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REFERENCE IN THE BORDERLINE OF SPACE AND DISCOURSE: A FREE PRODUCTION EXPERIMENT IN ESTONIAN, FINNISH AND RUSSIAN

Abstract. This study explores spatial reference in three different languages: Estonian, Finnish and Russian. We concentrate on the use of demonstratives (i.e. pronouns and adverbs), and the association between the demonstrative pronoun system (i.e. two- and three-term system) and the use of other referential devices (e.g. noun phrases and third person pronouns). More specifically, we test the influence of the distance of the referent from the speaker and change in the deictic field on the use of demonstratives. We show using a free production experiment that the use of demonstratives has a different susceptibility to these factors in different languages. Furthermore, in these languages, there is an association between the elaborateness of the demonstrative pronoun system and the use of other referential devices.

Keywords: Estonian, Finnish, Russian, spatial reference, demonstratives, demonstrative pronoun systems, experimental method.

1. Introduction

Reference is a three-way relation which connects speakers, linguistic expressions, and objects (Diessel 2012; Huang 2014), and therefore links language and the external world. Referring expressions, or referential devices, that are used to identify the intended referent can be, for example, noun phrases (NPs) that describe or name the referent; deictic expressions, such as demonstratives (e.g. *this*, *here* and *that*, *there*); and third person pronouns. There is a preference of use of referential devices depending on the referential context. In general, referential contexts are categorized as either exophoric (situational) or endophoric (textual/discourse). In exophoric context, the referent is situated in the immediate surroundings of the interlocutors. In endophoric context, the referent has to be tracked down from the (previous) flow of text or discourse. For example, if we see a house in the surrounding space, we can refer to it exophorically by using *this house* (probably with a gesture). If we write an article about architecture and have described a particular house, we can refer to it endophorically by using *this house*, *the house*, or *it*.

The most common devices for tracking use in endophoric reference are third person pronouns and zero reference (Himmelfmann 1996). These devices are associated with the cognitive processes of the interlocutors in which they are used to indicate the accessibility of the referent (Kibrik 2011; Ariel 2001; Gundel, Hedberg, Zacharski 1993; Gundel, Bassene, Gordon, Humnick, Khalifaoui 2010) rather than singling out referents in the immediate surroundings of the interlocutors. Demonstratives and NPs, on the other hand, can be used in both contexts. NPs can be divided into different subgroups according to their grammatical structure (Huang 2014; Abbott 2017). However, it is not which of the subgroups the NP belongs to, but rather what information is expressed with it that is relevant to this current study. For example, NPs can describe the appearance of the referent (e.g. *a red house*) as well as carry spatial information (e.g. *the hindmost house*). Demonstratives, though, can have different functions in different referential contexts (Halliday, Hasan 1976). In exophoric reference, demonstratives can indicate the distance of the referent from the speaker and/or the addressee (e.g. Lyons 1977; Himmelfmann 1996; Fillmore 1997; Diessel 1999). In endophoric reference, they can help to track the referents from the preceding text among other functions (see Himmelfmann 1996 for discussion). Therefore, demonstratives and NPs are productive referential devices in both referential contexts.

While there are multiple ways to identify the referent, exophoric demonstratives could be considered as one of the core elements of reference. They are used to create a joint focus of attention (Diessel 2006), to single out referents in a speech event (Levinson 2018 : 2), and they are one of the earliest words that children acquire (Clark, Sengul 1978). The classification of demonstrative pronoun systems is based on distance contrasts that adnominal demonstrative pronouns make (e.g. the demonstrative pronoun *this* with an accompanying NP, such as *this house*) (Diessel 1999; 2013). These systems are classified as one-way, two-way, three-way or more than three-way systems of distance contrasts (Diessel 2013). Thus, there can be demonstrative pronoun systems with no distance contrast (e.g. German and French)¹, as well as systems which have five, (e.g. Malagasy), and some rare languages with even more distance contrasts (see Diessel 2013 for overview). Demonstrative pronoun systems with three or more terms are generally divided into distance- and person-oriented systems (Anderson, Keenan 1985). In distance-oriented systems, demonstratives indicate the referent's distance from the speaker. In person-oriented systems, at least one of the demonstrative pronouns indicates the referent's proximity to the addressee.

In indicating distance, demonstratives are seen as egocentric in that speakers take themselves as the deictic zero-point and relate everything to

¹ In Modern German, demonstrative pronoun *dieser* does not make a spatial contrast with *jener* as it was in older German. Thus, German does not have two spatially contrastive adnominal demonstrative pronouns, but rather synchronically distance neutral demonstrative pronoun *dieser* and stressed pronouns *der*, *die*, *das*. Similarly to German, there are no spatially contrastive adnominal demonstrative pronouns in French. French employs demonstrative pronoun *ce*. In order to give spatial meaning in French, demonstrative suffixes *-ci* and *-là* are added to the noun. For example, *ce N-ci* (in referring to the referent near the speaker) and *ce N-là* (in referring to the referent far from the speaker) (Diessel 2013).

their viewpoint (e.g. Lyons 1977; Fillmore 1997; Diessel 1999). However, it has been proposed that demonstratives do not convey the distance feature inherently because in a non-contrastive context (i.e. when there is only one referent) they can be often used interchangeably (Diessel 2012 : 2419). According to this approach, demonstratives acquire their spatial meaning when they are explicitly contrasted with each other (Levinson 2006; Diessel 2012). In these cases, the referent that is nearer to the speaker, or the deictic centre, is referred to with *this* and referent farther from the speaker is referred to with *that*. For example, when a speaker has two apples and the apple 1 is located nearer to the speaker than the apple 2, then, when referring to the apples, the speaker would say: "I want to eat this apple (apple 1) first and then that apple (apple 2)". However, Coventry, Valdés, Castillo and Guijarro-Fuentes (2008) have shown that in a non-contrastive situation, English and Spanish demonstratives are influenced by distance, and the use of proximal demonstratives in these languages are associated with peripersonal space (i.e. the region within one's hand's reach) and distals are associated with extrapersonal space (i.e. the region that lies beyond grasping distance). The switch from using proximals to distal demonstratives occurred in the borderline of peri- and extrapersonal space changes. In addition, Tóth, Csátár and Banga (2014) have also shown the influence of distance for Dutch and Hungarian demonstratives in a neutral referential context. Since the influence of distance is present in contrastive (e.g. Bonfiglioli, Finocchiaro, Gesierich, Rositani, Vescovi 2009; Tóth, Csátár and Banga 2014) and non-contrastive (Coventry, Valdés, Castillo, Guijarro-Fuentes 2008; Coventry, Griffiths, Hamilton 2014; Gudde, Coventry, Engelhardt 2016) contexts, distance seems to be one of the key elements that affects the use of demonstratives in an exophoric reference.

Nevertheless, there is a difference in contrastive versus non-contrastive use of demonstratives regarding distance. Levinson (2018 : 30) shows on the basis of multiple languages that there is a certain pattern in contrastive use of demonstratives. First, "neutralization of proximity" occurs, and second, the order of reference is irrelevant in determining the term used for the referent in that the proximal term does not have to occur before the distal. Moreover, Meira and Terrill (2005) have shown whilst comparing two languages with similar three-term demonstrative pronoun systems that there can be distance-neutral demonstratives which are not used in contrastive situations and serve some other function. Therefore, studying contrastive situations can reveal true neutral demonstratives in a language and give more insight into the complexity of demonstrative systems.

