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Research Article

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Figure–Ground Spatial Relationships in Finnish Sign Language Discourse

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Abstract: This study is about expressing spatial relationships between Figure and Ground in Finnish Sign Language discourse and shows that the variation in this expression is primarily discourse dependent. The main findings are, first, that Ground mainly precedes Figure whether the Figure is new or a known referent within the discourse; the reverse order is possible only when the Figure is known. Second, the lexical sign *OLLA* (‘have’) appears more frequently in expressing spatial relationships with a new Figure and less frequently with a known Figure but never in a construction with Figure preceding Ground; the form *OLI* (‘had’), referring to the past, appears only in Figure preceding Ground constructions when Figure is known. Finally, the main way to express the spatial relationship between Ground and Figure is either the simultaneous production of the units, or Ground and an adposition sign. A sequential strategy is another way of expressing spatial relationships but this can be used only when the Figure is new within the discourse. The choice of strategy can be attributed to the emphasis put on the Figure’s presence when it is new while with a known Figure, the emphasis is on the location of that Figure.

Keywords: spatial relationships, Figure, Ground, discourse, Finnish Sign Language, simultaneity, sequentiality

1 Introduction

This article presents a descriptive study on the order of Figure and Ground when expressing spatial relationships in Finnish Sign Language discourse. Figure is a cognitive concept which refers to the smaller and more moveable entity, with unknown spatial properties (Talmy 2000). Ground, on the other hand, denotes the larger and less moveable entity, with known spatial properties (Talmy 2000). In basic locative constructions, Figure is perceived as being located with respect to Ground. Sentences such as (1a) and (1b) below from Finnish, using the Leipzig glossing rules, are two examples of ways of expressing a spatial relationship between a Figure (‘book’) and a Ground (‘table’), with the order of Ground preceding Figure in (1a) and the reversed order of Figure preceding Ground in (1b).

(1)	a.	Pöydä-llä table-LOC Ground	on be.PRES.3SG	kirja. book.NOM Figure
		“There is a book on the table.”		
	b.	Kirja book.NOM Figure	on be.PRES.3SG	pöydä-llä. table-LOC Ground
		“The book is on the table.”		

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The difference between such sentences seems to be discourse pragmatic (Huumo 1996). In (1a), the Figure ('a book') is discourse-new while in (1b), the Figure ('the book') is known or already established within the discourse. Thus, from the discursive point of view, sentences such as (1a) serve to introduce a new Figure within the discourse (Givón 2001b, Huumo 2003, McNally 2011), while sentences such as (1b) are used to refer to a known Figure within the discourse (Clark 1978, Lambrecht 1994, Huumo 1996). The first type of sentence is typically referred to as existential (because it primarily predicates existence or presence) whereas the latter type is known as locative (because it mainly predicates location). However, it has to be noted that the order of Figure and Ground does not predict the sentence type in all cases, and although there is a relationship between existential/locative sentences and new/known referents, they can also be found separately.

However, typological studies of spoken languages around the world have shown that the order of Figure and Ground in existential sentences is indeed often reversed in locative sentences (Clark 1978, Freeze 1992). In most languages around the world, existential sentences exhibit the order of Ground preceding Figure, while locative sentences show the order of Figure preceding Ground (Clark 1978, Freeze 1992). Clark (1978) ascribed the order of Ground preceding Figure in existential sentences to a discourse rule, as new information is typically introduced after given information. In addition, these studies have also found that most languages use one specific verb, 'have', to express both sentence types.

In Danish Sign Language, the order of Figure–Ground in existential and locative sentences resembles the abovementioned order found in typological studies of spoken languages, and both types are also expressed by means of one specific verb *EXISTENTIAL* (Kristoffersen 2003). Taking discourse context into account, De Weerd (2016) found that existential sentences in Finnish Sign Language and Flemish Sign Language are also formed around the lexical signs *OLLA* ('have') and *HEEFT* ('have'), respectively, with Ground preceding Figure, but both Ground and *OLLA/HEEFT* can be omitted from the construction in both languages (see also Jantunen 2017, Jantunen 2018). This means that with Ground being typically "known" information in its context, if the context has been discussed earlier, Ground can be omitted as it is redundant information. Figure is the only thing that is "new" and worth predicating, and so it is the main predicate (De Weerd 2016).

Most research to date on locative expressions in signed languages, which has shown the canonical structure of Ground preceding Figure (Özyürek et al. 2010), has been mainly based on isolated utterances elicited from stimulus pictures, so the referents in these utterances have mostly been new or not known (for an overview of studies on locative expressions in signed languages see also Özyürek et al. (2010) and Perniss et al. (2015); and see Johnston et al. (2007) for an overview of the method used to elicit locative expressions). Even with recurring types of entities (as in Perniss et al. 2015), the question of new versus known has not been addressed. Analyzing such expressions and taking into account the discourse factors are important, and this is what the present study sets out to do.

This study approaches its research objective with three research questions. These are: (1) What is the order of Figure and Ground in the expression of spatial relationship when the Figure entities are **new** referents within the discourse? (2) What is the order of Figure and Ground in the expression of spatial relationship when the Figure entities are **known** referents within the discourse? and (3) What different ways are used to mark spatial relationships between Figure and Ground entities? Although this study emphasizes the influence of the discourse context on the expression of Figure–Ground spatial relationships, these kinds of expressions are also potentially influenced by the ambient spoken language (e.g., Finnish) and/or by the ideology concerning sign language teaching to L2 signers. However, these type of effects or contextual factors are beyond the scope of this study.

The study starts out from the assumption, based on earlier studies (e.g., Clark 1978, Freeze 1992, Huumo 1996, Kristoffersen 2003), that expressing the spatial relationship between a known Ground entity and a new Figure entity shows the order of Ground preceding Figure (as in many existentials), but Figure precedes Ground when both Figure and Ground are known entities (as in many locatives) within the discourse. The use of the lexical sign *OLLA* ('have') is also a focus of interest in this study as it may have a more important function when expressing the presence/existence of new Figure entities and less importance when expressing the location of known entities within discourse. The use of *OLI*, which is the past tense of

OLLA, is another focus of this study, especially in expressing the location of known entities. Both lexical signs, OLLA and OLI, are illustrated in Figures 1 and 2 (Suvi 2003), respectively. Phonological variation in handshape in OLLA is possible (De Weerd 2016).



Figure 1: OLLA (Suvi 2003 [Finnish Sign Language dictionary]: entry 250).



Figure 2: OLI (Suvi 2003 [Finnish Sign Language dictionary]: entry 219).

Section 2 presents the theoretical background for both signed and spoken languages, describing the form and function of existential and locative sentences within discourse and from the typological point of view. Section 3 presents the data and methodology of the study. Section 4 presents the qualitative and quantitative analyses of the data. The final Sections 5 and 6, include the discussion and conclusion, respectively.

2 Ground–Figure and Figure–Ground: form and function

2.1 Spoken languages

As mentioned in Section 1, spatial relationships between concrete entities can be expressed in different syntactic forms within discourse, such as Ground preceding Figure in the typically so-called existential sentences or Figure preceding Ground in the so-called locative sentences found in most languages around the world (Huumo 2003, Kristoffersen 2003, Partee and Borschev 2007, Creissels 2014). This is demonstrated below in (1a) and (1b), repeated from the Introduction, for Finnish existential and locative sentences, respectively.

(1)	a.	Pöydä-llä table-LOC Ground “There is a book on the table.”	on be.PRES.3SG	kirja. book.NOM Figure
	b.	Kirja book.NOM Figure “The book is on the table.”	on be.PRES.3SG	pöydä-llä. table-LOC Ground

We can characterize the main features of two sentences as follows: in (1a), the order is Ground (‘table’) preceding Figure (‘book’) while in (1b) the order is reversed. Both sentences are formed around the Finnish verb *on*, which is the third person singular of the Finnish verb *olla* (‘have’). In addition, the spatial relationship between Ground (‘table’) and Figure (‘book’) in both sentences is expressed with the suffix *-llä* (‘on-top-of’ in this context) attached (suffixed) to ‘table’.

In Finnish grammar (Hakulinen et al. 2004), (1a) is an existential sentence and (1b) a locative sentence. In general, existential sentences such as (1a) are sentences that express the existence or presence of something or someone at a certain location (McNally 2011, Creissels 2014). In other words, sentences of this type not only indicate the location of something or someone (as does the locative sentence 1b) but can also be used to identify something or someone present at a certain location (Creissels 2014). In terms of their function within discourse, existential sentences serve primarily to introduce a novel referent (Huomo 1996, Givón 2001b, McNally 2011). Locative sentences, on the other hand, such as (1b), express the location of something or someone known within the discourse (Clark 1978, Lambrecht 1994, Huomo 1996).

