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Word order in Russian Sign Language

An extended report*

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In this paper the results of an investigation of word order in Russian Sign Language (RSL) are presented. A small corpus (16 minutes) of narratives based on comic strips by 9 native signers was analyzed and a picture-description experiment (based on Volterra et al. 1984) was conducted with 6 native signers. The data reveal that the most frequent word order in RSL is SVO for plain and agreeing verbs and SOV for classifier predicates. Some factors can influence the word order, namely aspect marking on the verb (favours OV), semantic reversibility of the situation (favours SVO) and “heaviness” (manifested in the presence of modifiers) of the object (favours VO). One of the findings of the investigation is that locative situations are described differently in the narratives and in the experimental settings: in the latter but not in the former case the OSV order is quite common. This may result from two different strategies of creating locative sentences: syntactic vs. spatial strategy. Doubling of constituents is common in RSL discourse: verbal and nominal predicates, arguments, adverbs, adjectives, and even whole sentences can be repeated, the second occurrence of the constituent usually being more morphologically, prosodically or semantically marked.

1 Introduction

Word order is one of the most important aspects of the grammar of any spoken language. Spoken languages are linear in the sense that words follow each other and cannot be uttered simultaneously. Therefore, words are always ordered in a sequence, due to limitations of the speech apparatus, and languages can use this ordering to express grammatical meanings.

Sign languages (SLs) are different from spoken languages in this respect: they are not fully linear. Due to the availability of two identical articulators, the two hands, one sign can be produced simultaneously with another sign, yielding no sequential order of the two. Consequently, in the case of SLs, it is not

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possible to say *a priori* whether word order plays a similarly important role in their grammar. This is an important research question. A further question is whether SLs use word order as a grammatical mechanism in a similar way to spoken languages, or if there are modality-specific properties of word order in SLs.

Keeping in mind such ‘big’ questions, my aim in this paper is to investigate the order of main constituents (the subject, the object(s) and the verb) in simple declarative clauses in Russian Sign Language (further RSL) and to discuss the possibility of determining the basic word order in this language. An additional objective of the present study is to pay special attention to reliable methodology.

RSL is the language of the Deaf in Russia and some other former Soviet countries (including Ukraine and Belorussia). The number of signers of RSL cannot be reliably assessed at the current time. The highest estimate of people with hearing disabilities in Russia assumes that 2.000.000 people fall within this group (see Prozorova 2007 for references). RSL has probably emerged in the beginning of the 19th century when the first school for the deaf was set up (1806 in Pavlovsk). It is unclear whether RSL historically related to other SLs is unclear. Until recently, there has been almost no linguistic research on RSL, except for the works of Zajtseva (2006) and her colleagues, and a sketchy outline of RSL grammar by Grenoble (1992). In the last few years, several undergraduate and graduate students of Moscow State University and Russian State University for the Humanities have investigated some aspects of RSL grammar: verbal morphology (Prozorova 2004), aspect (Šamaro 2006), anaphora (Prozorova & Kibrik 2007), negation (Kimmelman 2007), possession (Tsypenko 2008), question-words (Viktorova 2007), the noun-verb distinction (Kimmelman 2009a), reflexive pronouns (Kimmelman 2009b), and prosody (Prozorova 2009). Word order in RSL has not been systematically studied yet, but Zajtseva (2006) claimed that it was free.

Word order is a phenomenon that is relatively easy to observe. However, the question what the term “basic word order” means and whether a language has a word order which can be considered basic is much more complex. Before turning to RSL, I will therefore first discuss in Section 2 the issue of (basic) word order in spoken and signed languages. In Section 3 I sketch the methodology used to elicit and analyze the RSL data. In Section 4 the results of the research are presented. The question of whether there is a basic word order in RSL is addressed in Section 5; Section 6 concludes the paper.

2 Basic word order in sign and spoken languages

2.1 Basic word order in spoken languages

In some languages, word order is relatively rigid, that is only one word order is grammatical, with some clearly more marked exceptions. An example of a language with a rigid word order is English, which in most cases allows only for the Subject¹ (S) – Verb (V) – Object (O) order. Other languages are much more flexible in this respect. For example, in Russian all six possible orderings of S, O and V are grammatical. Still, even for languages with flexible word order, it is often assumed that one of the possible orders is more basic.

Dryer (2007) discusses criteria used to determine which word order is basic. The most well-known and the most often used criterion is *frequency*: the basic word order is the most frequent one. For example, in English the OSV order is grammatical (1), but its frequency is much lower than that of the SVO order:

- (1) Paul, I like. [Dryer 2007:10]

It is important to understand, however, that in texts of different genres, styles etc. the frequency of word orders can be different.

The second criterion is *distribution*: the basic word order is less restricted in its distribution than other word orders. For example, English adverbs may follow or precede the verb (2), but the V Adv order is less restricted, as illustrated in (3):

- (2) a. John slowly walked into the room.
 b. John walked into the room slowly.
- (3) a. *John is slowly walking.
 b. John is walking slowly. [Dryer 2007:7]

The next criterion is *simplicity*: if a particular order is used with simpler elements (as opposed to more complex ones), it is considered basic. For example, in English “heavy” adjective phrases follow the noun, but simple adjective phrases precede it. Consequently, according to this criterion, the Adjective – Noun order is considered basic.

¹ It is not uncontroversial that grammatical labels like Subject are applicable to all languages (Dryer 1997), so typologists studying word order use this terminology rather loosely, calling the most Agent-like element in the sentence “Subject”, and the most Patient-like element – “(Direct) Object”, and in the following discussion I will follow this same procedure.