In addition to the distance based approach, many researchers argue that the influence of distance cannot explain the various uses of demonstratives in natural language use settings (e.g. Hanks 1992; 2011; Laury 1997; Enfield 2003; Etelämäki 2009). For example, Hanks (2011 : 315) has proposed that distance is only one of many different factors along with perception, prior talk and memory that influence the use of demonstratives. According to him, demonstratives belong to the deictic field which 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. The use of demonstratives is affected by the changes taking place in the deictic

field and therefore, it is an important element to consider in demonstrative research.

Furthermore, languages use different strategies for reference and, thus, differ from each other with regard to the prominent factors that influence the use of demonstratives. Moreover, different means may be chosen to mark the same property of the referent. For example, there are languages where demonstratives can explicitly mark whether the referent is either up-hill or down-hill, up-river or down-river, or visible or invisible (Diesel 1999 : 51). In languages with demonstrative pronoun systems which lack distance contrast, demonstrative adverbs are used in tandem with demonstrative pronouns to indicate the distance of the referent (Diesel 1999; 2013). In addition, the number of terms in a demonstrative system can have an effect on the use of NPs. For example, March and Pattison (2014) propose that in spatial reference, Turkish uses more demonstratives and less nouns as compared to English since the relatively elaborate demonstrative pronoun system provides the means to create unambiguous reference via use of demonstratives. In addition, Gundel, Hedberg, Zacharski (1993) and Gundel, Bassene, Gordon, Humnick, Khalfaoui (2010) have shown that demonstratives also mark the activation status of the referent in endophoric reference. This gives a good reason to believe that the number of demonstrative terms in demonstrative pronoun systems as well as the functions demonstrative pronouns fulfil can also affect the use of other referential devices (e.g. third person pronouns).

Demonstrative pronouns have been the main focus of demonstrative research. Demonstrative adverbs, on the other hand, have had little research attention (e.g. Laury 1996; Maes, de Rooij 2007; Reile 2015; 2016). Moreover, previous studies have explored specific factors that influence the choice between referential devices, such as the salience of the referent (Vogels, Kraemer, Maes 2013; Kaiser 2010) and the cognitive accessibility of the interlocutors to the referent (e.g. Ariel 2001; Gundel, Hedberg, Zacharski 1993; Gundel, Bassene, Gordon, Humnick, Khalfaoui 2010). Only a few studies (March, Pattison 2014) have considered the influence of the range of possible referential devices, such as the number of terms in demonstrative pronoun paradigms and the multiplicity of their functions, on the preference in the use of other referential devices in different languages. Furthermore, most of the conducted experiments focus solely on either the exophoric (e.g. Coventry, Valdés, Castillo, Guijarro-Fuentes 2008) or the endophoric context (e.g. Kaiser 2010). In natural language use, however, the referents in the immediate surroundings can be referred to multiple times, and therefore referential contexts are not clearly distinguishable (Halliday, Hasan 1976 : 36–37). Consequently, experiments focusing on only one referential context are good for pinpointing specific factors, but the data obtained provides a narrow viewpoint.

In our study, we use a quasi-experimental method, a midway between a highly controlled experimental study and observational research. We use a referential setting which combines exo- and endophoric reference and compare the use of demonstratives between three languages: Estonian, Finnish and Russian. Estonian and Russian both have a two-term demonstrative pronoun system whilst Finnish has a three-term demonstrative pronoun system. Consequently, we investigate two different types of demonstrative pronoun systems in a contrastive situation. Comparison of

these three languages will enable us to assess how demonstrative pronoun systems work in different contact languages as well as how the number of available demonstrative pronoun terms in languages can influence the use of other referential devices (e.g. NPs, third person pronouns and zero reference). More specifically, the research questions are as follows:

- (1) Is there an association between the elaborateness of demonstrative pronoun system (i.e. the number of demonstrative pronoun terms and the functions that demonstrative pronouns fulfil) and the use of other referential devices?
- (2) Does distance have the same influence on the use of demonstratives (both pronouns and adverbs) in different demonstrative pronoun systems in a spatial and contrastive referential setting?
- (3) Does the use of demonstratives change when the deictic field changes by the inclusion of a new and closer referent?

2. Demonstratives in Estonian, Finnish and Russian

Estonian and Finnish are closely related Finnic languages that share a number of language properties and originate from the same proto-language. However, and despite these similarities, Estonian and Finnish demonstrative pronoun systems are comparatively different. Russian, a Slavic language, is a contact language to both Estonian and Finnish. In Table 1, we present the equivalents of demonstrative pronouns and demonstrative adverbs in the three languages.

Table 1

Spatial demonstratives in Estonian, Finnish and Russian

Language	Demonstrative pronouns			Demonstrative adverbs		
	'this'	hearer-proximal	'that'	'here'	hearer-proximal	'there'
Estonian (distance-oriented)	<i>see</i>	–	(<i>too</i>)	<i>siia</i> <i>siin</i> <i>siit</i>	–	<i>sinna</i> <i>seal</i> <i>sealt</i>
Finnish (distance- and person-oriented)	<i>tämä</i>	<i>se</i>	<i>tu</i>	<i>tänne</i> <i>täällä</i> <i>täältä</i> etc.	<i>sinne</i> <i>siellä</i> <i>sieltä</i> etc.	<i>tuonne</i> <i>tuolla</i> <i>tuolta</i> etc.
Russian (distance-oriented)	<i>этот</i> (m) <i>эта</i> (f) <i>это</i> (n)	–	<i>тот</i> (m) <i>та</i> (f) <i>то</i> (n)	<i>сюда</i> <i>тут, здесь</i> <i>отсюда</i>	–	<i>туда</i> <i>там</i> <i>оттуда</i>

For the Finnish *se*, there is no direct counterpart in Estonian and Russian (and neither in English), but Larjavaara (1990) has treated *se* as a hearer-proximal demonstrative (i.e. demonstrative that indicates that the referent is near the hearer and not near the speaker). Thus, the *se*-stem demonstratives (i.e. pronouns and adverbs) are marked as hearer-proximal. In Russian, demonstrative pronouns have masculine, feminine and neutral forms (Timberlake 2004 : 233) whilst in Estonian and Finnish, demonstrative pronouns have no gender distinction.

Next, we give a brief overview of the demonstrative systems and the functions of demonstratives in Estonian, Finnish and Russian.

2.1. Estonian demonstratives

Estonian has two demonstrative pronouns: frequent and neutral *see* 'this', and less frequent *too* 'that'. *See* 'this' is also used as a definite determiner that signals the definiteness of the referent. In some contexts, *see* 'this' can be used as a proximal pronoun being contrasted with *too* 'that' (Pajusalu 2009). *Too* 'that', on the other hand, is rarely used for nearby referents (Reile 2016). Both demonstrative pronouns refer prototypically to an inanimate referent, but they can also refer to a person. While the use of *see* 'this' is extensive, *too* 'that' is used mostly in South-Eastern parts of Estonia (Pajusalu 2009). Since the distance contrast is typically not made with the use of demonstrative pronouns, at least not among the majority of the speakers, it is, in general, realised in demonstrative adverbs (Reile 2015; 2016; Pajusalu 2017 : 572).

Estonian has six distinct demonstrative adverbs² which are historically evolved from the demonstrative pronoun *see* 'this': source-based *siit* 'hence' and *sealt* 'thence'; locative *siin* 'here' and *seal* 'there'; and goal-based *siiä* 'hither' and *sinna* 'thither'. These demonstrative adverbs, in turn, can be combined with demonstrative pronouns (e.g. *see seal* 'this (over) there') (see also Reile 2016; Pajusalu 2017). In addition to spatial use, demonstrative adverbs can be used as definite determiners (e.g. *seal raamatus* 'in the book there') (Pajusalu 2009; 2017 : 581).