Lyons (1967, 1968) initially proposed that existential and locative sentences (together with possessive sentences) are semantically related with each other, as they all express a certain object located at a certain place. Chung and McCloskey (2002) called this approach the locative approach. Following this approach, Clark (1978) investigated the syntactic structure of these three sentence types, which she called *locational constructions*, with a sample of approximately 40 languages from around the world. Her study shows that these sentence types are not only semantically but also syntactically related. In most languages, the word order in possessive sentences resembles the word order in existential sentences, while locative sentences show the reverse word order. For example, existential sentences in some languages, for example Turkish, Eskimo, or Swahili, have the order Ground Figure Verb but this is reversed as Figure Ground Verb in locative sentences, while other languages, such as Finnish or Mandarin Chinese, show the order Ground Verb Figure in existential sentences and Figure Verb Ground in locative sentences (Clark 1978). Freeze (1992), with a sample of five languages from around the world, confirmed this reversal of the word order in his study with Russian, Chamorro, and Tagalog, among others. Table 1 below summarizes the Figure–Ground reversals in existential and locative sentences found by Clark (1978; for a full overview see Clark 1978: 96) and Freeze (1992; for a full overview see Freeze 1992: 555–557).

In addition to the difference made by whether the sentence is existential or locative, definiteness has also been identified as a factor that influences word order and the order of Ground and Figure (Clark 1978, Freeze 1992, Huomo 1996). In existential sentences such as *There is a book on the table*, a new referent (‘a book’) is introduced within the discourse, and this referent is indefinite (see also Lambrecht 1994,

Table 1: Figure–Ground reversals in existential and locative sentences found by Clark (1978) and Freeze (1992)

	Languages	Existential sentence	Locative sentence
Clark (1978)	Turkish, Eskimo, Swahili	Ground Figure Verb	Figure Ground Verb
	Finnish, Mandarin Chinese	Ground Verb Figure	Figure Verb Ground
Freeze (1992)	Russian	Ground Verb Figure	Figure Verb Ground
	Chamorro, Tagalog	Verb Figure Ground	Verb Ground Figure

Givón 2001b, McNally 2011). On the other hand, in locative sentences, such as *The book is on the table*, the referent is known and definite (‘the book’) (see also Clark 1978, Freeze 1992, Huumo 1996). Clark (1978: 88) states that the word order in existential and locative constructions is not arbitrary. The word order in both constructions depends on the definiteness of the nominal. Clark (1978: 88) claims that if the nominal is definite, it will appear in initial position in the sentence, but when the nominal is indefinite, another constituent should precede the nominal. The nominal (‘a book’) in existential constructions is indefinite, whereas it is definite in locative constructions (‘the book’).

2.2 Signed languages

Signed languages are visual–spatial languages, and it is generally well-known that visually perceived spatial relationships between two concrete entities are expressed by means of the hands (e.g., with depicting signs or the simultaneous production of both hands) and the signing space (i.e., topographic space) in front of the signer’s body (see also Perniss et al. 2015, which includes an overview of earlier studies on signed languages in relation to locative sentences). Depicting signs include both conventional and nonconventional meaningful elements such as handshape, orientation, location, movement and a variety of nonmanual signals and typically refer to the movement/location of an entity in a topographic space or to the handling of an object (Liddell 2003, Johnston and Schembri 2007, Ferrara and Hodge 2018). This can be illustrated with an example from one of the earlier studies on spatial relationships, in American Sign Language (Emmorey 2002: 87), in Example (2). Throughout this article, for the sake of space, H1 refers to the signer’s dominant hand and H2 refers to the nondominant hand.

(2)	H1:	HOUSE	BICYCLE ds:bicycle-right
	H2:	ds:house-left	-----
		“A bike is next to the house.”	

(adopted from Emmorey 2002: 87)

In the above example, the order is Ground preceding Figure. The spatial relationship between Ground (‘house’) and Figure (‘bicycle’) is expressed with the simultaneous use of depicting signs, and each depicting sign is produced at a specific place in the signing space: ‘house’ on the left and ‘bicycle’ on the right. Vermeerbergen et al. (2007a) noted that the simultaneous production of depicting signs, using a classifier (i.e., handshapes in depicting signs) denoting the referents, is a way of expressing the relative location of the referents in sign languages. It can be fully simultaneous if the two different lexical signs are produced together, or the signer may hold a sign in the signing space and continue with the other hand (Vermeerbergen et al. 2007a). This is seen in (2) above, where the depicting sign denoting ‘house’ in the nondominant hand (H2) is held in the signing space and the signer continues with the dominant hand (H1) and expresses the spatial relationship between ‘house’ (Ground) and ‘bicycle’ (Figure). Thus, simultaneity is one way to visually represent the spatial relationship between a Figure and a Ground, and this simultaneous representation of Figure and Ground in the signing space can be – and often is – the result of the sequential placement of the hands.

Perniss et al. (2015) for German Sign Language and Turkish Sign Language and Özyürek et al. (2010) for Turkish Sign Language showed in their studies on locative expressions that the preferred order is also mainly Ground preceding Figure, which was seen as prototypical for signed languages. These studies also found that the simultaneous strategy is not the only possible strategy; the sequential strategy is also possible where relationships can rely on the conceptually maintained location of the Ground referent (Perniss et al. 2015: 622) as shown now in Example (3):

-
- (3) H1: TABLE CUP CLF(cup)-loc_{table}
 H2: TABLE
 “There is a table, and a cup, it (the cup) is at/on it (the table).”
 (Perniss et al. 2015: 622)
-

In this example, the two-handed lexical sign for ‘table’ (Ground) is expressed first, followed by the one-handed sign for ‘cup’ (Figure). The spatial relationship is expressed here not simultaneously but sequentially: the cup is denoted with a depicting sign produced “right on top” of the conceptually maintained location in the signing space where Ground (‘table’) was produced earlier. However, based on previous studies on spatial relationships in signed languages, Özyürek et al. (2010: 1120) summarized the canonical structure of locative expressions in signed languages in earlier work as follows:

Ground NP [Localization of Ground] — hold —————
 [Figure NP] [Localization of Figure]

However, Kristoffersen (2003) found that the word order of locational constructions in Danish Sign Language resembles the order found in Clark’s (1978) and Freeze’s (1992) studies. Her study is based on one hour and a half of videotaped signed monologues and her analysis focuses solely on those 28 constructions that are formed around the verb *EXISTENTIAL*. Her analysis shows that existential and possessive sentences in Danish Sign Language share similar syntactic properties, while locative sentences have the reverse order. Like Clark (1978), Kristoffersen (2003) claims that the difference in word order between existentials and locatives has to do with the lack of articles in Danish Sign Language. This means that, according to Kristoffersen (2003), definiteness in Danish Sign Language is marked not morphologically but syntactically. Examples (4) and (5) show the reversed order of Figure and Ground in existential and locative sentences, respectively, in Danish Sign Language:

-
- (4) BATH^ROOM+I/PRON+I/EXISTENTIAL+I WASHING-MACHINE
 “In the bathroom there were a washing machine.”
 (Kristoffersen 2003: 135)
- (5) MAYBE METTE/EXISTENTIAL PRON+I/KC
 “Maybe Mette is at KC”
 (Kristoffersen 2003: 136)
-

Example (4) shows the order of Ground (‘bathroom’) preceding Figure (‘washing machine’) with the construction formed around the lexical sign *EXISTENTIAL*. This order is ascribed to the fact that the Figure (‘washing machine’) is an indefinite or new referent within the discourse. In contrast, Example (5) shows the reverse order of Figure (‘Mette’), which is here the definite or known referent, preceding Ground (‘KC’), and the presence of the lexical sign *EXISTENTIAL*.

De Weerd (2016) investigated existential sentences in Finnish Sign Language and Flemish Sign Language. In his work, an existential sentence is defined as a sentence that is used to express the existence or presence of something or someone and has the function of introducing a new referent within the discourse. The data in this study were elicited with stimulus material borrowed from Zeshan and Perniss’ (2008) typological study into possessives and existentials across sign languages, in which pairs of signers interacted in order to find the differences between two similar-looking pictures, each of which was visible only to one of the signers. His study showed that the word order found in Finnish Sign Language existential sentences is similar to the word order found in Clark’s (1978), Freeze’s (1992) and Kristoffersen’s (2003) studies. Using the term Ground and Figure in his analysis of existential sentences, De Weerd (2016) concluded that Finnish Sign Language shows mainly the order of Ground preceding Figure. However, in

contrast with previous studies, De Weerd (2016) also found that ellipsis frequently occurred in his data. The Ground entity, which also functions as location, can be omitted from the construction because it can be retrieved from the context. The existential/possessive verb *OLLA* ('have') is also frequently omitted from the construction. Figure is the only element that is never omitted. The following two utterances in (6) and (7) exemplify existential sentences with the order of Ground preceding Figure; the former is formed around *OLLA* ('have') while in the latter, *OLLA* ('have') is omitted. Both examples were considered to be existential sentences because they express the existence/presence of the Figure entities ('painting' and 'fish'), which are new referents within the discourse, and the Ground entities ('door' and 'pot'), which are known referents because they were discussed earlier in the discourse.