Probably the most important criterion is based on the notion of *pragmatic neutrality*: the order which is used in pragmatically neutral sentences is the basic one. Pragmatically neutral means that a sentence can be used in different contexts. For example, in Russian both the SVO and the OSV word orders are possible, but the SVO order is pragmatically neutral (4), while the OSV order implies focus on either the object or the VP, and can therefore be used in a smaller number of contexts (5):

- (4) a. kogo uvidel Vas'a? – Vas'a uvidel [Pet'u]_{FOC}
 who saw Vasja Vasja saw Petja
 'Who did Vasja see? Vasja saw Petja.'
- b. što sdelal Vas'a? – Vas'a [uvidel Pet'u]_{FOC}
 what did Vasja Vasja saw Petja
 'What did Vasja do? – Vasja saw Petja'
- c. što slučilos'? – [Vas'a uvidel Pet'u]_{FOC}
 what happened Vasja saw Petja
 'What happened? – Vasja saw Petja'
- (5) a. kogo uvidel Vas'a? – [Pet'u]_{FOC} uvidel
 who saw Vasja Petja saw
 'Who did Vasja see? (He) saw Petja.'
- b. što sdelal Vas'a? – [Pet'u uvidel]_{FOC}
 what did Vasja Petja saw
 'What did Vasja do? – (He) saw Petja'
- c. #što slučilos'? – [Pet'u uvidel Vas'a]_{FOC}
 what happened Petja saw Vasja
 'What happened? – Vasja saw Petja'

This criterion is important because it explains what the term “basic word order” means, in other words, what is so basic about the basic word order. Intuitively, the pragmatically neutral word order is more basic, because it does not have any pragmatic information encoded in it. However, this criterion does not always work either. Dryer mentions, for example, that in Papago (Uto-Aztecan) definite objects follow the verb, while indefinite objects precede it, but that it is not possible to determine whether definite or indefinite objects are more neutral pragmatically.

One of the important criteria for basic word order is *morphological markedness*: the word order that is used with the least morphologically marked forms is the basic one (Hawkins 1983). For example, in Meken (Galucio 2002:66) the SOV order is basic, but OVS order is also possible when the verb is marked with the suffix *-pit* (6).

(6) karēp karēp aisi õ-ã-pit tabisarã
 then then wife give-THEME-PART chief
 ‘Then a wife was given by the chief.’/ ‘Then the chief gave (him) a wife’

Chomsky (1965:126-127) suggests that the word order used in *ambiguous sentences* is the basic one. For example, in German, word order is relatively free, but sentences containing a feminine subject and direct object (which are ambiguous between the nominative and the accusative case) are (more likely to be) interpreted as SVO.

All criteria discussed above are in principle pre-theoretical. If one works within a strict formal framework, such as Chomskyan Generative Grammar, the notion of the basic word order is in principle irrelevant. In this framework, the basic word order is taken to be the underlying (*underived*) word order from which other surface word orders are derivable, but in principle, it is possible that the basic word order never surfaces at all. Obviously this notion of basic word order has nothing to do with the one assumed above. Since in this paper, I am not working in a particular formal framework, this theory-dependent notion of basic word order will not be discussed further. However, the criterion of derivability is still applicable to some cases discussed below.

The criteria discussed so far are not independent. For example, it is plausible to suppose that the pragmatically neutral word order will be the most frequent one, because it can be used in more different contexts, and that the order that is subject to less distributional restrictions will be more frequent, too. On the one hand, this facilitates the search for the basic word order, because it is much easier to count frequency and to observe morphological markedness than to determine which order is pragmatically neutral. On the other hand, it is also clear that these criteria do not necessarily all point to one order as basic; they can contradict each other. In this case, some researchers suggest ranking the criteria, considering some of them less important than others. However, there is an alternative point of view, namely that some languages do not have a basic word order at all.

Mithun (1992) presents evidence from three unrelated polysynthetic languages from different regions (Cayuga spoken in Ontario, Ngandi spoken in Australia, and Coos spoken in Oregon) to prove that none of them has a word order that can be considered basic. She tests all the criteria discussed above and concludes that none of them would lead to the conclusion that one of the orders possible in these languages should be the basic one. She shows, however, that word order is not arbitrary in these languages either; for example, the new and

more relevant information (almost) always precedes the old and the less relevant information.

Nevertheless, the criteria discussed above have been used quite effectively to determine the basic word order in numerous spoken languages. Typological studies showed that different word orders are not evenly distributed across the languages of the world.

Table 1, which is based on Dryer's on-line work from the Word Atlas of Language Structures (<http://wals.info/feature/description/81>), shows that the SOV and the SVO orders are by far the most common ones; the next most frequent type is characterized by the absence of a basic word order, while other word orders are much less frequent².

Table 1: Word order in spoken languages of the world

Word order	Number of languages	Example
SOV	497	Japanese
SVO	436	English
VSO	85	Standard Arabic
VOS	26	Nias
OVS	9	Hixkaryana
OSV	4	Nadëb
no basic word order	171	Cherokee

To sum up this section, there are several criteria that linguists working on spoken languages used to determine the basic word order, namely frequency, distribution, simplicity, pragmatic neutrality, morphological markedness, ambiguity, and derivability. While these criteria turned out to be helpful in determining the basic word order in many languages, they do not lead to conclusive results in all cases. Also, for some languages, it has been claimed that there is no order which is more basic than others.

2.2 Word order in sign languages

2.2.1 General properties

Word order is a grammatical device relatively well-studied in SLs. An overview of the research in this field can be found in Sandler & Lillo-Martin (2006: 288-

² See Tomlin (1986) for an explanation for this pattern.

298). The discussion is, however, slightly biased because the book is written within the Generative paradigm. A more functionally-oriented outline of the literature on this topic was given in Brennan & Turner (1994), but since then several other studies on the word order in different SLs have appeared. Below the most important papers in this field are reviewed and the factors that influence word order in SLs according to previous research are presented.

Word order in SLs has been studied since around 1975, when the first two papers analyzing word order in American Sign Language (ASL³) appeared: Fischer (1975) and Friedman (1976). Fischer claimed that the basic word order was SVO, but that some verbs allowed for the SOV and the OSV orders. Other orders were possible, too, but only as a result of the operation of topicalization whereby a constituent is fronted for pragmatic reasons. On the other hand, Friedman claimed that ASL did not have a basic word order, but that the most frequent order was SOV. The studies also differed in methodology: Fischer asked signers to interpret constructed examples with different word orders while Friedman used natural discourse data.

Since these first two papers, word order in SLs has been analyzed in two different ways. The first one, initiated by Fischer, was to claim that word order is ruled by grammatical principles, that there is a basic word order, and that other word orders are also explainable in terms of the rules of grammar. The other approach, first taken by Friedman, was to claim that word order in SLs is free and determined by pragmatic and spatial needs. Crucially, different approaches to word order in one sign language may yield different results: for ASL, Fischer (1975) and Liddell (1980) claimed that the SVO order is basic, Friedman (1976) argued that the SOV order is most frequent but that there is no basic word order, and McIntire (1982) claimed that the order Topic-Comment is fundamental.