2.2 Finnish demonstratives

Compared to Estonian and Russian, Finnish has the most elaborate demonstrative pronoun system with three demonstrative pronouns: *tämä* 'this', *se* 'that/it/the' and *tu* 'that'. Traditionally, the Finnish system is considered to be person-oriented in that *tämä* 'this' is used for referents near the speaker, *se* 'that/it/the' for referents near the hearer and *tu* 'that' for referents far from both the speaker and the hearer (Larjavaara 1990). However, more recent studies have shown that the spatial characteristics of the referent are not the only basis for the usage of these demonstrative pronouns. For example, interactional activity can also be an important factor in shaping the referential framework of ongoing discourse and the use of demonstratives (Laury 1997; Seppänen 1998; Etelämäki 2006; Priiki 2017). Etelämäki (2009) has explained the meaning of Finnish demonstratives through indexical characteristics of the referent. Furthermore, Etelämäki (2009 : 40–43) claims that in a spatial context (i.e. when referents are regarded as places), *tu* 'that' is used when the speaker is excluded from the referent and *tämä* 'this' is used in other cases. This means that in certain contexts *tämä* 'this' may not be only proximal, but can refer to all possible locations. Moreover, *se* 'that/it/the' can be used anaphorically to refer to any location (Etelämäki 2009). In addition, Laury (1997) has suggested that the demonstrative pronoun *se* 'that/it/the' can function as a definite determiner. In

² Synchronically the Estonian demonstrative adverbs do not present symmetrical system with stems and case endings as the demonstrative pronoun *see* does.

colloquial spoken language, *se* functions also as a 3rd person personal pronoun (see e.g. Hakulinen 1985). In our study, however, we treat *se* as a demonstrative pronoun. That is for two reasons: i) all the referents in our data are inanimate, ii) the demonstrative pronoun *se*, unlike personal pronoun *se*, can occur both independently and adnominally — as does *se* in our data.

In Finnish, demonstrative adverbs are based on the same roots as demonstrative pronouns. There are source-based (*täältä, tuolta, sieltä*), locative (*täällä, tuolla, siellä*), and goal-based (*tänne, tuonne, sinne*) adverbs. In addition to the demonstrative adverbs, the demonstrative pronouns can be inflected in local cases (e.g. *tässä* 'in this', and *tuosta* 'from that'). The local case forms of the pronouns share certain morphological, syntactic, and semantic features with the adverbs to the extent that the distinction between a pronoun and adverb is sometimes difficult to make (Laury 1996). The use of Finnish demonstratives is similar to Estonian (but different to Russian) in the sense that demonstrative pronouns and adverbs can be combined (e.g. *tämä tässä* 'this here').

2.3. Russian demonstratives

Russian has two demonstrative pronouns, *этот* 'this' and *тот* 'that'. *Этот* 'this' is commonly used to refer to an entity that is relatively near to the speaker or known in the discourse. *Тот* 'that' refers to something which is more distant or less known (Timberlake 2004 : 233). Furthermore, it has been suggested that distance is not an absolute value for Russian demonstratives. For instance, the term 'speaker's space' has been used to define the meanings of Russian demonstratives. According to Апресян (Апресян 1986 : 15), *этот* 'this' refers to an entity which is located in the speaker's location and *тот* 'that' refers to an entity which is situated in another location. In addition, *этот* 'this' is more frequent than *тот* 'that'. Furthermore, *тот* 'that' is "usually accompanied by the demonstrative particle *вон* which reinforces deictic and the distal functions" (Mendoza 2015 : 150).

In endophoric reference, the most frequent pronouns are the third person pronouns *он/она/оно* 'it/she/he' and the demonstrative pronoun *тот* 'that', which is mostly used adnominally (Kibrik 1996). The adnominal anaphorical *тот* 'that' has similar function as its deictic counterpart. It refers to a "distant linguistic expression or to an antecedent that refers to an object that is located outside the observer's space in a metaphorical sense" (Mendoza 2015 : 152). Moreover, in a situation where there are two contrasted referents, *этот* 'this' is used for the prominent and *тот* 'that' for the less prominent one (Timberlake 2004 : 236). Therefore, *тот* 'that' seems to convey both that the referent is spatially distant and cognitively less accessible.

Russian has seven distinct demonstrative adverbs: source-based *отсюда* 'hence' and *оттуда* 'thence'; locative *тут, здесь* 'here' and *там* 'there'; and goal-based *сюда* 'hither' and *туда* 'thither'. Russian demonstrative adverbs generally do not combine with demonstrative pronouns. However, similarly to pronouns, they can be combined with spatial particles (i.e. with the proximal *вот* and distal *вон*) to emphasise spatial and deictic information (Шелякин 2002 : 118).

3. Method and materials

To elicit different referential devices, we conducted a free production experiment. The participants were informed that the purpose of the experiment was to explore the association between space and language. They were not aware that the objective was to investigate the use of referential devices.

3.1 Design

The participants' task was to describe and compare previously defined houses to the experimenter whilst looking out of a window. The experimenter stood next to the participant and listened the descriptions attentively so that the experimental situation would resemble a natural speech-situation as much as possible. The experiment consisted of two parts. First, the participants described and compared two houses that they saw from a window. Second, they described and compared the two houses with the house they were in. This meant we were able to manipulate the following factors:

- 1) The number of referents and thus the level of contrast. In the first part, we had two competing referents: House 1 and House 2. In the second part, we had three competing referents: House 1, House 2, and House 3.
- 2) Distance and change in the deictic field. In the first part, House 1 was nearer than House 2. In the second part, House 3 was introduced to the scene. Thus, the relation between the speaker and the intended referents changed (House 3 was nearer than House 1, making House 3 the nearest referent) and the surrounding space had to be redefined (Figure 1).

Since the referents were situated in the surrounding space and were in the visual field of the participants throughout the experiment, every referential act was spatial in nature. Consequently, when the participants mentioned the referent for the first time or after the other previously mentioned referent, we defined this referential phrase (i.e. referential phrases used in defining the house) as spatial-contrastive. The subsequent referential phrases whilst describing the same referent were defined as spatial-anaphoric.

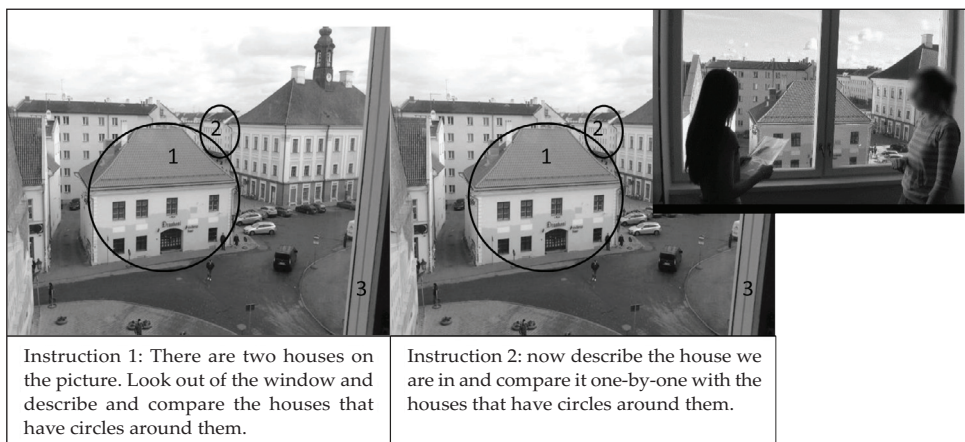


Figure 1. The two-sided instruction sheet (the numbers are illustrative and were not included on the original instruction sheet).