-
- (6) DOOR BEHIND-A OLLA SOMETHING SEEM-SO PAINTING ds-(painting)-a
 "There is a painting, or something like that, hanging behind the door."
 (De Weerd 2016: 22)
- (7) nod
 H1: ds-(pot)/FISH ds-(fish-swimming-in-pot)
 H2: ds-(pot)/-----
 "There is a fish in the pot."
 (De Weerd 2016: 29)
-

As can be seen in Examples (6) and (7), when expressing spatial relationships both the sequential strategy, as in (6), and the simultaneous strategy, as in (7), are used when introducing a new Figure entity within the discourse. Importantly, adposition signs, with adpositions as a cover term for pre- and post-positions, such as 'behind' in (6), often appear in De Weerd's (2016) study as well; this has also been found in other sign languages, such as Turkish Sign Language (Arik 2013), Flemish Sign Language (Vermeerbergen 2004), Australian, Irish and Flemish Sign Language (Johnston et al. 2007) and also in German Sign Language (Perniss et al. 2015). These studies have shown that an adposition sign is also a way of expressing the spatial relationship between Figure and Ground.

To sum up the main points made here, the difference in order of Figure and Ground when expressing spatial relationships appears to be discourse pragmatic: Figure entities in existential sentences are discourse-new, and indefinite referents within the discourse, while in locative sentences these Figure entities are already established or known, and are definite within the discourse (Lambrecht 1994, Huomo 2003).

3 Data and methodology

This study is based on experimental videotaped data collected in a professional audiovisual studio at the University of Jyväskylä, involving 12 Finnish Sign Language signers, formed into 6 pairs. Two different spaces were created in the studio: an interaction space and a room space. The participants conducted their conversations in the interaction space, and these form the main part of the data of this study, while the room space was where the stimuli for the conversations – real, full-sized objects – were set up and moved about during the experiment. The two spaces were separated by a high curtain that prevented the participants who were standing in the interaction space from seeing the room space. Figure 3 below shows the room space in the initial phase of the experiment. It held four large objects (a chair, table, couch and trash bin).



Figure 3: The room setting in the initial phase of the experiment.

During the initial phase, one of the participants was asked to observe the room and describe it to their interlocutor who was waiting in the interaction room. Once the description had been delivered and discussed, both participants went to look at the room space together to make sure they had both seen the room setting, and then they returned to the interaction space. Delivering this initial description and jointly viewing the room was important in this phase in order to establish common ground: it affected the discursive values and how new and known Figure entities in the new room settings were described. After that, the researcher added four smaller objects (a laptop, bottle box, book, and umbrella) into the room space. Each new, small object was deliberately placed in a certain spatial relationship to one of the large objects already present (laptop on chair, bottle box on table, book under couch, and umbrella next to trash bin) as shown in Figure 4 below. The first participant went to observe the room again, again described it to the interlocutor, and again they checked the room together. In the final phase, no new objects were added but the smaller objects that were already present were relocated in relation to a different large object

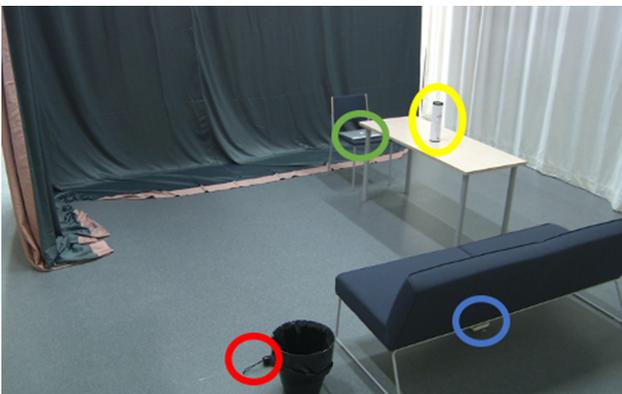


Figure 4: The room setting in the second phase of the experiment.

(book behind chair, laptop in front of table, umbrella on couch, and bottle box in trash bin), as shown in Figure 5. For the last time, the same participant went to see the room and described it to the interlocutor and finally they went together to see the room again. Once the whole experiment had been carried out, the interlocutors were asked to talk freely about the changes they had observed in the room space from the first to the final phases.

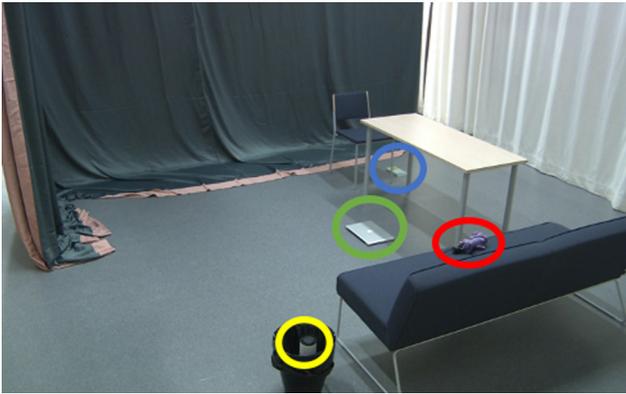


Figure 5: The room setting in the final phase of the experiment.

A total of four video cameras were used to collect data in the studio. Three cameras were installed in the interaction space and one in the room space. In the interaction space, two cameras filmed each participant individually while the third camera, which was fixed to the ceiling, filmed both participants from above. The third camera was used to ensure that it would be possible to analyze the use of the signing space in front of the signers' body in case the two cameras recording the individual signers did not provide a good enough view of the use of the signing space. In the room space, the fourth camera filmed the whole activity, including the transformations of the room by the researcher and, if any, the conversations between the participants when they went to see the room together. Figure 6 shows a screenshot from the ELAN annotation tool, which also shows the angles and focuses of the four cameras in the studio.

Nr	Annotation	Begin Time	End Time	Duration
1	IDEA	00:02:43.847	00:02:44.097	00:00:00.250
2	HAVE	00:02:44.147	00:02:44.357	00:00:00.210
3	BEHIND-a	00:02:44.427	00:02:44.687	00:00:00.260
4	ROOM	00:02:44.762	00:02:45.162	00:00:00.400
5	HOW	00:02:45.197	00:02:45.357	00:00:00.160
6	LOOK-LIKE	00:02:45.372	00:02:45.662	00:00:00.290
7	PI	00:02:45.702	00:02:45.752	00:00:00.050
8	HAVE	00:02:45.802	00:02:46.022	00:00:00.220
9	ds-(space)-a	00:02:46.077	00:02:46.937	00:00:00.860
10	ds-(surrounded-wall)	00:02:46.972	00:02:47.812	00:00:00.840
11	HAVE	00:02:47.857	00:02:48.267	00:00:00.410
12	IX-(room)	00:02:48.307	00:02:48.677	00:00:00.370
13	WALL	00:02:48.707	00:02:49.327	00:00:00.620
14	FABRIC	00:02:49.392	00:02:49.942	00:00:00.550
15	ds-(curtain)	00:02:49.992	00:02:50.342	00:00:00.350
16	HAVE	00:02:51.052	00:02:51.242	00:00:00.190
17	CHAIR	00:02:51.292	00:02:51.562	00:00:00.270

Figure 6: A screenshot from the ELAN annotation tool used for transcribing and analyzing the data.

In the ELAN annotation tool, eight tiers were created for transcribing the videotaped data: the dominant and nondominant hands of both signers (four tiers), the locations where the signs were articulated in the signing space in front of the signer's body (two tiers), syntactic analysis of Ground and Figure (one tier), and the way the relationship between Figure and Ground were spatially marked (one tier). As regards the first four tiers, each signer's dominant and nondominant hands were annotated on separate tiers in order to take simultaneity into account, which is an important way of marking the spatial relationship between a Figure entity and a Ground entity. In the fifth tier, the location of the signs, i.e., the place where the signs were produced in the signing space, was annotated with "left", "middle", or "right" and "close", "middle", or "far". This means that if a sign was produced at a certain location on the right side of the signer's body and quite close to it, the location of this specific sign was annotated as right-close.

The annotation and analysis of the data primarily focus on each participant's first Figure–Ground spatial relationship expressions describing the room settings. This resulted in a total of 54 utterances. The first six utterances concern the first room setting, where signers described the presence of four new large objects in the room. From the second room setting, 24 utterances were analyzed that described the presence of 4 small new objects, each one spatially related to one of the already known, larger objects. The last 24 utterances came from the third setting, in which the new spatial relationships between the known smaller and known larger objects were described. The analysis aimed to examine the order of Figure and Ground in utterances with new Figure entities and utterances with known Figure entities; and what specific mechanisms were used to mark the spatial relationships between Figure and Ground entities in such utterances. All the utterances from the data were also quantitatively compared between all the participants for each room setting, and for each participant describing all the room settings.