An important event in the history of word order studies on SLs was the paper by Volterra, Laudanna, Corazza, Radutzky & Natale (1984). In this paper, the researchers proposed a methodology for studying word order in SLs that was relatively simple and reliable (the methodology is discussed in detail in Section 3.3). It was later used to study word order in several other SLs (see Section 3.1): Swiss French Sign Language (SFSL) (Boyes-Braem et al. 1990), Sign Language of the Netherlands (NGT) (Coerts 1994), Flemish Sign Language (VGT) (Vermeerbergen 1996, 2004), British Sign Language (BSL) (Saeed et al. 2000), Irish Sign Language (IrSL) (Leeson 2001), Hong Kong Sign Language (HKSL) (Sze 2003), South-African Sign Language (SASL) (Vermeerbergen et al. 2007), and Australian Sign Language (Auslan) (Johnston et al. 2007). Using the same

³ See Appendix III for the list of SLs mentioned in the paper and their abbreviations.

methodology makes the result of different studies directly comparable to each other, which facilitates the cross-linguistic analysis of word order in SLs.

Up until now at least 35 SLs have been investigated in order to determine their (basic) word order. Some of these SLs have been claimed to lack a basic word order, and for others, it has been claimed that word order is determined by pragmatics, not syntax (see below). However, it is already possible to observe the main tendencies in the word order of SLs of the world.

For this paper, I had access to research on word order in 24 SLs and on the basis of that the relative frequency was calculated (see Table 2).

Table 2: Word order in sign languages of the world

Basic word order	Number of languages
SVO	11
SOV	8
SVO/SOV	2
SOV/OSV	1
Topic-Comment	2
Total	24

A comparison of Tables 1 and 2 reveals that the two most frequent word orders both in SLs and spoken languages are SVO and SOV. This table should be used with caution though, as different authors used different methodologies and their results are not always comparable (see also section 3).

During the 35 years of research on word order in SLs, it has been found that there are different factors that can influence word order, in other words, yield word orders other than the basic one (assuming that the language has a basic word order), or simply favour some orders and not others. These factors can be tentatively divided into morpho-syntactic, semantic, pragmatic, and modality-specific factors. In the following sections, these factors are discussed in turn, emphasizing how (some of) them contribute to the issue of determining the basic word order in a sign language according to the criteria developed for spoken languages (section 2.1).

In the following subsections prosodic factors influencing word order are not discussed. There are no papers that discuss how prosody directly influences word order in SLs. Prosody definitely correlates with word order alternations, as for instance topicalization is also marked prosodically, but this is not a direct interaction. Further in section 3.4.2, I discuss prosody and its interaction with syntax in RSL in detail.

2.2.2 Morpho-syntactic factors

As mentioned above, in some SLs the operation of topicalization is responsible for deriving various word orders. For example, Liddell (1980, 2003: 55-58) claimed that ASL makes extensive use of topicalization, whereby constituents are moved to the sentence-initial position and marked by a special non-manual marker (raised eyebrows) (7).

$$\begin{array}{ccc} \text{top} & \text{neg} & \\ \text{(7) CAT, DOG CHASE}^4 & & \text{[ASL; Liddell 1980:84]} \\ \text{'As for the cat, it did not chase the dog'} & & \end{array}$$

Topicalization appears to be a common strategy in many SLs, for instance, Brazilian Sign Language (LSB) (de Quadros 1999), Argentinean Sign Language (LSA) (Massone & Curiel 2004), and NGT (Coerts 1994). The word order derived by topicalization is obviously non-basic (according to criteria of derivability and morphological markedness).

In many SLs, the verb class influences the word order. Most SLs studied to date distinguish three verb classes (Padden 1988): (i) plain verbs, which do not change their form depending on the arguments, (ii) agreeing verbs, which change their form to spatially agree with the location of one or more of their arguments, and (iii) spatial verbs, which change their form to spatially agree with locative arguments. For a number of SLs, it has been found that plain verbs use the SVO order, while agreeing verbs use the SOV order. This is the case in, for example, ASL (Kegl 2004a,b), German Sign Language (DGS) (Rathmann 2001), VGT (Vermeerbergen et al. 2007), LSB (de Quadros 1999), Croatian Sign Language (HZJ) (Milković et al. 2006), and Jordanian Sign Language (LIU) (Hendriks 2008). The word order used with plain verbs can be considered more basic according to the criterion of morphological markedness.

⁴ Notational conventions: Signs are glossed in SMALL CAPS. Agreement is marked by subscript numbers (for persons: -1, -2, -3) and letters (for locations of the referents in space when there are several 3rd person referents). Fingerspelled words are represented with dashes: G-R-U-Š-A. IX stands for index (a pointing sign), CL:GO stands for a classifier construction meaning approximately 'go'; ASP – aspectual marking. Points demark clause boundaries, / – a prosodic boundary of an elementary discourse unit, // – a prosodic boundary of a super-discursive unit, = stands for hesitation. Lines above the glosses indicate the scope of non-manual markers: 'top' stands for non-manual markers of topicalization, 'neg' for negation, and 'nod' for a head nod. Examples from other works are cited in their original notation and explained separately, if necessary. Each example from RSL is followed by the reference number in the corpus or in the experiment. The letters are the names of the corresponding texts or experimental sessions and the number is the number of the clause.

In many SLs, classifier constructions (more recently referred to as depicting signs, see Dudis 2004, 2008⁵) behave differently with respect to the word order. Classifier constructions (Supalla 1986) are signs in which the handshape represents a class of objects that can be participants of the activity described by the construction, while the location and the movement components of the sign represent location and movement of the referent. For example, in Figure 1 (Section 3.4), the handshape of the right hand represents the class of ‘small animals’, while the location of the sign, namely, its being located on the left hand (signing CHAIR) implies that the referent (‘small animal’, a cat in this case) is located on the chair. It has been shown that classifier constructions are linguistic entities and that classifiers can be analyzed as agreement markers in SLs (Zwitserslood 2003). Classifier constructions behave differently from other verbs with respect to word order in LIU (Hendriks 2008), Columbian Sign Language (Oviedo 2001), and HKSL (Sze 2008). Classifier constructions are clearly morphologically complex, hence according to the criterion of morphological markedness, their position does not reflect the basic word order.

Verbs in SLs can be modified to express aspect; repetition of movement, for example, is used to express the habitual or progressive/continuous aspect. In ASL verbs marked by aspect usually appear clause-finally while the basic word order is SVO (Chen Pichler 2001; Matsuoka 1997), the same is true for LSB (de Quadros 1999). According to the criteria of morphological markedness and probably simplicity, the position of the verbs marked by aspect is not basic.