3.2. Procedure

All the experimental trials in all three languages were conducted and video-recorded at the same location in Tartu, Estonia. At the beginning of the experimental trial, the camera was switched on and the participants were orally informed that the experiment has two parts. Then, the participants were given written instructions (Figure 1) to describe and compare the pre-defined houses to the experimenter whilst looking out of a window.

The instruction sheet was given to the participants directly before the experimental trial. When the first part of the experiment was finished, the participants were asked to turn the page of the instruction sheet and read through instruction number two. Participants were allowed to speak as little/much as they wished to ease the discomfort that was brought up by the presence of a video-camera. The participants were asked to specify which of the houses they were referring to in the cases where the experimenter was unsure. When needed, the experimenter reminded the participants about the exact requirements of their task. Furthermore, the experimenter gave encouraging feedback but never mentioned the houses herself.

After the experiment, the participants were asked to complete a socio-demographic questionnaire. This questionnaire also included a question aimed specifically at the Estonian participants so as to obtain further information about their use of the demonstrative pronoun *too* 'that'. Furthermore, the debriefing showed that all the participants were unaware that the experiment had been designed to elicit different referential devices.

3.3. Participants

The experiments were carried out with 33 Estonian speakers. Nine of the Estonian speakers stated that they do not use the demonstrative *too* 'that'. Because of this, we excluded the nine Estonian speakers. Consequently, we included in the analysis data from 24 Estonian (19 females, 5 males, mean age = 26), 28 Finnish (18 females, 10 males, mean age = 51), and 25 Russian (22 females, 3 males, mean age = 22) native speakers.³ The Estonian and Russian⁴ speakers resided permanently in Estonia. The Finnish speakers were either visiting or residing temporarily in Estonia. The Estonian language skill level was not separately measured for the Russian speakers. We only gathered data on the participants' foreign language use.

³ The participants were informed that their involvement was voluntary. They gave their written consent to be video-recorded and the recordings to be saved for ten years. All the participants were informed beforehand that the experimental trials will be video-recorded. To maintain the anonymity of the participants, their faces are blurred in video-materials and screenshots used in public presentations.

⁴ We acknowledge that the Russian speakers in Estonia are under constant influence of Estonian and the results of the experiment may be different if the Russian participants would have originated from Russia. Nevertheless, there are differences in the use of referential devices between the two languages. This indicates that despite the Estonian influence, Russian in Estonia has retained its referential system. We could also hypothesise that with monolingual Russian (as well as with Finnish) speakers, the difference in the use of referential devices would be even bigger.

3.4. Units of analysis

The Estonian data consisted of 3 hours, the Finnish data of 2 hours and 29 minutes, and the Russian data of 2 hours and 26 minutes of recorded material. The recorded material was manually transcribed and coded for referential devices. The Estonian, Finnish and Russian data contained 1246, 1341 and 1093 referential units used to refer to the houses respectively. From these referential units, we included only those that were used to refer to one house at a time (single reference). This resulted in 1078 referential units in the Estonian data, 1213 referential units in the Finnish data and 946 referential units in the Russian data used for single reference. The data of each language was transcribed and coded by a native speaker with training in linguistics⁵.

3.5. Coding of the data

The data was tagged for the following referential devices: NPs without demonstratives (i.e. bare NPs), demonstrative pronouns (in pronominal and adnominal use), demonstrative adverbs, third person pronouns, zero reference, and combinations between NPs, demonstrative pronouns and demonstrative adverbs (Table 2). In addition, the number of mentions (i.e. the number of subsequent mentions one participant used for one particular referent before proceeding to the next) was coded. As the participants were facing the window and had their backs or sides towards the camera, it was not possible to tag the data for co-speech gesture use.

There were many ambiguous cases in the Finnish data where it was impossible to determine whether the used demonstrative was a pronoun or an adverb (see Section 2). Thus, we decided not to make this distinction in Finnish. We analyse the Finnish data on the basis of demonstrative stems. That is, we mark the Finnish demonstratives as distal, proximal and hearer-proximal demonstratives. We do not distinguish between demonstratives as demonstrative pronouns or demonstrative adverbs.

For the sake of clarity, we present demonstrative pronouns in the nominative case and adverbs in the locative forms.

4. Results

We present the results according to our research questions. First, we test for the association between the use of referential devices and elaborateness of the demonstrative pronoun systems (i.e. the number of demonstrative pronoun terms and the functions that demonstrative pronouns fulfil). Diesell (1999) has shown the tendency that the more terms a language has in its demonstrative pronoun system, the more distinctions these demonstratives make. We propose that this tendency, in turn, may decrease the need to use other referential devices as compared to demonstratives. Therefore, we predict that Finnish (the three-term system language) should differ in its use of referential devices as compared to Estonian and Russian (the two-term system languages).

⁵Although there was no double coding, the data coding was partially checked by a second coder and regular meetings were held to discuss coding-related issues.

Table 2

**Overview of the devices coded and their abbreviation
with examples in corresponding language**

Referential device	Comment	Examples		
		Estonian	Finnish	Russian
Bare NPs (BareNP)	Noun phrases without demonstratives	<i>tagumine maja</i> '(the) house at the back'	<i>toinen talo</i> 'the other house'	<i>задний дом</i> '(the) house at the back'
Bare demonstratives (BareDem)	Demonstrative pronouns and demonstrative adverbs without an accompanying noun phrase	<i>see</i> 'this/that', <i>too</i> 'that', <i>siin</i> 'here', <i>seal</i> 'there' etc.	<i>tämä</i> 'this', <i>tu</i> 'that', <i>se</i> 'that/it/the' <i>täällä</i> 'here', <i>tuolla</i> 'there' etc.	<i>это</i> 'this', <i>то</i> 'that', <i>здесь</i> 'here', <i>там</i> 'there' etc.
Noun phrases with demonstratives (DemNP)	Demonstrative pronouns and adverbs with accompanying noun phrase	<i>see maja</i> 'this/that house', <i>seal majas</i> 'there (in that) house', but also <i>see maja seal</i> 'this house (over) there'	<i>tämä talo</i> 'this house', <i>siinä talossa</i> 'in that house', <i>tu taaempi talo tuolla</i> 'that farther house over there'	<i>этот дом</i> 'this house', <i>тот дом</i> 'that house', <i>в том доме</i> 'in that house'
Third person pronouns (PersPron)	Third person pronouns	<i>tal on suured ukсед</i> 'it has big doors'	–	<i>у него большие двери</i> 'it has big doors'
Zero reference (Zero)	The subject of the sentence is not explicitly expressed	<i>on suur</i> '(it) is big'	<i>on hyvin hyvässä kunnossa</i> '(it) is in very good condition'	<i>большой</i> '(it is) big'

Then, we present the results of the influence of distance and contrast for the first (Situation 1) and second (Situation 2) part of the experiment. We test whether distance has the same influence on the use of demonstratives (both pronouns and adverbs) in different demonstrative pronoun systems in a spatial and contrastive referential setting. We expect to find the influence of distance and contrast to show different level of effect on the use of demonstrative pronouns and demonstrative adverbs between Estonian and Russian. This is because in Standard Estonian the use of the demonstrative pronoun *too* 'that' is infrequent (Pajusalu 2009) and this, in turn, may influence the use and functions of the demonstrative pronoun *see* 'this'. Russian, however, employs a strong two-term demonstrative pronoun system (Mendoza 2015) and, therefore, should give different results as compared to Estonian.

