süsteemis distantsneutraalne (ega saagi muud olla).

Artiklis II vastasid Lõuna-Eesti piirkonnast pärit katsealused katsejärgses ankeedis, et nad kasutavad demonstratiivi *too* (ja seda ruumis osutamisel), kuid katsetulemused näitavad kahe samast piirkonnast pärit katsealuste katsegrupi vahelisi erinevusi. Nimelt kasutati sunnitud valikuga grupis *too*-d oodataval määral, sellal kui vaba moodustuse grupis esines *too* kasutust tähelepanuväärselt harva. *Too* harv kasutus annab põhjust oletada, et katsealused tuginesid referendile viitamistel üheliikmelisele demonstratiivpronoomeni süsteemile. Seda väidet toetab ka asjaolu, et samas grupis kasutati demonstratiivpronoomenit *see* kõikide referentide jaoks sõltumata nende kaugusest kõneleja suhtes.

Demonstratiivpronoomeni *too* mittekasutus mõjutas lisaks *see*-le ka demonstratiivadverbe (artikkel II). Demonstratiivadverbi *siin* kasutati *too* mittekasutuse korral ka siis, kui referendid asusid käeulatusest väljas, sellal kui *too* kasutuse korral piirnes *siin* kasutus selgelt käeulatuses paikneva ruumiga. Seega võib järeldada, et kui *too* ei kuulu ruumilises kasutuses kõneleja aktiivsesse

sõnavarra (või kui *too*-d viiteolukorras lihtsalt ei kasutata), jagatakse ruum demonstratiivadverbide ja demonstratiivpronoomeni kombinatsiooni alusel kaheks: *see siin* (lähedal), *see seal* (kaugel). Kui *too* on aga aktiivses kasutuses, võimaldab see koos demonstratiivadverbide kombineerimisega sama ruumi jagada vähemalt kolmeks eri kauguses piirkonnaks: *see / see siin* (kõige lähemal), *see seal* (kaugemal), *too / too seal* (kõige kaugemal).

Tulemustest lähtudes võiks *see*-d pidada eesti keele kaheses demonstratiiv-pronoomeni süsteemis ruumis nõrgalt ankurdatud või ruumiliselt markeerimata, mitte distantsneutraalseks demonstratiivpronoomeniks. Seda kahel põhjusel. Esiteks kasutatakse *see*-d nii kontrastiivses (artikkel III) kui ka mittekontras-tiivses (Reile *et al.* retsenseerimisel) olukorras just lähedal asuvatele referentidele viitamisel, mistõttu ei saa *see*-d pidada tõeliseks distantsneutraalseks demonstratiiv-pronoomeniks. Teiseks on Levinson (2018: 21) mitme suure indoeuroopa keele põhjal tehtud uurimuses näidanud, et kahestes demonstratiivpronoomeni süstee-mides võib üks liikmetest olla ruumiliselt paindliku kasutusega. Kusjuures see, kui paindlik on demonstratiivpronoomeni kasutus (st kui paljudes erinevates ruumilistes olukordades kahe demonstratiivpronoomeni kasutus kattub), on keeliti erinev. Nii on näiteks vene, inglise ja ka hollandi keele üks demonstratiiv-pronoomenitest ruumiliselt üsna paindliku kasutusega, sellal kui itaalia keeles tunduvad demonstratiivpronoomenid olevat seotud kindla ruumilise piirkonnaga (Levinson 2018: 21). Lähtudes Levinsoni (2018) teooriast võiks ka *see*-d pidada väga paindliku ruumilise kasutusega demonstratiivpronoomeniks.

Eesti keelega sarnaseid tulemusi saadi ka soome (kolmene demonstratiiv-pronoomenite süsteem) ja vene (kahene demonstratiivpronoomenite süsteem) keele puhul majade võrdlemise katses (artikkel III). Mõlema keele puhul osutus demonstratiivide valikul statistiliselt oluliseks tunnuseks referendi kaugus kõnelejast. Lähedale viitavaid demonstratiive kasutati lähemal asuvale referendile viitamisel ning kaugele viitavaid demonstratiive kaugemale referendile viitamisel. Lisaks ilmnes nii eesti, vene kui soome keele demonstratiivide kasutuses ka kontrastiivse olukorra mõju. Nimelt võidi viidata referendile, mis asus ise kõnelejast küll kaugel, kuid samas kõnelejale lähemal kui temaga võrreldud referent, nii lähedale kui ka kaugele viitava demonstratiiviga. Teisalt ei kasu-tatud eesti ega vene keele puhul kõige kaugemale referendile viidates kunagi lähedale viitavat demonstratiivadverbi (eesti keeles *siin* ja vene keeles *tut*) ja kõige lähema referendi korral (maja, kus katsealused ise viibisid) kaugele viitavat demonstratiivadverbi (eesti keeles *seal*, vene keeles *tam*).[27] Seega saab öelda, et nii eesti kui vene keele puhul mõjutab kontrastiivne olukord demonstratiivide valikut, kuid demonstratiivadverbide puhul on kontrast vähem oluline kui referendi kaugus. Teisisõnu on demonstratiivadverbid referendi kauguse suhtes tundlikumad kui demonstratiivpronoomenid.