Frequently, verbs in sign languages are doubled. There are two main types of doubling in sign languages: verbal echoes (Pinsonneault 1994), in which an identical copy of the verb appears within a sentence (8), and verb sandwiches (Fischer & Janis 1990), where the second occurrence of the verb is more marked, be it by agreement, aspect, or classifier morphology or by non-manual markers (9).

(8) GIRL CL:STAND STILL CL:STAND [RSL; x2-22]

‘The girl is still standing’

(9) STUDENT NAME S-A-L-L-Y TYPE HER TERM PAPER TYPE[ASP:CONT⁶]

[ASL: Fischer & Janis 1990:280]

‘The student named Sally is typing her term paper’

In the case of sandwiches, one could argue that the first occurrence of the verb signals its base position, the second one being in a derived position (because the

⁵ Further I use the term “classifier constructions” as this term was used in the literature I am referring to.

⁶ [ASP:CONT] means continuous aspect.

second occurrence is more morphologically marked). In the case of verbal echoes when the occurrences are identical, it is difficult to determine which position is the basic one.

2.2.3 Semantic factors

In many SLs, the type of the situation is responsible for the choice of word order. In reversible situations, both participants can in principle be the Agent and the Patient; for example, in the situation “The boy kisses the girl” the boy is the Agent and the girl is the Patient, but in principle the girl might as well be the Agent (the kisser) and the boy the Patient. In contrast, in non-reversible situations only one of the participants can be the Agent; for example, in the situation “The boy eats ice-cream”, only the boy can be “the eater”. For a number of SLs, it has been shown that reversible sentences favour the SVO order while the SOV order is used more often in the non-reversible sentences; e.g. ASL (Fischer 1975), VGT (Vermeerbergen et al. 2007), Italian Sign Language (LIS) (Volterra et al. 1984), HZJ (Milković et al. 2006), and LSB (de Quadros 1999). It is worth noticing that this factor is not universal: in Auslan and IrSL it does not influence word order (Johnston et al. 2007).

Researchers usually claim that reversible situations favour the SVO order because they are potentially ambiguous: both participants can be the subject and the object, and if they are separated by the verb, then there is no ambiguity. However, if a sign language uses the SOV order consistently, and the OSV order is not grammatical, then the sentence with the SOV order is no more ambiguous than the sentence with the SVO order. De Quadros (1999) offered a different explanation of this fact for LSB: she claimed that the SOV order is not convenient in reversible sentences, because this order can be interpreted as containing two coordinated subjects and no object, while null objects are not grammatical with plain verbs in this language.

- (10) *JOHN IX MARY IX LIKE [LSB; de Quadros 1999:57]
 ‘John and Mary like ...’, not ‘John likes Mary’

JOHN and MARY in example (10) can be interpreted as a coordinated subject, which makes the sentence ungrammatical. However, it is not absolutely clear why an ungrammatical interpretation with a coordinated subject prevents the SOV interpretation which should be grammatical⁷.

⁷ There is an additional issue of eye gaze associated with the subject and the object in LSB. If in (10) the subject and the objects were accompanied by eye gaze, the sentence would be grammatical. However, in the absence of eye gaze, the relevant contrast between word order

According to the criterion of ambiguous sentences, the order used in reversible sentences is probably the basic one, but I will return to this question in Section 5.

Animacy of the arguments can also play a role. In LSA (Massone & Curiel 2004), HZJ (Milković et al. 2006), NGT (Coerts 1994), and LIS (Volterra et al. 1984) animate arguments often precede inanimate arguments. This also usually occurs in locative constructions and will further be discussed below. In LSA topicalization of an object is only possible with animate objects. It is not clear how animacy of the arguments relates to the question of basic word order.

Finally, in HKSL (Sze 2008) verbs with negative meaning (such as LACK, BE.BORED, NOT.KNOW, etc.) prefer the SOV order (while the SVO is more frequent with other verbs). According to the criterion of distribution, the order in the sentences with negative verbs is not the basic one.

2.2.4 Pragmatic factors

For many SLs, it has been claimed that word order is determined not by syntactic notions such as Subject, Object and Verb, but rather by pragmatic notions of Topic and Comment or Focus and Background. Some SLs have been claimed to be topic-prominent (Li & Thompson 1976), which means that the notion of subject plays a less important role in the grammar than the notion of topic. Similar claims have been made for Israeli Sign Language (ISL) (Rosenstein 2001), ASL (Edge & Herrmann 1977; McIntire 1982), BSL (Deuchar 1983), and Spanish Sign Language (LSE) (Morales Lopez et al. 2003). However, Sze (2008) showed that HKSL cannot be analyzed as topic-prominent and criticized the criteria and methodology used to determine topic-prominence in previous studies on other SLs (for example, in Rosenstein 2001).

Interestingly, for most SLs that have been claimed to be topic-prominent by some researchers, other researchers have shown that they in fact were not topic-prominent, and that the word order was determined by syntactic factors (Liddell (1980), for example, convincingly demonstrated this for ASL). Pragmatics or, more strictly speaking, information structure can definitely influence word order; however, it seems that quite often the basic word order can still be described syntactically. This is true for spoken languages, too. It is known, for instance, that word order in spoken Russian is greatly influenced by information structure, but still the basic word order can be determined in syntactic terms. Keeping this in mind, I decided to analyze the word order in RSL in syntactic/semantic terms of Subject, Object and Verb, instead of

in reversible and non-reversible sentences emerges. Thanks to an anonymous reviewer for pointing this out to me.

analyzing the information structure of RSL at this stage. This decision was also supported by the fact that it is much more difficult to analyze pragmatic factors in general. Therefore, in the remainder of the paper, pragmatic factors are rarely discussed.

2.2.5 Modality-specific factors

SLs make use of the visual-gestural modality; therefore, it should not be surprising to find some properties that distinguish them as a group from spoken languages (Sandler & Lillo-Martin 2006, Unit V). Such modality-specific factors appear to also play a role when it comes to word order, as some researchers claimed.

First, as mentioned in section 1, signers have at their disposal two identical articulators and thus, for instance, an argument can be signed simultaneously with a verb. This of course makes the notion “word order” inapplicable. However, in most cases one of the signs is articulated before the other, and then held in place while the other sign is articulated. Consequently, it is still possible to determine word order without reference to simultaneity. It is unclear to what extent simultaneity in general influences properties of word order in SLs. I will return to this question in Section 3 on methodology and in the discussion of locative clauses in Section 4.3.