Finally, we present the results on the effect of change in the deictic field. We expect that in all three languages, adding a new referent in a referential scene changes the use of demonstratives (i.e. the whole spatial setting is re-evaluated and this results in changing the use of demonstratives as compared to the previous setting).

4.1. The association between the demonstrative pronoun systems and the use of other referential devices

The data was analysed using the statistical analysis program R (R Core Team 2017). Mainly the packages "sjplot" (Lüdecke 2017) and "FactoMineR" (Le, Josse, Husson 2008) were used. From this analysis, the overall frequency of referential devices used in the three languages were determined (Table 3).

Table 3

Overall raw frequency of referential devices used in the experiment (in Situation 1 and Situation 2 together; single reference)⁶

Language	Referential devices (row %)					
	BareDem	DemNP	BareNP	PersPron	Zero	Total
EST	279 (25.9)	320 (29.7)	322 (29.9)	123 (11.4)	34 (3.2)	1078 (100)
FIN	723 (59.6)	361 (29.8)	108 (8.9)	0 (0)	21 (1.7)	1213 (100)
RUS	186 (19.7)	115 (12.2)	344 (36.4)	243 (25.7)	58 (6.1)	946 (100)

In the Estonian data, the distribution of the referential devices is comparatively even. The least used devices are PersPron 11.4% and Zero 3.2% and the most used device is BareNP 29.9% (marked as bold in Table 3).

The use of BareNP in Estonian is exemplified in (1). Example (2) presents the use of DemNP where the demonstrative is a demonstrative adverb.

- (1) *d r a a k o n i m a j a l o n p a l j u v ä h e m a k n a i d*
d r a g o n . h o u s e . A D E b e . P R S . 3 S G m u c h l e s s w i n d o w . P L . P A R T
k u i t a g u m i s e l m a j a l
t h a n h i n d e r . A D E h o u s e . A D E
 'The dragon house has much fewer windows than the one at the back'

- (2) *s i i n l ä h e m a l m a j a l o n k a ü k s s i l t*
h e r e . L O C c l o s e r . A D E h o u s e . A D E b e . P R S . 3 S G a l s o o n e . N O M s i g n . N O M
 'The nearer house here has also a sign on it'

In the Finnish data, the most used referential device is BareDem 59.6% and the least used is Zero 1.7% (note that in Finnish, the third person pronoun *hän* 'he/she' has not been used in describing and comparing the houses). BareDem in Finnish can be seen in (3) where the proximal demonstrative is used pronominally.

- (3) *t ä ä o n v a n h e m p i t a l o*
t h i s . N O M b e . P R S . 3 S G o l d e r . N O M h o u s e . N O M
 'This house is older'

In the Russian data, the most used device is BareNP 36.4%, followed by the use of PersPron 25.7%. The least used device is Zero 6.1%. In addition, the use of BareDems is rather low. The example of the Russian BareNP is in (4), PersPron in (5), and Zero in (6).

- (4) *в з д а н и и н а х о д я щ е м я н а р а т ы ш е*
P R E P b u i l d i n g . L O C b e i n g s i t u a t e d P R E P t o w n h a l l
 'In the building situated on the town hall square'

⁶ Note that these are absolute frequencies. As the amount of data differs across the three languages, the languages cannot be compared one-to-one. Therefore, we used correspondence analysis.

- (5) *по сравнению с другими оно намного больше*
 PREP comparison.DAT PREP other.INSTR 3SG.NEUTR much big.COMP
 'Compared to the others, it is much larger'
- (6) *оно больше и Ø кажется меньше*
 3.SG.NEUTR big.COMP and Ø seem.3SG small.COMP
 'It is bigger and Ø seems smaller'

Correspondence analysis (CA) was used to identify general differences and similarities in the use of referential devices (Figure 2). In CA, the data is normalised and then plotted to the CA-map (for further information, see, for example, Greenacre 2007). Frequency table with normalised frequencies is presented in Table 2 in the Appendix. The frequencies were normalised by total use of referential units.

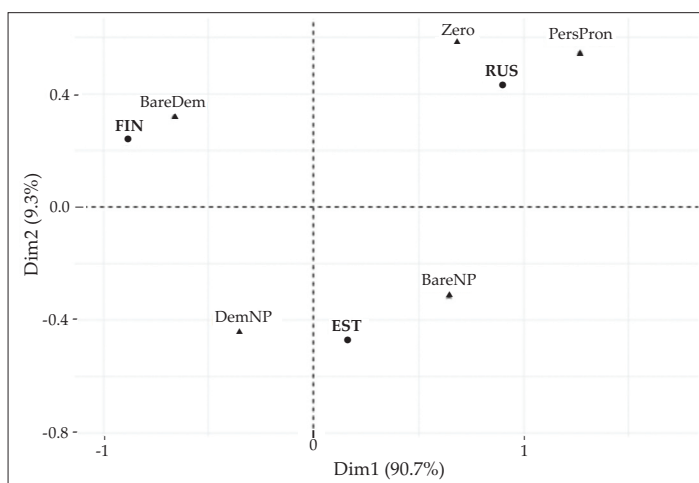


Figure 2. Correspondence analysis of overall uses of referential devices.⁷

The CA-map (Figure 2) indicates that Estonian is inclined towards DemNP and BareNP, Finnish is inclined towards BareDem, and Russian is inclined towards PersPron and Zero (and also BareNP based on the *x*-axis). Since Finnish is at the one end of the *x*-axis, the first and most important dimension, and Russian is at the other end, these languages differ most in the use of referential devices. Estonian is situated between the two languages in its distribution in the overall use of referential devices which shows that this language has common traits with Finnish (the use of DemNP) and Russian (the use of BareNP).

The overall results of the CA suggest that there is an association between the elaborateness of demonstrative pronoun systems and the use of other referential devices. The comparison of the three languages indicates that for establishing successful identification of the intended referent, demonstratives are used more in Finnish (a three-term system languages) than in Estonian and Russian (two-term languages). The distinctive feature in Finnish is the use of BareDems whilst in Estonian and Russian, the distinctive feature that is common for both is the use of BareNPs.

⁷ Regardless of the variance in the responses of the participants (Table 1 in the Appendix), the correspondence analysis shows that the three languages differ in regards to their use of overall referential devices.

4.2. Influence of distance and change in the deictic field

To test whether there is a statistically significant association between the variables and demonstrative choice, we used the chi-square test. For the data that had a frequency of less than five demonstratives per cell, the Fisher's exact test⁸ was used instead. To measure the strength of the association, the Cramér's V ⁹ statistic was used. A separate analysis was conducted on the data of Situation 1 and on the data of Situation 2 because the number of referents differs between the two situations.

In Situation 1 (the first part of the experiment), there were two possible referents: a relatively near referent (House 1) and a far referent (House 2; see also Figure 1). Both referents were situated beyond the peripersonal space of the interlocutors. In Situation 2 (the second part of the experiment), the referential setting changed in that the third referent, House 3, was introduced to the scene. House 3 became the nearest referent to the participants as they were physically inside of this house. We predicted that in Situation 2, the participants will have to redefine the surrounding space and change their use of demonstratives accordingly.