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[27] Soome keeles võib teatud juhtudel olla keeruline eristada demonstratiivpronoomeneid demonstratiivadverbidest (Laury 1996). Seega otsustasime vaadelda ainult soome keele demonstratiivitüvede kasutust, tegemata demonstratiivpronoomenitel ja demonstratiiv-adverbidel vahet.

Vaatamata sellele, et kauguse mõju osutus eesti, vene ja soome keele demonstratiivide valikul statistiliselt oluliseks, erinesid need keeled omavahel selles, kui tugevalt oli demonstratiivi valik referendi kaugusega seotud (artikkel III). Eesti keele puhul oli demonstratiivadverbide valik kaugusega seotud oluliselt tugevamalt kui demonstratiivpronoomenite valik, vene keeles aga kahe referendi korral sellist erisust ei ilmnenud. Soome keele demonstratiivid osutusid tundlikuks ka deiktilises väljas toimuva muutuse suhtes,[28] kaugele viitava demonstratiivi *tuo* kasutus sagenes statistiliselt olulisel määral kahele referendile viitamisel, kui viiteolukorda lisati veel üks referent, mis asus teiste suhtes kõnelejale kõige lähemal. Demonstratiivitüve *tuo* kasutuse proportsionaalne sagenemine viitab sellele, et katsealused mõtestasid ruumi uue referendi lisandumisel enda jaoks ringi ning kasutasid demonstratiivitüvesid selle järgi. Eesti ja vene keele puhul sellist muutust ei täheldatud, millest võib järeldada, et soome keele demonstratiivitüved on viiteolukorras toimuvate muutuste suhtes tundlikumad kui eesti ja vene keele demonstratiivid.

Kuigi keeliti osutus demonstratiivide valikuga seotud tegurite mõju sarnaseks, st kauguse ja kontrasti mõju avaldus nii eesti, soome kui vene keele demonstratiivide valikul, siis teiste viitevahendite kasutus neis keeltes erines. Soome keeles kasutati kõige rohkem pronominaalseid demonstratiive (nt *tuo* kaugel asuva maja kohta), vene keeles eelistati personaalpronoomenit (nt *ono*) ja ilma demonstratiivita leksikaalseid noomenifraase. Eesti keeles aga kasutati demonstratiiviga ja demonstratiivita leksikaalseid noomenifraase, jäädes oma viitevahendite eelistustelt n-ö vene ja soome keele vahele. Ka viitekonstruktsioonide kasutusel ilmnes sarnane tendents. Soome keeles kasutati ruumilisel viitamisel relatiivlauseid äärmiselt harva, vene keel aga hoopis rohkem, eesti keel jäi aga relatiivlausete kasutuse sageduselt soome ja vene keele vahele (artikkel IV). Oluline on ka märkida, et relatiivlauseid kasutati nii eesti kui vene keeles kõige rohkem just sellele referendile viitamisel, kus katsealused ise sees olid. Seega kui soome keele kõnelejad said demonstratiive kasutades referentide eristamisega suurepäraselt hakkama, siis eesti ja vene keele kõnelejad pidid selleks appi võtma ka teisi viitevahendeid ja viitekonstruktsioone. Sellest võib järeldada, et mida rohkem liikmeid on demonstratiivpronoomenite süsteemis ning mida rohkem funktsioone need täidavad, seda väiksem on kõnelejal vajadus teiste viitevahendite järele.