Liddell (1980) claimed that iconicity is relevant for ASL word order, namely, that the SOV order is allowed in iconic sentences. I think that on the one hand, this factor is rather vague, because some degree of iconicity is present in most signs in SLs, and on the other hand, that this factor can be partially subsumed under the properties of classifier constructions that are highly iconic and also favour the SOV order. To the best of my knowledge this factor has not been discussed in later studies on word order.

The most important situation where modality appears to play a significant role in determining word order is locative sentences. Locative sentences are sentences describing the location or movement of referents (with respect to each other). In almost all SLs for which locative sentences have been studied separately, it has been found that the word order in these sentences is different from the word order in other sentences, and that it is similar across different languages. The most typical word order in locative sentences is OSV, but SOV and OVS are also possible. This is true for locative sentences in ASL, NGT, VGT, IrSL, SASL, LIS, and HZJ.

- (11) TABLE BALL CL-^{ball} under the table’ [NGT; Coerts 1994:65]
 ‘The ball is under the table’ (OSV order)

At the beginning of a locative sentence, the place/location is established, then the located participant is mentioned, and then the locative relation between the two is introduced; see the NGT example (11). In other terms, the order can be described as “Ground – Figure – Locative Relation”. The factor of mobility plays a role here: bigger objects, namely Grounds are established first, and Figures are introduced later. Animacy, on the other hand, contradicts the mobility factor: Figures are more often animate, and animate arguments tend to appear first in the sentence (Volterra et al. 1984).

It seems plausible to assume that word order in locative sentences behaves the way it does because of the visual modality of SLs. There are at least three arguments that support this idea. First, as just mentioned, across SLs the word order in locative sentences is the same, while different word orders are attested in other types of sentences. Second, locative sentences are intrinsically space-anchored: objects are located in signing space and locative relations are iconically represented by spatial relations in the signing space. It therefore does not come as a surprise that in sentences that make active use of space, the visual modality plays an important role.

The strongest argument in favour of a modality-specific explanation of the word order in locative sentences comes from the study of Laudanna & Volterra (1991). They asked hearing non-signers to describe locative situations presented in the form of pictures (using the methodology from Volterra et al. (1984), see below for details) by using only gestures/pantomime without spoken language. They found that the non-signers used the same order in their descriptions of locative situations as signers of LSI, namely the Ground – Figure – Locative Relation order. In addition, in both the data of LIS signers and the non-signers, animate Figures appeared sentence-initially more often. These results clearly demonstrate that this word order used in the description of locative situations is an artefact of the visual modality, and not a linguistic feature of some (sign) languages.

2.2.6 *The basic word order*

In sum, the discussion in the previous sections has made clear that, for the most part, researchers studying SLs used the same criteria as those suggested for spoken languages in order to determine the basic word order of a given sign language. The most common criterion was *frequency* (this has not been discussed explicitly above, but it was used by almost all researchers, who assumed that the most frequent order is the basic one). In addition, the criteria of *morphological markedness*, *simplicity*, and *distribution* were frequently applied. Fischer (1975) used the criterion of *ambiguity*, and other researchers who used reversible as opposed to non-reversible sentences also did. The criterion of

pragmatic neutrality was used by Kegl et al. (1996). However, locative sentences appear to present a separate group, and word order in these sentences was claimed to be governed by the visual modality.

3 Methodology

3.1 *Different approaches to data collection*

Word order in SLs has been investigated using many different methodologies, which in some cases yielded different results, as I have already discussed with reference to ASL (section 2). In several papers, grammaticality judgements and assessment of constructed examples was the main means of data collection (Fischer 1975; de Quadros 1999). This means is very convenient to test complex theories, but the obvious drawback is that the intuition of native signers is not a very objective measure, and assessment of the grammaticality of different word orders is notoriously difficult. As a variant of this methodological strategy, a researcher who is a native signer may use her/his own intuition; see, for example, de Quadros (1999) (the author is a bilingual child of Deaf parents) and Kegl et al. (1996) (one of the authors is a Deaf native signer). One should notice, however, that the intuition of a researcher can be biased by theoretical considerations.

A much more reliable methodology is the use of naturalistic corpus data (e.g. Friedman 1976; Deuchar 1983; Bouchard & Dubuisson 1995; Nadeau & Desouvrey 1994; Quinto 2000; Wilbur 2002; Sze 2008). However, this method has several serious drawbacks, too. First, in a naturalistic set of data, it is not always possible to find the full variety of constructions and test all factors that can influence word order. Second, in naturalistic narratives, sentences in which more than one argument is overtly expressed are very rare. Third, for SLs, it is particularly difficult to create a balanced and sufficiently large corpus that might include different genres.

Quite often researchers use an experimental approach to elicit the data necessary for determining word order, namely, a picture description task (e.g. Volterra et al. 1984; Boyes-Braem et al. 1990; Coerts 1994; Vermeerbergen 1996, 2004; Saeed et al. 2000; Leeson 2001; Sze 2003; Vermeerbergen et al. 2007; Johnston et al. 2007; Milković et al. 2006). This method makes it possible to avoid some of the drawbacks of the other approaches. First, it is possible to specifically test different factors that can influence word order by carefully creating the relevant stimuli. Second, when a situation in the picture is described in one or two sentences, the signers are forced to use sentences with several overt arguments. Third, this method is relatively simple and less time-

consuming than collecting a large corpus of natural discourse. Of course, the problem is that data obtained under experimental conditions are less natural than spontaneous data; this approach also favours narrative genre, while for some purposes other genres are necessary.

Some researchers combined different methodologies to study word order in SLs. For example, Massone & Curiel (2004), in their research on word order in LSA, did not only use a sentence interpretation task and an experimental task (describing pictures and films), but also analyzed naturalistic narratives and dialogues. The results of their research were later discussed with a large group of native signers who provided their intuitions on the word orders used. This is an example of a very thorough and reliable methodology.

In order to analyse word order in Russian Sign Language, I decided to combine two methods: an analysis of (semi-)naturalistic corpus data and an experiment (picture-description task). The aim of using the corpus data was to assess some general principles of word order in RSL based on a naturalistic data and to create hypotheses concerning the factors that may have an influence on word order. The aim of the experiment was to test these hypotheses. This approach still has the drawback of being biased toward the narrative genre. This might be a problem since word order in, for instance, conversations might be different; this question remains for the future research. In the following, I describe the corpus (Section 3.2) and the experiment (Section 3.3). In both sections, I provide information about the stimuli, the procedure, the subjects, and the transcription.