There was a statistically significant association between the choice of demonstratives and the distance of the referent in all three languages and in both situations (Table 4). Proximals were used mostly to refer to the near referents (House 1 in Situation 1, and House 1 and House 3 in Situation 2) and distals mostly for the far referent (House 2 in both situations). However, between the languages as well as between the referential situations, there is a difference in the level of strength of the association. In addition, in the Estonian and Russian data, there is a difference between whether the demonstratives used were pronouns or adverbs as described in the following sections.

4.2.1. Demonstrative pronouns

In both situations, there was a moderate association between the choice of the demonstrative pronoun and the distance of the referent in Estonian (Table 4). Although *see* 'this' was used for the near referents (House 1 and House 3) in the majority of the cases, it was also used for the far referent (House 2) comparatively frequently. *Too* 'that', on the other hand, was used almost exclusively to refer to the far referent (House 2). In Russian, there was a strong association between the variables in both situations. Moreover, association between the demonstrative pronouns and the referents is much stronger than in Estonian. In both situations, *это* 'this' was used for the nearest referent in the majority of cases (for House 1 in Situation 1, and for House 3 in Situation 2) and *то* 'that' for the far referent (House 2).

⁸ Although both chi-square test and Fisher's exact test are not recommended for analysing repeated measurements, these are one of the few tests that can be used for nominal data (Van Peer, Hakemulder, Zyngier 2012). Moreover, Fisher's exact test is one of the few statistical tests that can be used when there is zero expected frequency in a cell of a frequency table (Field, Miles, Field 2012 : 816) which is the case in all the three languages in our data (see Table 4).

⁹ The values of Cramér's V are interpreted as follows: 0.1 small, 0.3 moderate, and 0.5 large effect size (Cohen 1988 : 224–225).

Table 4

The association between demonstrative use and distance of the referent from the speaker in Estonian, Finnish and Russian¹⁰

Language	Demonstratives		Referent (row %)			N	p-value	Cramér's V
Situation 1			House 1 (near)	House 2 (far)	House 3 (nearest)			
Estonian	pronouns	<i>see</i>	99 (65.1)	53 (34.9)		166	< 0.001	0.33
		<i>too</i>	1 (7.1)	13 (92.9)				
	adverbs	<i>siin</i>	24 (100)	0 (0)		90	< 0.001	0.72
		<i>seal</i>	13 (19.7)	53 (80.3)				
Finnish	demonstrative stems	<i>tä</i>	148 (91.9)	13 (8.1)		623	< 0.001	0.50
		<i>se</i>	152 (47.8)	166 (52.2)				
		<i>tuo</i>	33 (22.9)	111 (77.1)				
Russian	pronouns	<i>это</i>	35 (83.3)	7 (16.7)		79	< 0.001	0.64
		<i>то</i>	7 (18.9)	30 (81.1)				
	adverbs	<i>здесь</i>	15 (100)	0 (0)		79	< 0.001	0.56
		<i>там</i>	19 (29.7)	45 (70.3)				
Situation 2			House 1 (near)	House 2 (far)	House 3 (nearest)			
Estonian	pronouns	<i>see</i>	52 (20.3)	34 (13.3)	170 (66.4)	269	< 0.001	0.45
		<i>too</i>	1 (7.7)	12 (92.3)	0 (0)			
	adverbs	<i>siin</i>	10 (14.3)	0 (0)	60 (85.7)	99	< 0.001	0.86
		<i>seal</i>	8 (21.1)	21 (78.9)	0 (0)			
Finnish	demonstrative stems	<i>tä</i>	28 (8.5)	2 (0.6)	301 (90.9)	469	< 0.001	0.59
		<i>se</i>	21 (41.2)	14 (27.5)	16 (31.4)			
		<i>tuo</i>	32 (36.8)	55 (63.2)	0 (0)			
Russian	pronouns	<i>это</i>	10 (13)	1 (1.3)	66 (85.7)	94	< 0.001	0.88
		<i>то</i>	3 (17.6)	14 (82.4)	0 (0)			
	adverbs	<i>здесь</i>	2 (5.1)	0 (0)	37 (94.9)	49	< 0.001	0.92
		<i>там</i>	3 (27.3)	7 (63.6)	0 (0)			

However, in both situations, *то* 'that' was also used to refer to the relatively near referent (House 1). This is contrary to the nearest referent (House 3) in Situation 2, where *то* 'that' was never used for this purpose.

4.2.2. Demonstrative adverbs

As with demonstrative pronouns, there was a statistically significant association between the distance of the referent and the choice of demonstrative adverbs in both situations and in both Estonian and Russian. The use of demonstrative adverbs is similar in these two languages. In Situation 1, *siin* and *здесь* 'here' were used only for the near referent, and *seal* and *там* 'there' were used for both referents (although mostly for the far referent).

¹⁰ The independent and the adnominal demonstratives were analysed together.

In Situation 2, *siin* and *tyt* 'here' were used to refer to the nearest referent (House 3) in most instances and never for the farthest referent (House 2). *Seal* and *tam* 'there', on the other hand, were used in the majority of the cases to refer to the farthest referent and never for the nearest referent. The relatively near referent (House 1) was referred to with both, *siin* and *tyt* 'here', and *seal* and *tam* 'there'.

4.2.3. Demonstrative stems

In Finnish, the strength of the association between the variables was strong in both situations. The *tä*-stem 'this' demonstratives were mostly used for the relatively near referent (House 1) in Situation 1, and almost exclusively to refer to the nearest referent (House 3) in Situation 2. This is contrary to the *tuo*-stem 'that' demonstratives which were never used in referring to the nearest referent. The *tuo*-stem 'that' demonstratives were used to refer to the relatively near (House 1) and to the far (House 2) referent in both situations. However, they were used more frequently to refer to the far house. The *se*-stem 'that/it/the' demonstratives, on the other hand, were used for all the referents in a relatively equal measure in both situations.

4.2.4. Change in deictic field

Finnish was the only language where we found a statistically significant association between the situation type and the choice of demonstratives (Table 5). This association may indicate the influence of change in the deictic field on demonstrative choice. There was a moderate association between the variables while referring to the relatively near referent (House 1). The use of *tuo* 'that' increased and the use of *tämä* 'this' decreased in Situation 2 (S2) when compared to Situation 1 (S1). The same was evident while referring to the farthest referent (House 2). However, in the latter case, the association between the variables was weak.

Table 5

The absolute frequency of demonstrative use in Finnish while referring to the houses in Situation 1 compared to Situation 2

Referent	Situation	Demonstrative stems (row %)			N	p-value	Cramér's V
		<i>tämä</i>	<i>se</i>	<i>tuo</i>			
House 1 (relatively near)	S1	148 (44.4)	152 (45.6)	33 (9.9)	409	< 0.001	0.35
	S2	28 (36.8)	16 (21.1)	32 (42.1)			
House 2 (far)	S1	13 (4.5)	166 (57.2)	111 (38.3)	368	< 0.001	0.27
	S2	2 (2.6)	21 (26.9)	55 (70.5)			

4.2.5. Discussion

The results show a strong connection between the distance of the referent from the speaker and the choice between proximal and distal demonstratives in a spatial context. Overall, the pattern of the use of demonstratives is similar in both situations. Although the influence of distance was evident in all three

languages, there were three key differences. First, in both Finnic languages (Estonian and Finnish) one of the demonstratives or demonstrative stems was used frequently in reference to both referents. The demonstrative pronoun *see* 'this' in Estonian and the *se*-stem 'that/it/the' demonstratives in Finnish seem to be less susceptible for distance than the other demonstratives in the paradigm. In Estonian, the use of the distal demonstrative pronoun *too* 'that' was rather low (despite the low frequency of occurrence, speakers almost exclusively used it in reference to the far referent). This infrequent use of *too* 'that' is probably responsible for the demonstrative pronouns' modest sensitivity to distance. Since the use of *too* 'that' in Estonian is infrequent in corpora (Pajusalu 2006) as well as in free-production experiments (Reile 2015; 2016), it is likely that the participants that did not use *too* 'that' during the experiment relied on the one-term demonstrative pronoun system, where *see* 'this' is shown to be distance-neutral (Larjavaara 2007; Pajusalu 2009; Reile 2015). To compensate for this comparatively neutral use of *see* 'this', Estonian speakers applied a strong two-term system of demonstrative adverbs. This is in line with previous research on languages with demonstrative pronoun systems that lack distance contrast (Diessel 1999). Nevertheless, *see* 'this' was used in the contrastive situation. This suggests, on the basis of Meira's and Terrill's (2005) conclusions on true distance-neutrals, that this demonstrative pronoun is rather an unmarked form of the two demonstratives than a true distance-neutral.