JÄRELDUSED

Ruumilisel viitamisel on eesti keele demonstratiivide, nii demonstratiivpronoomenite kui demonstratiivadverbide, valikul kõige tähtsam roll referendi kaugusel kõnelejast. Kauguse mõju oli demonstratiivi valikul kõige tugevam võrrelduna visuaalse esilduvuse ja kontrastiivse olukorraga. Mis veelgi olulisem,

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[28] Viiteolukorras toimuva muutuse suhtes, kus kahe maja asemel tuli kirjeldada ja võrrelda omavahel kolme maja, kusjuures katsealused asusid viiteolukorda lisatud maja sees. Viiteolukorda lisatud maja asus seega kahe teise majaga võrreldes kõige lähemal.

visuaalse esilduvuse ja kontrasti mõju on tihedalt seotud referendi kaugusega. Nimelt mõjutas visuaalne esilduvus küll demonstratiivadverbi *seal* asukohta viitamisel kasutatud lause sõnajärjes, kuid ei mõjutanud demonstratiivadverbi valikut. Demonstratiivadverbi valik (kas kasutada kaugele või lähedale viitavat demonstratiivadverbi) sõltus endiselt referendi kaugusest. Sama kehtib ka kontrasti mõju korral. Selleks, et kontrasti mõju ilmneks, pidid referendid paiknema kõneleja ja üksteise suhtes kaugel ning mitte üksteise kõrval. Oluline on siinkohal märkida, et demonstratiivpronoomenid on kontrasti mõjule vastuvõtlikumad kui demonstratiivadverbid. Seega võib järeldada, et demonstratiivadverbid on eesti keeles kaugusega tugevamalt seotud kui demonstratiivpronoomenid. Lisaks tundub, et demonstratiivpronoomeni *see* ruumiliselt paindlik ning *too* üleüldine harv kasutus tingib selle, et ülesanded, mida teistes keeltes täidavad demonstratiivpronoomenid, on kandunud eesti keeles demonstratiivadverbidele (näiteks visuaalse esilduvuse/ligipääsetavuse märkimine).

Kui võrrelda eesti ja vene keele kahest demonstratiivpronoomenite süsteemi soome keele kolmese süsteemiga, siis ilmneb, et peab paika Diesseli (1999) uurimuses tõstatatud väide, et mida rohkem liikmeid demonstratiivpronoomenite süsteemis on, seda rohkem saab demonstratiivpronoomenitega väljendada. Eesti ja vene keele kõnelejad kasutasid ruumis viitamisel peale demonstratiivide ka teisi viitevahendeid ja viitekonstruktsioone palju rohkem kui soome keele kõnelejad. Viimased aga said referentide eristamisel hakkama ka peaaegu ainult demonstratiive kasutades.

Seega joonistub käesoleva doktoritöö tulemustest välja kaks olulist järeldust ning suunda edasisteks uurimusteks. Esiteks võib eesti keele näitel öelda, et mõistmaks paremini demonstratiivide toimimist keeles, tuleks edaspidisel uurimisel vaadelda nii demonstratiivpronoomeneid kui demonstratiivadverbe ning nende omavahelist suhestumist. Teiseks on juba suhteliselt väikese hulga keelte ja valimi pealt näha, et rohkemate liikmetega demonstratiivpronoomeni süsteemiga keel kasutab oluliselt vähemal määral teisi viitevahendeid ja viitekonstruktsioone. Selleks, et jõuda sügavamale arusaamisele, kuidas demonstratiivpronoomenite süsteemid teiste viitevahendite ja viitekonstruktsioonide kasutamist mõjutavad, tasuks seda edasi uurida, kaasates valimisse rohkem keeli erinevate demonstratiivpronoomenite süsteemidega.

APPENDIX

Instructions of the "Houses" experiment
in Estonian, Russian and Finnish

Language	Instruction (S1)	Instruction (S2)
Estonian	Pildil on märgitud kaks maja. Vaadake aknast välja ja kirjeldage ning võrrelge omavahel ringiga märgitud maju.	Palun kirjeldage nüüd maja, kus me sees oleme. Võrrelge seda maja ükshaaval ringiga märgitud majadega.
Russian	На фотографии отмечены два здания. Посмотрите в окно и найдите их. Опишите эти два здания и сравните их между собой.	Теперь опишите здание, в котором мы находимся. Сравните его по очереди со зданиями на улице, которые на фотографии отмечены кружочками.
Finnish	Kuvaan on merkitty kaksi taloa. Katso ulos ikkunasta ja kuvaile sekä vertaile keskenään ympyröityjä taloja.	Kuvaile nyt taloa, jossa olemme. Vertaa taloa ympyröityihin taloihin yksi kerrallaan.

PUBLICATIONS

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Reile, Maria, Helen Plado, Harmen B. Gudde, Kenny C. Coventry. *submitted*. Spatial demonstratives as a means for communicating distance from the speaker or something more? Evidence from Common Estonian and Võro.

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Osalus erialaorganisatsioonides:
Eesti kognitiivse keeleteaduse ühing
Rahvusvaheline kognitiivse keeleteaduse ühing
Societas Linguistica Europaea

DISSERTATIONES LINGUISTICAE
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