3.2 *Corpus*

Stimuli: The corpus of narratives that I analyzed was collected and annotated by Prozorova (2009). It consists of 13 stories told by nine signers. Two stories were based on the *The Pear Film* (Chafe 1980), the other 11 stories were based on several comic strips by H. Bidstrup.

Procedure: In the case of *The Pear Film*, the signers were asked to watch the movie twice and then retell the story for recording. In this case only the hearing researcher was present in the room. In the case of comic strips, two signers participated. One of them was given time to look at one of the comic strips, the strip was then removed and the signer was asked to tell the story. The procedure was then repeated with another comic strip. The first story was used to familiarize the signer with the procedure, and only the second story was used for later analysis. Subsequently, the signers switched roles, and the addressee (the second signer) told two different stories to the first signer. Occasionally one or both of the signers told one more story based on a different strip.

Informants: The corpus was not collected specifically to analyze word order, or even the grammar of RSL; the aim of creating it was to analyze the prosodic structure of RSL discourse. The requirement that only native signers with similar background should contribute to the corpus was not strictly followed. Nine Deaf signers participated: four men and five women. The average age of the informants at the time of the recording was 31 years. Seven were born and raised in Moscow, and also studied there. Two other participants were born and raised in Magadan, but at the time of data collection had already lived and studied in Moscow for several years. Five came from Deaf families, but the remaining four acquired RSL only at school (approx. at the age of 6); they also used spoken Russian at home. Therefore, the signers can be divided into two groups: five native signers, with RSL as their first language acquired in early childhood (all from Moscow), and four competent signers (with different regional background). Keeping this in mind, I compared the word order data from these two groups but did not observe any significant differences. The data will therefore be pooled for further analysis.

Transcription: The corpus was annotated by Prozorova (2009) for the purposes of prosodic analysis. She transcribed it in ELAN with several transcription tiers: RIGHT HAND, LEFT HAND (rough translations of the signs), PHASES OF THE SIGNS (for the definition of phases see Kita, van Gijn, & van der Hulst 1998), BOUNDARY MOVEMENTS (movements marking prosodic boundaries in RSL, see below), EYE BLINKS, and DISCOURSIIVE UNITS. Translation of the signs was done with the help of a native signer. In the tier DISCOURSIIVE UNITS, discursive units designated by boundary movements were translated (see Section 3.4.2 for the prosodic analysis of RSL). I added three tiers to her transcription, namely ORDER (with labels such as S, V and O assigned to signs/constituents), CLAUSE (where these labels were grouped into clauses), and TRANSLATION (where I translated the sentences). The procedure of determining S, V and O and the definition of clauses used is given below.

3.3 Experiment

Stimuli: For the experiment the procedure proposed by Volterra et al. (1984), including their stimuli was used. The original set of stimuli contained 18 pairs of pictures, consisting of three groups. Six pairs of pictures represented reversible situations (for example “The boy embraces an old lady”), six pairs of pictures represented non-reversible situations (for example, “The boy opens the door”), and six pairs of pictures represented locative situations (for example, “The ball is under the table”). Some of the original pictures seemed somewhat unclear, so I asked the artist A. Rysaeva to create other pictures instead, preserving the type

of the situation. Furthermore, I knew from the corpus data that the verb class can influence the word order. I therefore decided to include four more pictures which could be described with plain or agreeing verbs (and not with classifier constructions). Two of the new pictures represented reversible situations and two non-reversible situations. The list of all pictures is given in Appendix I.

Procedure: In the original experiment by Volterra et al. (1984), the signer was given a set of pairs of pictures. The situations on the pictures in each pair differed in one aspect (for example, on one picture a boy was closing the door, and on the other opening it). One of the pictures in a pair was marked by a cross. The addressee (another native signer) was given the same set of pairs, but without marking. The signer was asked to describe the marked pictures in each pair such that the addressee could identify it. .

I decided not to use this procedure because I was concerned about the possibility that the contrast between the two pictures could produce the grammatical category of contrast, which in turn could influence word order. Thus in my experiment one signer was given a set of pictures (instead of pairs of pictures) which s/he was asked to describe to another signer. The pictures were given in a randomized order, so that different types of situations were mixed. The results of this procedure turned out to be satisfactory for the purposes of my research.

The experiment was conducted in two stages. First four native signers were given the 18 pictures (excluding the four additional pictures). In the data obtained, however, the number of plain and agreeing verbs was too small for an analysis, so in addition, two other native signers were given all pictures (including the additional ones) to obtain more sentences with plain and agreeing verbs.

Signers: Six Deaf native signers participated in the experiment, three men and three women. The average age of the participants at the time of the experiment was 33 years. All signers but one came from Deaf families. Two signers claimed to have learned RSL only at school, but their RSL competence is assessed as very high by the Deaf community; they use RSL in their daily life and at work. Five of the signers were born and raised in Moscow, while one woman was born in Kirov, but had studied and lived in Moscow for several years. This group of signers is more homogeneous than the corpus data group, but is still not totally homogenous.

Transcription: As discussed below, I assume that there is no one-to-one association between prosodic units (as defined by Prozorova 2009) and syntactic units (clauses). Because of this assumption and the complexity of prosodic transcription, I did not analyze the experimental data prosodically although I do consider the dependency between word order and prosodic marking, as explained in Section 3.4.2. The transcription was made in ELAN and contained

the following tiers: PICTURE (the number of the stimulus picture), RIGHT HAND, LEFT HAND, ORDER, SENTENCE, and TRANSLATION. The translation of the signs was done by me with the help of two native signers.

3.4 Analysis

3.4.1 Syntactic labels and clause boundaries

In order to describe word order, the discourse data had to be divided into sentences/clauses. In order to do this, several methodological decisions were taken. In general, my approach to analysing the data was deliberately pre-theoretical, in other words, I tried to assume as little as possible without empirical proof.

First, I want to comment on simultaneity. As already mentioned in section 1, because of the availability of several articulators (the right and the left hand, different parts of the face, the torso), SLs can simultaneously express more than one meaning. For example, in the sign depicted in Figure 1, the left hand signs the lexical sign CHAIR while the right hand simultaneously articulates a classifier construction meaning ‘small animal’; the combination of the two hands expresses the meaning ‘a small animal [a cat] sits on the chair’.