For Finnish, the lack of distance encoding by the *se*-stem 'that/it/the' demonstratives is probably due to the nature of the current experiment. These demonstratives are proposed to indicate distance from the addressee (Larjavaara 1990). However, since the distance between the addressee and the referent is the same as between the speaker and the referent throughout the experiment, the *se*-stem 'that/it/the' demonstratives are not distance dependent in this particular referential setting. This concurs with previous findings in Finnish demonstrative research where *se* 'that/it/the' is said to have other functions, such as indicating knownness of the referent, in addition to conveying the distance of the referent from the addressee (Laury 1997; Etelämäki 2009).

Second, the association between the distance of the referent and the demonstrative choice in Russian is stronger than in Finnish and more homogeneous in regard to demonstrative pronouns and adverbs than in Estonian. This concurs with Mendoza's (2015) findings that Russian has a stable and strong binary demonstrative system.

In addition, there is also a difference between the two parts of our experiment. The strength of the association between the choice of demonstratives (either proximal or distal) and the distance of the referent is stronger in all three languages in Situation 2 when compared to Situation 1. This indicates that there were two clearly defined referents for the participants: House 3 (the house, where the participants were located) was perceived as near, and House 2 (the farthest house) as far. This is especially evident in demonstrative adverb use in Estonian and Russian, where distals were never used for House 3 and proximals were never used for House 2. In Situation 1, though, the more proximate referent (House 1) was not as clearly defined since it was referred to with both proximal and distal demonstratives in both parts of the experiment. In Finnish, however, introducing a new referent into the deictic field increased significantly the use of distal demonstrative stems

in reference to the two farther referents. This effect was not found in Estonian or in Russian. Therefore, in the Finnish data, the spatial division of near and far space is more clearly defined in the use of demonstratives than it is in the Estonian and Russian data. This suggests that Finnish seems to be the most susceptible language to the influence of distance. It is likely that this is because the demonstrative pronoun system in Finnish is more elaborate than it is in the other two languages where more BareNPs were used to mark the intended referents.

5. General discussion

In the present study, we conducted an experiment within a spatially contrastive situation where the referents had to be defined, described, and compared with each other. As such, exophoric and endophoric reference were intertwined. Therefore, the referential units in the experiment could be either spatial-contrastive or spatial-anaphoric. The aim of our study was to examine how distance is conveyed in languages with different demonstrative pronoun systems: in a three-term system (Finnish) and in two-term systems (Estonian and Russian). We explored whether there is an association between the elaborateness of the demonstrative pronoun system and the use of other referential devices, such as demonstrative adverbs, bare noun phrases and third person pronouns. In addition, we investigated whether the influence of distance has the same effect on the use of demonstratives in Estonian, Finnish and Russian, and whether the use of demonstratives changes when a change in the deictic field occurs.

Overall, the results show that the three languages apply different referential devices while referring to the intended referent. In Finnish (the three-term system language), the speakers tended to rely mostly on demonstratives in spatial-contrastive as well as in spatial-anaphoric uses. They used other referential devices (e.g. bare NPs and zero reference) relatively infrequently. Contrary, the speakers of Estonian and Russian (the two-term system languages) used bare NPs and third person pronouns more extensively than Finnish speakers. This more extensive use of bare NPs in a contrastive spatial setting suggests that the Estonian and Russian speakers were not able to rely solely on demonstratives to identify the referents to the hearer, and they used NPs to avoid ambiguity in reference. Our study showed that Estonian demonstrative pronouns exert a weak contrast with regard to distance. This is in line with previous research (Pajusalu 2009). However, Russian demonstrative pronouns, on the other hand, showed a strong association between the distance of the referent and demonstrative choice. Despite this strong association, Russian speakers used proportionally more bare NPs than Estonian speakers. Levinson (2018 : 17) has suggested that the Russian demonstrative pronoun *этот* 'this' can apply to referents in a wide range of distances in non-contrastive spatial settings. Levinson (2018 : 17) further considers this demonstrative to be the unmarked form of the two demonstrative pronouns. Therefore, it is possible that this potential unmarkedness could also influence the speakers to use bare NPs rather than demonstratives in identifying the referent also in a contrastive spatial setting.

In addition to the frequent use of NPs in the two-term system languages, Estonian and Russian, the use of third person pronouns was also quite

frequent in both languages, but especially frequent in Russian. Since the experiment also elicited spatial-anaphoric use, this extensive use of third person pronouns may have been due to the activation status of the referent. The activation status of the referent has been shown to be influential in choosing the referential form in various languages (Gundel, Hedberg, Zacharski 1993; Gundel, Bassene, Gordon, Humnick, Khalfaoui 2010; Khalfaoui 2007). According to Gundel, Bassene, Gordon, Humnick, Khalfaoui 2010 : 1773, "all languages explicitly encode the two highest statuses [of the Givenness Hierarchy], 'in focus' and 'activated'". When the referent is in focus, it means that the referent is in the short-term memory and at the current centre of attention; when the referent is activated, it is represented in the current short-term memory and may also be present in an extralinguistic context (Gundel, Hedberg, Zacharski 1993 : 278–279). Gundel, Hedberg and Zacharski (1993 : 284) have shown that in Russian third person pronouns are used for referents that are in focus. Pajusalu (2009 : 124) has proposed that this is also the case in Estonian. Therefore, in the current study, Estonian and Russian speakers presumably used third person pronouns in referring to the referents that were in the focus of both the speaker and the addressee at the moment of utterance. In Finnish (the three-term system language), however, there were no instances of third person pronoun *hän* use because this device is reserved for human reference only (Hakulinen, Vilkuna, Korhonen, Koivisto, Heinonen, Alho 2004). Alternatively, the *se*-stem 'that/it/the' demonstratives were used for all the referents in a somewhat equal proportion. This suggests that these demonstratives were not used to indicate the distance of the referent, but rather for the continuation of the reference. The *se*-stem 'that/it/the' demonstratives were used to refer to the referents that were 'in focus' at the current time of the utterance rather than to single out the referent from the other referents. This corroborates the findings of other studies, where the *se*-stem 'that/it/the' demonstratives seem to be used when the speaker assumes that the referent is in the addressee's focus of attention (Laury 1997) or adequately known by the addressee (Etelämäki 2009).