4 Analysis

This section offers a qualitative and quantitative analyses of the order of Figure and Ground when spatial relationships are expressed in Finnish Sign Language discourse. Section 4.1 discusses research questions 1 and 2 (whether the order of Figure and Ground changes depending on the newness/oldness of the referents). Section 4.2 discusses research question 3 (in what ways spatial relationships between Figure and Ground are marked). The English translations provided with the presented examples for this second part are free translations, i.e., the English structure will be different to the Finnish Sign Language examples. The data for the first part come from room settings 2 (research question 1) and 3 (research question 2), and each setting comprises 24 utterances, which means that a total of 48 utterances were analyzed for the first part. The data for the second part also come from room settings 2 and 3 and comprise a total of 48 utterances.

4.1 The order of Figure and Ground depending on whether the referent is new or known

4.1.1 The order of Figure and Ground when the Figure is new

Before describing the spatial relationships between the known Ground entities and the new Figure entities observed in the second room setting, every signer in one way or another first mentioned that the objects they had both observed during the first room setting were still present in the room and in the same locations. After that, the signers all expressed in one way or another that four new objects had been added to the room. From the discursive point of view, this means that at this point, both of the participants shared the same knowledge about which objects were present and where those objects were located in the room. Once this information was shared, the signers went on to describe the spatial relationships between the four

known Ground entities and the four new Figure entities. Table 2 shows a summary of the order in which Ground and Figure were expressed in the second room setting.

Table 2: A summary of the order of Figure and Ground when Figure is new (room setting 2)

Order of elements	Number of utterances
Ground <small>OLLA</small> Figure	18
Ground Figure	5
Figure Ground	1

The data show that 23 of the 24 descriptions of Figure–Ground relationships during this phase had the order of Ground preceding Figure. Of these 23 descriptions, 18 were formed around the lexical sign OLLA (‘have’), resulting in the order Ground – OLLA – Figure. The remaining five descriptions were not produced around OLLA, but Ground still preceded Figure. In this room setting, only one example was found which showed the order of Figure preceding Ground but, on the basis of the analysis of the video, this description clearly led to confusion on the part of the interlocutor, with the result that the signer had to repeat the description. This repetition actually ended up with Ground preceding Figure, which made things clear for the interlocutor. This suggests that introducing new Figure entities at the beginning of the description may confuse the interlocutor.

4.1.2 The order of Figure and Ground when Figure is known

As with room setting 2, before providing descriptions of the new Figure–Ground spatial relationships observed in room setting 3, every signer somehow first mentioned that all the eight objects they had observed earlier were still present in the room, and that small changes had been made in such a way that (a) the larger objects remained in the same locations in the room space and/or (b) some (smaller) objects had been relocated. With this information, the presence of all the large and small objects was known to both interlocutors, which means that the Ground entities and Figure entities in this phase could be interpreted as known within the discourse. The only thing that was new were the spatial relationships, that is, the new locations of the Figure entities. The various ways in which the signers described the new Figure–Ground relationships are summarized in Table 3.

Table 3: A summary of the order of Figure and Ground when Figure is known (room setting 3)

Order of elements	Number of utterances
Ground Figure	13
Ground <small>OLLA</small> Figure	4
Ground Figure <small>OLLA</small>	1
Figure <small>OLI</small> Ground	3
Figure Ground	3

The results show that when describing spatial relationships between known entities, the majority of utterances still show the order Ground preceding Figure: this was the case in 18 of the 24 utterances. However, in contrast with the previous room setting, the reverse order, Figure preceding Ground, was a real possibility; this order now occurred in six utterances. The number of utterances around the lexical sign OLLA (‘have’) is another contrast between the two room settings: in utterances following the order Ground – Figure in room setting 3, this lexical sign appears only in five instances (four times between

Ground and Figure and once at the end of the utterance). In the six utterances where the reverse order of Figure preceding Ground occurs, no lexical sign such as *OLLA* is found, but three utterances are formed around *OLI*, which is the past tense of *OLLA* in Finnish Sign Language. Interestingly, in utterances with the form Figure – *OLI* – Ground, handling classifiers are used to depict the relocation of the Figure entity by literally moving the depicting sign denoting Figure from one specific location in the signing space that referred to the earlier Ground (the location in room setting 2) to another specific location in the signing space that referred to the newer Ground (the location being observed in room setting 3). This will be further exemplified and explored in the next section.

4.2 Strategies to express spatial relationships between Figure and Ground

Different ways of expressing the spatial relationships between Figure and Ground entities are found in the data. Table 4 summarizes the strategies used in both room setting 2 (with new Figure entities) and room setting 3 (with known Figure entities). In Table 4, the strategies are first divided into simultaneous and sequential. The simultaneous strategy includes the simultaneous activity of both hands (H1 as dominant hand and H2 as nondominant hand). This type appears in 15 of 24 utterances with a new Figure and in 23 of 24 utterances with a known Figure. The simultaneous strategy contrasts with the sequential strategy (no simultaneity). As can be seen in Table 4, the relationship between Figure and Ground is expressed sequentially 9 times in utterances with a new Figure and only once with a known Figure.

In Table 4, the second-level division concerns the use of adposition signs. As can be seen in the Table, adposition signs are used with both simultaneous and sequential strategies. However, the use of adposition signs is more evenly distributed between the two strategies in room setting 2 (with new Figure entities); while in room setting 3 (with known Figure entities), the use of adpositions is associated almost entirely with the simultaneous strategy (because of the general preference for the simultaneous strategy in this setting).

Table 4: A summary of strategies used in expressing spatial relationships between Figure and Ground

New or known Figure	Use of simultaneous or sequential strategy	Use of adposition	Number of occurrences
New Figure	Simultaneous	Adposition	11
		Without adposition	4
	Sequential	Adposition	7
		Without adposition	2
Known Figure	Simultaneous	Adposition	13
		Without adposition	10
	Sequential	Adposition	1
		Without adposition	0

4.2.1 A new Figure entity and a simultaneous construction (room setting 2)

In room setting 2, with the possible orders of Ground – *OLLA* – Figure or Ground – Figure, one way to express the spatial relationships between a known Ground entity and a new Figure entity is by using both hands simultaneously. In 11 of 15 utterances using this simultaneous strategy, an adposition sign is involved, as shown in Figure 7. In the Figure, the signer expresses the spatial relationship between the known Ground ('chair') and a new Figure ('laptop') by producing the adposition sign *ON* on the nondominant hand representing the Ground.

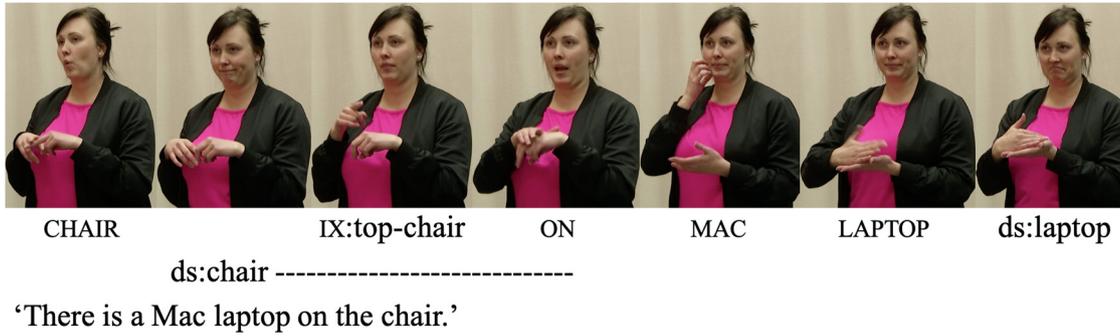


Figure 7: An example of the simultaneous production of Ground with an adposition sign to introduce a new Figure.

Here the signer starts the description with the Ground (‘chair’) expressed first with the lexical sign CHAIR followed by a depicting sign denoting ‘chair’. This depicting sign is produced with H2 (nondominant hand) and a short downward movement on the (far) left of the signing space. This sign on H2 remains in the signing space and the signer continues with H1 to introduce the Figure, which is present on the chair, by pointing toward the top of H2 followed by the adposition sign ‘on’. This adposition (with H1) is signed right on top of the depicting sign ‘chair’ (with H2). The simultaneity ends at this point and the signer goes on to mention the presence of the Figure (‘laptop’) on the chair. This utterance ends with a depicting sign for ‘laptop’, also produced on the (far) left of the signing space, where the Ground entity was depicted earlier. The lexical sign LAPTOP differs from the depicting sign denoting laptop in that the right hand moves upward and forward in the lexical sign but doesn’t move in the depicting sign.