Figure 1: Simultaneous construction meaning (in the context) ‘the cat sits on the chair’

At first sight, it seems that in such cases one cannot talk about word order, as there is apparently no order between the sign CHAIR and the classifier construction. Closer inspection, however, reveals that in reality this is not the case. In fact, in the sentence that this picture was taken from (12), the sign CHAIR was uttered first, and then the classifier construction on the right hand was placed in relation to the left hand, which was held stationary in the signing space.

- (12) LH: CHAIR-----
 RH: CL:SIT.ON [RSL; Eks3-12]
 ‘The cat sits on the chair’

In most of the simultaneous construction in the data, the onset of one of the signs started earlier than the other. In such cases it is possible to establish a word order, as in (12), which was analyzed as displaying the Object Verb order. If a construction turned out to be fully simultaneous, it was not analyzed, as the main goal was to observe how RSL uses word order.

Second, I decided not to use prosodic boundaries as a criterion to determine sentence/clause boundaries (still, in section 3.4.2, I will look at the correlation between them). I had two reasons for this decision. Firstly, I agree with researchers who consider prosody a separate level of grammar which is not reflected directly and unambiguously in syntactic structure (Nespor & Vogel 1986). Clauses and sentences are syntactic objects, and there is no guarantee that there will be a one-to-one mapping between the entities of syntax and the entities of the prosodic level. Secondly, it has been shown that in many SLs, sentence boundaries are not marked consistently by any prosodic clues (Hansen & Heßmann 2007). On the difficulty of defining sentences in SLs, see also the comprehensive discussion in Sze (2008).

Third, I decided to divide the discourse into clauses, not sentences. I remained agnostic with respect to the question how these clauses are combined into sentences, even in cases in which semantically one clause was clearly subordinate to another. The motivation behind this decision was that one has to look at simple cases (=clauses) first in order to understand the basic principles of word order in RSL, and only then approach more complex structures (=sentences).

In previous studies on word order in SLs, it was not always clear how the researchers defined clauses and sentences (Crasborn 2007). Some researchers used prosodic patterns as one of the criteria (for instance, Coerts 1994). In some recent studies (Johnston et al. 2007; Vermeerbergen et al. 2007), clauses were defined semantically. I adopted a similar procedure.

To determine clauses the following **definition** was used:

- (13) A clause consists of a verbal predicate with all its arguments and adjuncts.

This definition is semantic: basically it defines a predication, not a clause. However, I think that semantic predication is a much closer approximation to the syntactic notion of a clause than a prosodic unit. Note that according to this

definition, a clause always contains one verbal predicate. There were two regular exceptions:

1. Nominal and adjectival clauses (no verb). In some clauses the predicate was semantically a noun (referring to an object (14) or a person) or an adjective (expressing a stative non-verbal property, like ‘beautiful’). I decided to analyze those cases separately. This decision is open to criticism, because one needs to prove that these clauses do indeed form a separate category⁸, but I will demonstrate that this decision did not influence the results.

(14) WATER [RSL; S1-12]
‘Water.’

2. Verbal echoes and sandwiches (more than one verb). I decided to consider cases in which a verb was doubled to be one clause. The motivation behind this was that verb doubling is a prominent phenomenon in the grammar of many SLs, and it was important to include it in the analysis of RSL, too. I analyzed a sequence containing two (or more) verbs as one clause (a) if all copies of the verb referred to one situation (that is, if two occurrences of the verb GO referred to two going activities, they were analyzed as separate clauses), (b) if between the two occurrences of the verb only the arguments and adjuncts of this verb appeared, and (c) if the occurrences of the verb were identical or different only in aspect, agreement, or non-manual marking.

There are several constructions which, in the present study, were not considered a single clause. First, there are the so-called split sentences, which are characterized by the fact that the subject of the first clause is the object of the second clause within a sentence (15).

(15) CAR TOW // TRUCK FOLLOW [VGT; Vermeerbergen et al. 2007: 34]
‘The car tows. The truck follows it.’ [my translation]

Second, some researchers consider verbs like SIT, STAND etc. as semi-auxiliaries used to localize referents in cases like (16).

(16) BOY SIT_A⁹ // MOTHER STAND_B COMB_A
[VGT; Vermeerbergen et al. 2007: 34]
‘The boy sits and his mother combs his hair.’ [my translation]

⁸ At present, I know of one such criterion: RSL nominal and adjectival clauses in the past tense can contain a copula WAS, which never appears in verbal clauses.

⁹ Subscript letters stand for the loci in this notation.

In all cases like split sentences and sentences with verbs of location, I defined the clauses with the help of the usual criteria. Hence, I would divide an example like (15) into two clauses, and an example like (16) into three. Again, I am not excluding the possibility that split sentences are special constructions or that verbs of location have special properties, but this demands additional fine-grained analysis which I leave for future research. For the purpose of a first approximation to RSL word order, it was not necessary.

Having defined clauses for RSL, it was then necessary to define subjects, objects and verbs. The procedure was again semantic and similar to the one used in Vermeerbergen et al. (2007) and Johnston et al. (2007). I used the label V to mark a verbal predicate, the label S to mark the most Agent-like argument in a clause, the label O to mark other arguments in the clause¹⁰, Adv to mark adverbs (semantically modifying the verb), N to mark nouns used as predicates in nominal clauses, and A to mark adjectives (modifying arguments or being predicates in adjectival clauses). In the case of verbs of movement or location, I considered locations to be objects because semantically they are (obligatory) arguments of these verbs (a different decision was made, for example, in Sze 2008). For instance, if a cat is sitting on a chair, the chair is clearly an argument, not an adjunct.

The corpus contained 773 clauses (see the next section for the procedure of clause identification), 457 of which contained only one verbal sign without any arguments. The experimental data contained 229 clauses, 111 of which contained only one verbal sign.

3.4.2 Prosody

In this paper, I also look at the dependency between word order and prosodic marking (see the end of this section for motivation). In order to do so I use theoretical assumptions introduced by Prozorova (2009) that I want to very briefly outline in this section.

Prozorova (2009) analyzed her corpus of RSL to study prosody; the aim of her research was to determine how prosodic units are formed and how prosodic boundaries are marked. Working in the framework of information flow (Chafe 1994), she claimed that RSL discourse can be divided into units that she called *elementary discursive units* (EDU) (a term offered by Kibrik & Podlesskaja 2009). EDUs are comparable to the more common notion of prosodic phrase.