Similar kinds of tendencies with regard to the use of referential devices that are found in our data have been reported previously in different languages. For example, Coventry, Valdés, Castillo and Guijarro-Fuentes (2008) have shown that the use of English demonstrative pronouns is strongly connected to the distance of the referents. That is, the proximal demonstrative pronoun *this* is used to refer to the referents in one's hand's reach, whereas the distal demonstrative pronoun *that* is used when the referents are located outside the grasping distance. Nevertheless, March and Pattison (2014) have shown that English (a two-term language) speakers use more nouns in spatial reference than Turkish (a three-term language) speakers. In addition, there is a tendency that the more terms a language has in a demonstrative pronoun system, the more distinctions (either semantic or pragmatic) it can make (e.g. Diessel 1999; Dixon 2003). For instance, Küntay and Özyürek (2006) have proposed that one of the three demonstrative pronouns in Turkish, the demonstrative pronoun *o*, indicates that the referent is in a joint attentional focus of the interlocutors. Furthermore, Burenhult (2003) has suggested that demonstratives in Jahai (a language with eight demonstrative roots) encode cognitive accessibility to the addressee. These findings suggest that the differences found in our study between the languages with two-term and three-term systems might also

be present in other two-term and three-term system languages. Moreover, there could be an association between the number of terms available in the demonstrative pronoun system and the functions that they fulfil, and the use of other referential devices. Our study in Estonian, Finnish, and Russian supports the possibility of this association. However, more research is needed in comparing different languages with different demonstrative pronoun systems in order to test whether this hypothesis is valid.

Concerning demonstratives, the overall pattern of their use in the three languages indicates that the farther the referent, the more frequent the use of distal demonstratives. In other words, there is a clear effect of distance. In all the three languages, the nearest and the farthest referents were almost exclusively referred to with proximal and distal demonstratives respectively. This is in line with general distance based approach of demonstratives (e.g. Lyons 1977; Fillmore 1997; Diessel 1999; 2013) in typological (e.g. Diessel 1999; 2013; Dixon 2003) as well as in experimental research (e.g. Reile 2015; 2016; Coventry, Valdés, Castillo, Guijarro-Fuentes 2008; Coventry, Griffiths, Hamilton 2014). However, our findings on demonstrative use in a large-scale space differ from studies conducted in a non-contrastive setting (e.g. Coventry, Valdés, Castillo, Guijarro-Fuentes 2008) and mirror the results in a contrastive setting (e.g. Meira, Terrill 2005) in a table-top space. The proximal demonstratives were also used to refer to the referent in relative proximity which in table-top space would be in far distance. This means that the use of proximal demonstratives in the contrastive use of our experiment indicates a "neutralization of proximity" (Levinson 2018 : 30). Our data supports the differences found regarding the contrastive and non-contrastive use of demonstratives. In addition, demonstrative use in a large-scale space and in a contrastive setting is similar to that of demonstrative use in table-top space.

In our study, we found variability of the effect of distance on demonstrative use between Estonian, Finnish and Russian. The effect of distance seems to have a greater influence on the three-term system language (Finnish). This is because the change in the deictic field (i.e. introducing a new referent (the nearest) to the referential scene) increased the use of the distal demonstrative to refer to the two farther referents. In doing so, the participants presumably re-conceptualised the surrounding space and chose demonstratives accordingly. This effect was not detected in the two-term languages in our study (i.e. Estonian and Russian). Similar variability in distance encoding in different referential scenes has also been found in different languages with two- and three-term systems. Three-term systems usually have spatially clearly anchored proximal and distal terms, and in some cases the medial term can be either a neutral or an unmarked form (Levinson 2018). Unmarked demonstratives can also occur in two-term languages, such as is proposed for the Russian *этот* 'this' (Levinson 2018). When one of the demonstratives in a two-term system is unmarked, then only one of the demonstratives is spatially anchored. Consequently, the three-term system demonstratives can have stronger spatial distinctions than two-term systems with an unmarked form. Our findings corroborate this since Finnish (the three-term language) is more susceptible to changes taking place in the deictic field concerning demonstrative use. This shows that demonstrative pronoun systems are more complex than previously thought and other factors, besides distance (i.e. changes in the deictic field and a contrastive setting), have an influence on demonstrative use.

Finally, the experimental approach followed in this study has proven to be robust enough to detect an association between the elaborateness of demonstrative pronoun systems and the use of referential devices in a spatial context. Furthermore, this method has enabled us to obtain the general pattern of demonstrative use in a spatial reference in large-scale space rather than tabletop setting. Since large-scale space is conceptualised differently than small-scale space (see Freundsuh, Egenhofer 1997 for overview), it enabled us to gather data not only on the use of demonstrative pronouns but also on demonstrative adverbs, which are crucial exophoric demonstratives in spatially non-contrastive demonstrative pronoun systems (Diessel 1999). With our results, we have shown that even when the referents are large unmovable objects that could be conceptualised as an object or a location, rather than small objects that can be manipulated, our findings coincide with previous research (e.g. Meira, Terrill 2005; Bonfiglioli, Finocchiaro, Gesierich, Rositani, Vescovi 2009) and support the influence of distance on demonstrative choice also in semi-interactive use in a contrastive setting.

Appendix

Table 1

**Variation of frequency in using referential devices
between participants per language
(the calculations are based on normalised data)**

Language	BareDem		DemNP		BareNP		PersPron		Zero	
	M	SD	M	SD	M	SD	M	SD	M	SD
EST	11.8	7.7	13.6	10.2	14.5	9.0	5.5	5.8	1.4	1.5
FIN	26	14.3	13.0	6.8	3.9	4.0	–	–	0.8	0.8
RUS	9.4	6.9	6.0	7.8	17.6	6.9	12.9	6.8	3.0	4.0

Table 2

**Normalised frequencies of the use of referential devices
(normalised by total use of referential units)**

Language	Referential devices (row %)					
	BareDem	DemNP	BareNP	PersPron	Zero	Total
EST	279.3	320.3	322.3	123.1	34	1079
FIN	643.1	321.1	96.1	0	18.7	1079
RUS	212.2	131.2	392.4	277.2	66.2	1079

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РЕФЕРЕНЦИЯ НА ГРАНИЦАХ ПРОСТРАНСТВА И ДИСКУРСА: ЭКСПЕРИМЕНТ СВОБОДНОЙ ПРОДУКЦИИ НА ЭСТОНСКОМ, ФИНСКОМ И РУССКОМ ЯЗЫКАХ

В статье рассматриваются средства референции в финском, эстонском и русском языках. Данные собраны путем эксперимента: участникам предлагалось рассказать о двух домах, видимых из окна, а затем о доме, в котором проводился эксперимент. Все фразы, использованные участниками, кодировались в соответствии с их составом (указательные местоимения и наречия, личные местоимения, полнозначные слова) и пространственными качествами референтов. Во всех языках дистанция имела наибольшую связь с указательными местоимениями и наречиями: дальнеуказательные демонстративы, как правило, обозначали дальнего референта (хотя иногда и ближнего во всех языках). Существенное различие между языками обнаружено в связи с изменением дейктического фона: когда к двум референтам первой части эксперимента добавился третий, в финском языке произошли существенные изменения в использовании демонстративов, а в эстонском и русском изменений не было. Это свидетельствует о принципиальных различиях между системами с двумя (эстонский и русский) и тремя (финский) корнями демонстративов. Финские участники эксперимента использовали значительно больше указательных местоимений и наречий, чем эстонские, а русские еще меньше, чем эстонские. Данные эксперимента показывают, что три языка пользуются разными средствами референции: финский предпочитает указательные слова, а русский лексикальные номинальные фразы. С другой стороны, русский язык использует больше местоимений 3-го лица. Эстонский язык занимает среднюю позицию между финским и русским по всем аспектам данного исследования.