However, contrary to the common assumption that Ground (as the bigger entity) is almost always produced on the nondominant hand (H2) in simultaneous constructions, this study shows that the choice of dominant (H1) or nondominant hand (H2) to express the Ground entity also depends on where this entity is located in the room space. Ground entities can be produced either with H2, as shown in Figure 7, because

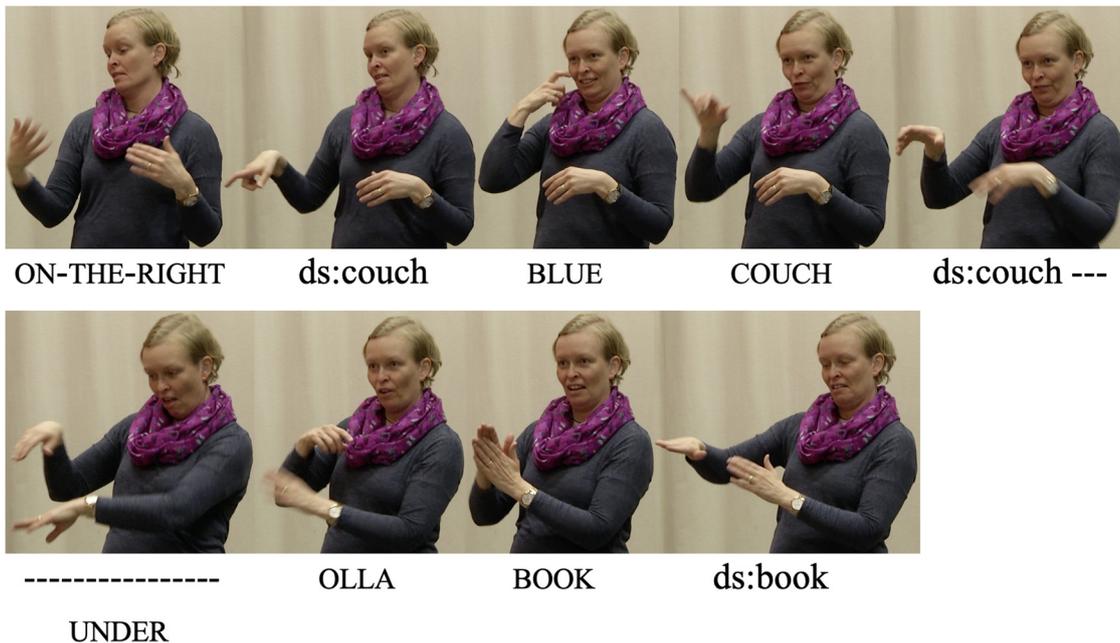
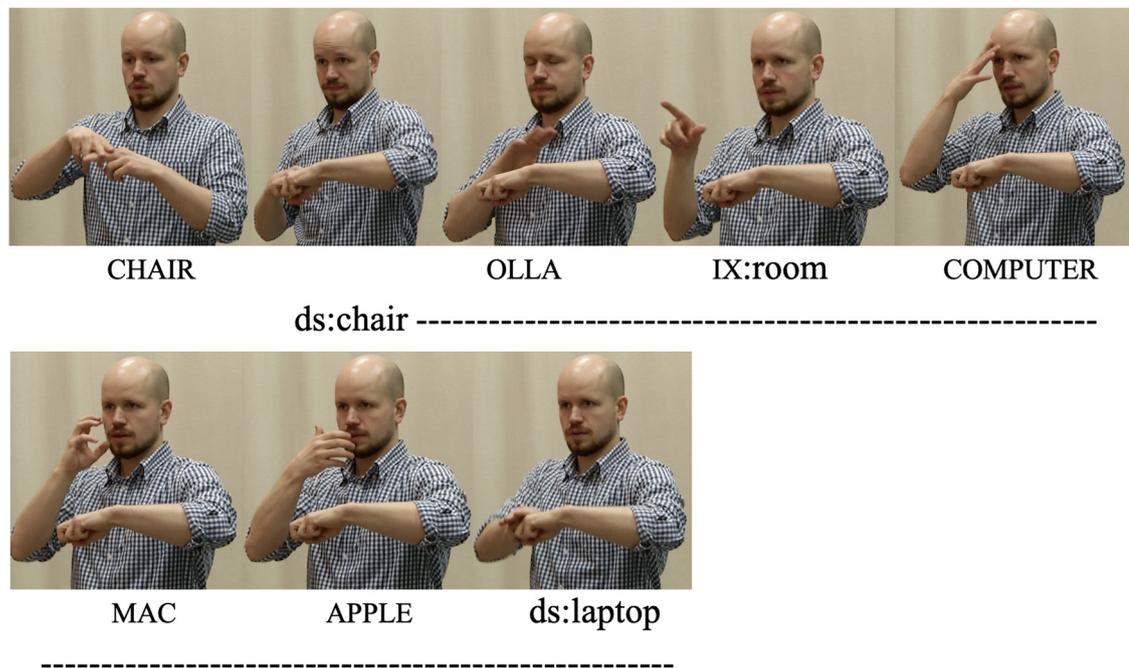


Figure 8: An example of the simultaneous production of Ground on H1 and an adposition sign on H2.

the Ground was located on the left side of the room and in this case the signer's right hand is the dominant hand, or with H1, as exemplified in Figure 8, where the Ground was located on the right side of the room and here too the signer has the right hand as the dominant hand. This example was produced after the signer had finished describing a certain spatial relationship and wanted to move on to another relationship observed on the right side of the room space. In this example, Ground ('couch') is known and Figure ('book') is new. In addition, while in Figure 7 Ground is produced with H2 and an adposition sign with H1, the example in Figure 8 shows Ground produced with H1 and an adposition sign with H2.

In Figure 8, the signer starts to express the known Ground ('couch') first with a depicting sign produced with H1 on the right side of the signing space and explains that it concerns the blue couch. The depicting sign 'couch' is produced again on H1, and while anchored on the right side of the signing space, the signer then simultaneously produces the adposition sign 'under' with H2, by moving this sign right under H1. This expresses the location of the new Figure entity, to be introduced, in relation to the known Ground. This simultaneous strategy is immediately followed by the lexical sign *OLLA* to introduce the new Figure entity ('book'), which is also depicted with H1, on the right but lower than where the Ground was depicted.

As an adposition often appears in a simultaneous strategy when introducing a new Figure, the use of an adposition is not always necessary; in these cases the construction may be slightly different. As seen earlier in Figures 7 and 8, adposition signs are simultaneously produced with depicting signs denoting the Ground. When adposition signs are not used, a depicting sign denoting the Ground is simultaneously produced with a depicting sign denoting the Figure, as shown in Figure 9, where the presence of Ground ('chair') is known but Figure ('laptop') is new. This utterance indeed comes from the same context as the one in Figure 7, but it is expressed by a different signer who does not opt for the use of an adposition sign here.



‘In the room, there is a Mac laptop on the chair.’

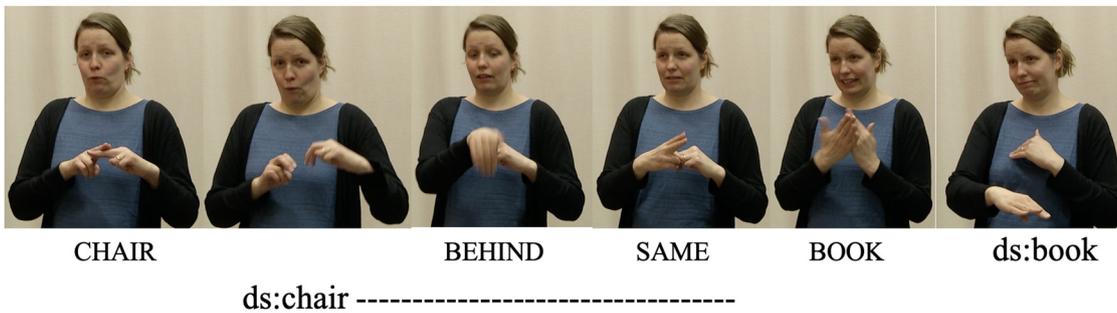
Figure 9: An example of the simultaneous production of Ground and Figure.

In this example, the signer mentions the Ground ('chair') first, followed by a depicting sign denoting the chair, produced with H2 on the left side of the signing space. While anchoring H2 during the whole utterance, with H1 the signer goes on to introduce the Figure ('laptop') by means of *OLLA*, a pointing sign referring to the room and the Figure entity. The Figure is also first produced with the lexical signs 'computer

mac apple’ ending with a depicting sign, ‘laptop’, signed right on top of the Ground (‘chair’ on H2). It is often the case that when expressing a spatial relationship between Ground and Figure by means of simultaneity and without an adposition, Ground is produced first and on H2 while Figure comes (shortly) afterward on H1.

4.2.2 A known Figure entity and a simultaneous construction (room setting 3)

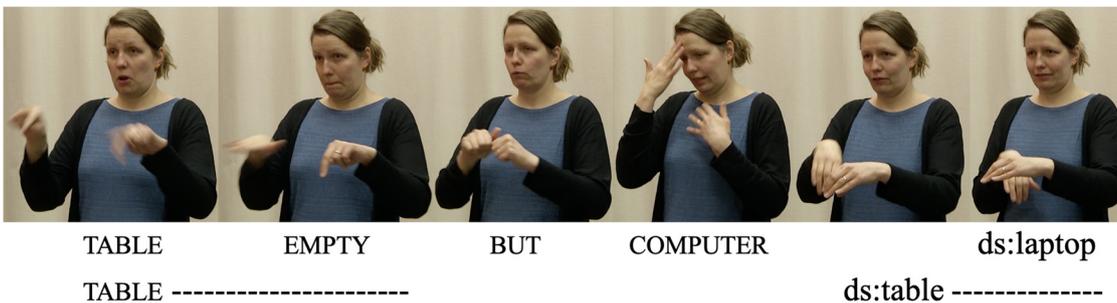
In room setting 3, with more variation in the order of Ground and Figure, a simultaneous strategy is almost the only strategy used to express spatial relationships between a known Ground entity and a known Figure entity: 23 of the 24 utterances. Like in the data in room setting 2, the presence or nonpresence of adposition signs within expressions of spatial relationships is evenly spread: 13 utterances include an adposition sign while 10 utterances are without adposition signs, as shown in Figures 10 and 11, respectively. In Figure 10, the presence in the room space of both chair (as Ground entity) and book (Figure) is known in this context. With the following utterance, the signer expresses that the book they have observed earlier during room setting 2 is now located right behind the chair.



‘That same book is behind the chair on the floor.’

Figure 10: An example of the simultaneous production of Ground and adposition sign to locate a known Figure.

The signer starts with Ground (‘chair’) produced with a lexical sign on the left. This is followed, also on the left, by a depicting sign produced with a downward movement denoting the chair and its location in the room. The depicting sign is produced with H2, held in the signing space, and followed by an adposition sign, ‘behind’, signed with H1 to express the location of Figure (‘book’) in relation to Ground. After this, the signer mentions ‘the same book’, so the interlocutor is reminded that they have observed a book in the previous room setting. Here the simultaneity stops, as the sign for BOOK is a two-handed sign, and finally Figure’s location is shown with a depicting sign on H1 produced with a downward movement right behind



‘There is nothing on the table but the laptop is on the floor in front of the table.’

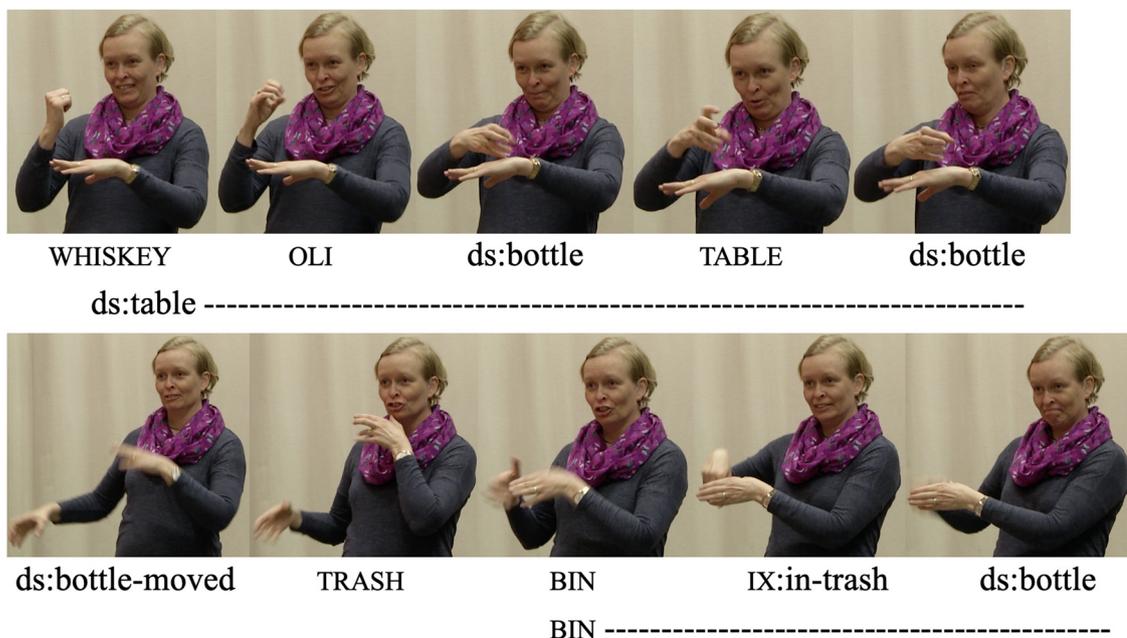
Figure 11: An example of the simultaneous production of depicted Ground and known Figure.

where Ground was produced on H2. Like in the previous sub-section on room setting 2, the Ground entity, as an anchored depicting sign (H2), is followed by simultaneous production of an adposition sign (H1).

As mentioned earlier, adposition signs are not always present in the simultaneous strategy, and their absence results in a different type of simultaneous construction, as seen in room setting 2: Ground is first produced and anchored in the signing space with H2, and shortly afterward H1 is produced to denote the Figure entity. This contrasts with utterances including adposition signs in that Ground is also produced first and anchored in the signing space with H2 but also shortly afterward with an adposition sign on H1, and once this simultaneous construction is over the Figure is expressed. Figure 11 shows the expression of the spatial relationship between the laptop and table. Both entities are known to both interlocutors in this context.

In this example, the Ground entity ('table') is mentioned first with the information that it is empty, as there was a bottle box on the table in the previous room setting. This is followed by a conjunction sign, 'but', to announce that there is another object spatially related to the table: the laptop, which is the Figure entity and is located on the floor in front of the table. The spatial relationship between 'laptop' and 'table' is expressed by the simultaneous production of depicting signs, first of the Ground ('table') on H2 followed by the Figure ('laptop') on H1. The Ground on H2 is produced a little bit further away in the signing space, to iconically represent the location of the table in the room space, and H1 is closer (and lower) to the signer's body to iconically represent the Figure's location in relation to the Ground.

As shown earlier, the order of Figure preceding Ground is possible when the Figure is a known entity within the discourse. In a set of six utterances exhibiting this order, three utterances consisted of the lexical sign *OLI*, which is the past tense form of *OLLA* ('have'). The simultaneous strategy is also an important strategy here, but expressing spatial relationships is slightly different, as shown in Figure 12, where both Ground and Figure are known entities within the discourse, but the Figure entity has been relocated. In this example, the signer explains that the bottle box (known Figure) has been moved from on the table (Ground in room setting 2) to inside the trash bin (Ground in room setting 3).



‘The whiskey bottle that was previously on the table is moved to the trash-bin.’

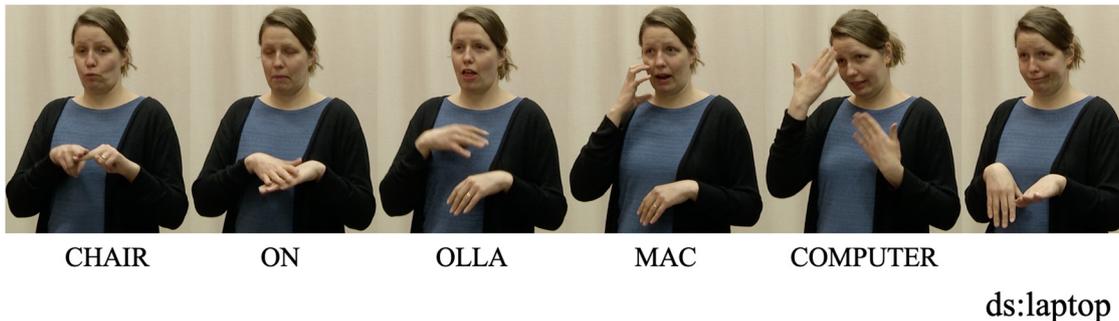
Figure 12: An example of the order Figure – *OLI* – Ground with known Figure depicted by means of a handling classifier.

The utterance starts with Figure (‘bottle box’ or ‘whiskey’ in this example) directly followed by the use of H2 to depict the table. While H2 depicting the table remains in the signing space, the signer continues with *OLI* and produces a depicting sign denoting the bottle box, to mention its earlier location in room setting 2, where it was placed in the middle of the table. With that depicting sign, using a handling classifier, the signer takes the bottle, so to speak, moves the depicting sign from on top of the table to the right side of the signing space, where the next Ground (‘trash bin’) is located, and signs ‘trash’ (as a one-handed sign). Here the simultaneity stops. This part is followed by the two-handed sign ‘bin’, with H2 remaining in the signing space (as Ground), while H1 produces a pointing sign toward H2, meaning ‘in the trash’.

The challenge with utterances such as the one in Figure 12 is that we can give them several syntactic interpretations. Here the analysis is based on the reading that the utterance as a whole is a single topic–comment structure comprising a presentational topic (“the whiskey bottle previously on the table”) (Lambrecht 1994) followed by a mono-clausal comment (“the bottle is moved to the trash bin”), a structure typical of Finnish Sign Language in general (for topic–comment structures, see Jantunen 2008, 2013). However, the utterance in Figure 12 can also be interpreted as a multiclausal one, in which the first part “the whiskey bottle (that) was previously on the table” forms one clause and this is followed by another clause translated as “the bottle was moved from the table into the trash bin”. Regardless of the analysis adopted, this construction still exemplifies the Figure (– *OLI*) – Ground order.

4.2.3 A new Figure entity and a sequential construction (room setting 2)

Besides the simultaneous production of both H1 (mostly Figure or adposition) and H2 (mostly Ground) with or without adposition signs, another way of expressing the spatial relationship between a known Ground and a new Figure entity is the sequential strategy (i.e., with no simultaneous production). A total of nine utterances exhibit the sequential strategy, seven of which include an adposition sign, as shown in Figure 13. In this example, the Ground (‘chair’) is known and the Figure (‘laptop’) is new within the discourse.



‘There is a Mac laptop on the chair.’

Figure 13: An example of a sequential strategy including an adposition and a new Figure entity depicted on H2.

In Figure 13, the Ground (‘chair’) is mentioned first by signing the lexical sign *CHAIR* on the left of the signing space to iconically represent its location in the room space. This Ground is followed by a two-handed adposition sign ‘on’, also produced on the left, where the Ground was expressed. The Figure is introduced with *OLLA* and lexical signs referring to the Figure (‘mac computer’). At the end, the Figure entity is depicted by H2 on the left side with a downward movement to show that there is a laptop in the room and it is located on the chair. The choice of H2 is probably due to the location of the Figure (on the left) and the right-handedness of the signer expressing this utterance. Thus, as seen in the simultaneous strategy, the adposition sign appears immediately after the Ground.

Again, the choice of H1 or H2 to express the Figure entity also depends on the Figure's location in the room space. In contrast with the previous example in Figure 13, where the Figure entity was located on the left, Figure 14 shows the use of H1 to express the Figure's location in relation to the Ground using an adposition sign in the sequential strategy. The 'trash bin' is the known Ground in this context and the 'umbrella' is the new Figure entity.



Figure 14: An example of a sequential strategy including an adposition sign and a new Figure entity depicted on H1.

In this example, the signer mentions the Ground ('trash bin') first, with the second sign 'bin' expressed on the right side of the signing space. This part is followed by an adposition sign, 'next to', which is a two-handed sign, and *OLLA* to introduce the Figure into the discourse: the umbrella. Figure is depicted first, followed by the lexical sign 'umbrella', and finally depicted again, but now at the location right next to where Ground was produced.

Two of the utterances in the data are expressed using the sequential strategy without an adposition. In these cases, the Figure entity is produced with a depicting sign at the specific point in the signing space where the Ground was expressed earlier. With this strategy, the Figure's location in relation to the Ground is expressed, as exemplified in Figure 15, where the Ground ('table') is a known entity while the Figure ('cylinder object'), which is the bottle box in this context, is a new one.

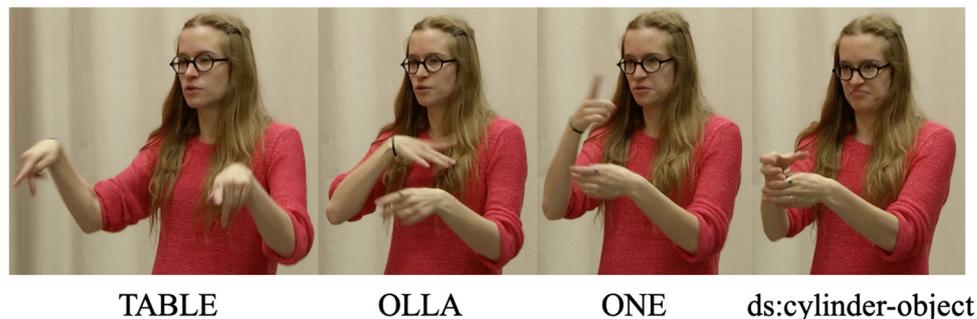


Figure 15: An example of a sequential strategy without an adposition sign and a new Figure entity depicted on the conceptually maintained location where the Ground was produced.

In this example, the Ground is signed first with a lexical sign, 'table', in the middle of the signing space but a little further away from the signer, to express its location in the room space. This part is followed by *OLLA* to introduce the Figure entity ('cylinder object') with a depicting sign produced with a downward movement in the middle of the signing space and immediately above where the lexical sign denoting the Ground ('table') was produced. This strategy expresses the spatial relationship between Figure ('cylinder object') and Ground ('table').

4.2.4 A known Figure entity and a sequential construction (room setting 3)

Earlier, in Section 4.2.2, it was shown that the simultaneous strategy seems to be a requirement to express a spatial relationship between a known Ground and a known Figure. However, one example was found in which this relationship was expressed using the sequential strategy. Here it requires an adposition sign to express the location of the known Figure in relation to the known Ground, the umbrella and the couch, respectively, as in Figure 16.



‘The umbrella is on the couch right in the middle.’

Figure 16: An example of a sequential strategy with an adposition sign and a known Figure entity.

In this example, the signer mentions the Ground (‘couch’) and its location (on the right) first, followed by the adposition sign ‘on’. This adposition sign expresses the location of the Figure entity, which is followed by *OLLA* and the Figure entity as a lexical sign. Another adposition sign, ‘middle’, is then used to specify the exact location of the Figure, which is produced finally with a depicting sign on the right side of the signing space, where the Ground ‘couch’ was signed earlier.

5 Discussion

Concerning the order of Figure and Ground (see Section 4.1), the main finding of the present study is that Ground tends to precede Figure. However, the discourse context has an effect on the order: with a known Figure (as opposed to a new Figure), the order Figure preceding Ground is also possible. The presence and placement of the sign *OLLA* (‘have’) also exhibit more variation in contexts where Figure is known.

In general, the results of the present study with regard to the order of Figure and Ground corroborate the results of De Weerd (2016) who established that in Finnish Sign Language the preferred order when introducing a new Figure entity (cf. existential sentences) is Ground preceding Figure. However, with constructions that refer to a known Figure entity (cf. locative sentences), the results seem to contradict some earlier findings. In particular, it was hypothesized in the paper that these constructions would prefer the reverse order, Figure preceding Ground (see Clark 1978, Freeze 1992, Kristoffersen 2003), but this was not found to be the case. Instead, the variation in the number of possible structures was the only clear difference between the discourse contexts. A similar claim about the effect of context on sentence form has also been presented by Jantunen (2008, 2013, 2017, 2018) in his studies on word order and argument omission in Finnish Sign Language, where in discourse, due to the context and other means available to make meaning (e.g., constructed action), sentences are frequently realized without the overt expression of all syntactic elements, i.e., their core arguments tend to be omitted. Table 5, copied from Table 1 in the Introduction but supplemented with data from signed languages, shows the order of Figure–Ground in existential and locative sentences. The terms in brackets mean that these units can be omitted from the constructions.

Table 5: An overview of the order of Figure and Ground in existential and locative sentences from both spoken and signed languages

	Languages	Existential sentence	Locative sentence
Clark (1978)	Turkish, Eskimo, Swahili Finnish, Mandarin Chinese	Ground Figure Verb Ground Verb Figure	Figure Ground Verb Figure Verb Ground
Freeze (1992)	Russian Chamorro, Tagalog	Ground Verb Figure Verb Figure Ground	Figure Verb Ground Verb Ground Figure
Kristoffersen (2003)	Danish Sign Language	Ground Verb Figure	Figure Verb Ground
De Weerd (2016)	Finnish Sign Language, Flemish Sign Language	(Ground) (Verb) Figure	
Current study	Finnish Sign Language	Ground (Verb) Figure	Ground (Verb) Figure Figure (Verb) Ground

The higher variation that is associated with contexts where the Figure entity is known also applies to the use of the sign *OLLA* ('have'). Some earlier studies (e.g., Clark 1978, Freeze 1992, Kristoffersen 2003, McNally 2011) have suggested that existential and locative expressions require a verb. However, the results of the present study show that a verb is not a prerequisite in existential and locative constructions as the sign *OLLA* (a verb sign in Finnish Sign Language) can be omitted. This is not to say that the sentence as a whole does not include a predicating element: the predication is done by the latter NP (Van Valin 2005, Jantunen 2007). The omission of *OLLA* may be due to the juxtaposition of referents in the space rendering it unnecessary to include a verb, as existential and locative sentences overlap in the cognitive domain. The only difference in the use of the sign *OLLA* in the two discourse contexts was that it was used more in utterances with new Figure entities in the second room setting and less with known Figure entities in the third room setting. This suggests that the sign *OLLA* has the stronger function of introducing new Figure entities when the signer wants to emphasize for the first time that something definitely exists and is present at a certain location. However, it should be taken into account that the studies on spoken languages were most likely based on speech-only constructions and analysis of the sequential unfolding of the utterances, whereas the results presented in this study are based on face-to-face and multimodal data, which also open up the possibility for gestural and thus simultaneous signals. As regards the studies on sign languages, Kristoffersen's (2003) work explicitly focused on sentences that specifically include the verb *EXISTENTIAL*, and the method used for Finnish Sign Language in De Weerd (2016) involved using stimulus picture materials to elicit conversations, while this study uses experimental data.

In addition to the use of the lexical sign *OLLA*, it is interesting to note that the third room setting with known Figure entities also produced some examples of the use of *OLI*, the past tense of *OLLA*. The use of the sign *OLI* was associated only with the order Figure preceding Ground, in which the signer refers to the known earlier location of the Figure entity. This finding suggests that the ordering of Figure and Ground may have a link to the temporal framework that the signer has constructed. This gives the impression that *OLI* simply changes the temporal frame, that is, it situates the utterance in the past, showing a shift from the location of the Figure entity at a certain time in the past (i.e., what was observed in room setting 2) to another, current location (i.e., what was observed in room setting 3); in this context, expressing the location of (a known) Figure is more important. Thus, the order may not be due (only) to having a known Figure but may also be the result of showing movement between locations. However, larger data and further research on the topic are needed.

Overall, the present study suggests that in Finnish Sign Language, the ordering of Figure and Ground does not depend only on structural features (e.g., sentence type, sign locations) but perhaps even primarily on features related to the information structure, such as the newness and oldness of the information. The study also strongly suggests that it is important to use discourse data for analyzing the ordering of Figure and Ground. So far, many studies have considered the ordering of Figure and Ground only by relying on isolated sentences elicited using pictures showing examples of spatial relationships (e.g., Vermeerbergen et al. 2007b, Arik 2008, Özyürek et al. 2010, Perniss et al. 2015) and other studies using Volterra's (1984)

elicitation method as summarized, for example, in Johnston et al. (2007: 164). However, with isolated sentences it is not possible to investigate the effect of information structure on sentence form in the same way as with discourse data. Additionally, in contrast with De Weerdts's (2016) study on existential sentences in Finnish Sign Language and Flemish Sign Language, this study did not show any elliptical phenomena with Ground, the reason for which may lie in the difference in the data.

Concerning the actual expression of the spatial relationship between Figure and Ground (see Section 4.2), the main finding of the present study is that simultaneity or sequencing may be used when the Figure is new within the discourse, but simultaneity is the only strategy used when the Figure is known. The increased importance of simultaneity in discourses with a known Figure, compared with those with a new Figure, can be ascribed to a difference in discursive functions when expressing spatial relationships. This means that expressions including a new Figure within discourse have the function of communicating that something exists and is present at a certain location in the room; the Figure's exact location is described only approximately and may be less emphasized. In contrast, expressions involving a known Figure aim to describe the exact location of this Figure in relation to the Ground; here the location is mainly emphasized by means of simultaneous production. As for the order Figure preceding Ground formed around *OLI*, the use of simultaneity may emphasize not only the location of a known Figure but also that the Figure entity has been moved and that this movement is the focus of what is being expressed. In addition, as simultaneous constructions require a greater cognitive load (Cormier et al. 2013), such constructions may be used less with new discourse referents. In contrast, when the discourse referents are known, which demand less cognitive load, simultaneous constructions may be used more. In general, the importance of simultaneity in expressing (known) Figures may be linked to cognitive processing and accessibility in signed languages, but further discussion of this is outside of the scope of the present study.

This study follows Özyürek et al. (2010) and Perniss et al. (2015) in confirming that simultaneity is not the sole strategy used when expressing relationships between Figure and Ground. However, further investigation is needed to see how relationships are expressed within discourse, as this study has clearly shown that simultaneity is stronger with a known Figure and weaker with a new Figure. Besides, most studies so far have used pictures and the expression of locative relations in isolated sentences. In these circumstances it seems logical that the order will be prototypically Ground preceding Figure because the whole locative relationship is new information within the discourse, and simultaneity is perhaps not always necessary because the Figure's existence and presence in relation to the Ground are emphasized over its exact location. Importantly, the function and use of 'have' also need further investigation, as few studies have mentioned the use of this type of verb in locative or existential sentences (e.g., in Kristoffersen 2003, Johnston et al. 2007, De Weerdts and Vermeerbergen 2008, De Weerdts 2016). This study also contrasts with Kristoffersen's (2003) study on Danish Sign Language, in that her work proceeds from form to function, i.e., starting with the focus entirely on utterances that are formed around the verb *EXISTENTIAL* (i.e., form) and then categorizing them into functions (i.e., function), while the current study proceeds from function to form, i.e., first identifying utterances that express a spatial relationship between a Figure and a Ground (i.e., function) and then analyzing their structures (i.e., form). Using the approach "function to form", languages, following Givón (2001a), can express one functional domain by more than one structural means.

In addition to simultaneous and sequential strategies, previous studies have also shown the importance of adposition signs to express spatial relationships in sign languages (Vermeerbergen 2004, Johnston et al. 2007, Arik 2013, Perniss et al. 2015, De Weerdts 2016). This study also found that this type of sign is important in expressing spatial relationships and can appear in both simultaneous and sequential strategies. There is no significant difference in the amount of use of adposition signs in simultaneous or sequential strategies, or in discourses with a new or known Figure. In a simultaneous construction with the presence of an adposition sign, which is a strategy that appeared in both room settings in this study, Ground is mostly produced first with H2 (the signer's nondominant hand), followed soon afterward by an adposition sign using H1 (the signer's dominant hand). Finally, whenever adposition signs do not occur in a simultaneous construction, Ground is also produced first with H2, soon followed by Figure on H1, and both are often produced by means of depicting signs.

Again, on marking the referents as new or known within the discourse, in contrast with previous studies (Clark 1978, Freeze 1992, Kristoffersen 2003), this study does not show that the order is reversed between utterances including a new Figure and those with a known Figure. However, more research is needed. One possible explanation for how signers know and understand whether the entities mentioned are new or known referents within the discourse is the use of nonmanual signals. In her work, Puupponen (2019) emphasized the importance of nonmanuals when investigating sign language structure. For example, a squint or a head nod, which was combined with a known Ground entity in De Weerd's study (2016), was combined when expressing a known Figure in the third room setting, but again, further research is needed. Dachkovsky (2008) also reported the use of a squint in Israeli Sign Language as a means of facial articulation to mark the information in constituents as shared.

6 Conclusions

This study shows that variation in the order of Figure and Ground, in the use of *OLLA* ('have'), and in strategies to express spatial relationships, is mainly discourse dependent. First, the order of Ground preceding Figure is predominant, regardless of whether the Figure is a new or known referent within the discourse. However, the data also show that the order of Figure preceding Ground is possible but only when the Figure is known. Second, the lexical sign *OLLA* ('have') appears more frequently when introducing a new Figure within discourse than when expressing the location of known Figure entities. This sign does not appear in Figure preceding Ground constructions; instead, this construction type can be formed around *OLI*, which is the past tense form of *OLLA*. Third, the main way to express spatial relationships between Ground and Figure is simultaneity, where (a) Ground on the nondominant hand is simultaneously produced with an adposition sign on the dominant hand or (b) when there is no adposition sign in the construction, Ground on the nondominant hand is simultaneously produced with Figure on the dominant hand. However, this study clearly shows that simultaneity is the only strategy when Figure is a known entity within the discourse; the purpose then is to emphasize its location rather than its presence, as it is already known. Finally, a sequential strategy with or without an adposition sign is used only when Figure is new within the discourse.

This study contributes to the field of sign language linguistics a better understanding of how spatial relationships are expressed within discourse. The methodology used in this study also contributes to language research by showing that syntax should be investigated within discourse and in a context. The present study also suggests that more investigation is needed on the expression of spatial relationships in longer texts, such as spontaneous narratives or dialogues collected in corpora. This kind of study might well contribute to the investigation of referential cohesion too. An in-depth study and better understanding of the form, function, and syntactic position of adposition signs in signed languages are also needed. Additionally, this type of study could be used to investigate not only the referents that are actually physically present when the signing takes place but also imaginary referents, as such utterances might show similar ways of expressing spatial relations to the Figure–Ground utterances found in this study. This study has focused on discourse factors, but future studies could include other contextual factors such as language contact with ambient spoken languages, or ideologies in L2 teaching. Finally, more work is needed to investigate the concurrence between nonmanual signals and manual parts when expressing spatial relationships, especially with regard to new or known information as part of the information structure within discourse.

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