Prozorova claimed that EDUs are consistently marked in the RSL discourse by head (and/or body) movements. According to her, there are two

¹⁰ In fact, I used a more detailed notation in the transcription, see Appendix II.

types of head movements: shifts and returns. Shifts are short movements from the default position in any direction, while during returns, the head returns to the default position and the shoulders are usually relaxed. Shifts mark the boundaries of EDUs, while returns mark the boundaries of bigger units which she called super-discursive units. Additionally, boundaries of both types of units can be marked by eye blinks, pauses, and other prosodic markers, but all of these additional markers are optional.

Therefore, EDUs are formally defined: if there is a boundary shift, then there is a boundary, and the interval between two boundaries is an EDU. However, Prozorova (2009) showed that EDUs are also semantically and syntactically prominent in that they usually represent one event with one main participant, and syntactically constitute a clause. This observation confirms that these prosodic units are linguistically relevant objects.

However, the mapping between EDUs and clauses is not necessarily one-to-one. Clauses are syntactic units, while EDUs are prosodic units. For example, in the corpus I encountered the following sequence of two clauses (17).

- (17) a. ROOM / ENTER. [RSL: X3-19]
 b. ROOM ENTER. [RSL: X3-20]
 ‘[He] entered the room.’

In the first of these clauses, the locative object ROOM constitutes its own EDU, while in the second clause the whole clause constitutes one EDU. This is parallel to the way an English sentence can be divided into intonation phrases in several ways:

- (18) a. [My friend’s baby hamster always looks for food in the corners of its cage]
 b. [My friend’s baby hamster]_{IP} [always looks for food in the corners of its cage]_{IP}
 c. [My friend’s baby hamster] _{IP} [always looks for food] _{IP} [in the corners of its cage] _{IP}

[Nespor & Vogel 1986:194]

Do the sentences in (18a-c) consist of different numbers of clauses, and does (17b) contain one clause, while the (manually) identical (17a) consists of two clauses? The answer can be “yes”, but it has to be proved, and in the context of my pre-theoretical approach, I do not have any reason to argue that the syntactic structures of (17a) and (17b) are different (and definitely not that (17a) contains more than one clause).

Prosody is also relevant when speaking about locative sentences. Padden (1988) argued for constructions like (11) that they are multi-clausal. Whether this is true (for RSL) is an open question, but if it is true I would expect to see more prosodic breaks in this type of constructions (given that there is a correlation between prosodic boundaries and clause boundaries).

Although I did not use prosodic boundaries to identify clause boundaries, I decided to analyze the possible dependency between division into prosodic units and word order. Before approaching the data, I formulated the hypothesis in (19):

- (19) The clause with the basic word order will be unmarked and therefore more often constitute one prosodic unit (EDU). Marked word orders can be a product of some operation that will result in more prosodic boundaries.

This hypothesis will be discussed in Section 5.

4 Word order in RSL

In this section, the results of my analysis of the corpus and experimental data will be presented. The position of the subject will be discussed first, followed by a discussion of the position of the object; thirdly I address the order in locative clauses, and finally doubling of predicates. Since doubling is presented in a separate section, I will not address this issue in the first three sections. I excluded from analysis all clauses consisting of a verb only. Thus, when I state, for example, that the SV order appears in 95% of the clauses, this means that it appears in 95% of the clauses in which the subject is expressed (and expressed only once).

4.1 Subject position

In the corpus data, the subject preceded the predicate in the absolute majority of the cases (95%, 170 out of 179 clauses). In the experimental data, the subject always preceded the predicate. In the nominal and adjectival clauses, the only argument always appears before the predicate. Therefore, it is possible to immediately conclude that the position of the subject is pre-verbal.

In some languages, the position of the subject depends on the transitivity of the verb (Dryer 2007). For example, in Spanish subjects of intransitive verbs can appear in the postverbal position, but subjects of transitive verbs cannot. Therefore, it might be worth investigating whether in RSL subjects of transitive

and intransitive verbs also behave differently. However, there is no research on transitivity in RSL, and there is no reliable methodology to decide which of the verbs in the corpus are transitive and which are intransitive. Nevertheless, it is still possible to assess the hypothesis that transitivity influences the position of the subject. There are some clauses in the corpus in which the object and the subject are overt, so the verbs are obviously transitive. There are also many clauses in which only the subject is overt; in these cases, the object is either covert (in the case of transitive verbs) or there is no object in the argument structure (in the case of intransitive verbs). Thus the latter group of clauses should contain clauses with both transitive and intransitive verbs, while the former group contains only transitive verbs. If transitivity influenced the position of the subject, we would expect these two groups to show different distribution of the subject position, because clauses in the two groups differ with respect to transitivity. In reality, however, in both groups the percentage of the VS order is only 5%. We can therefore conclude that the position of the subject in both transitive and intransitive clauses is pre-verbal.

Prosodic properties of subjects support this analysis. In most cases of the SV order, the subject does not constitute a separate prosodic unit (EDU). As shown in Table 3, in 65% of the cases the subject and the verb are within one prosodic unit.

Table 3: Prosody with SV order

SV	1 EDU	2 EDU	total
	116	63	179
%	65	35	100

There are several types of situations in which the subject constitutes a separate EDU. First, at the beginning of a narrative, subjects are quite often (10 cases) introduced in a separate EDU, in fact, following the subject there is often a boundary of a super-discursive unit (20).

(20) IX OLD MAN IX // PEAR G-R-U-Š-I¹¹ CL:COLLECT[G1-2]
 ‘An old man is collecting pears’

Situations in which the subject constitutes a separate super-discursive unit occur only at the beginning of narratives (with one exception, [X3-41], which is, however, at the beginning of a new episode in the narrative). Therefore, it is

¹¹ *Gruši* is ‘pears’ in Russian.

reasonable to assume that this is a discourse-related strategy, specifically used to introduce the main participants of the narrative.

Second, in some cases non-manual marking accompanies a subject which appears in its own EDU, which may be indicative of topicalization (but, of course, I have no proof yet that this is in fact topicalization). The non-manual marking consists of lowered eye brows and a head nod or only raised eye brows, and is used to introduce information known to the addressee (21). For instance, in 21 the subject LADY FAT is marked with this non-manual marker, which might be a sign of a movement.

- nod+lowered eyebrows
- (21) SUDDENLY / LADY FAT / CL:COME.NEAR [Sh1-37]
 ‘Suddenly a fat lady came [to him]’

If in the examples of this sort subjects are indeed topicalized, then the prosodic boundary between the subject and the rest of the clause is expected, because topics are often intonationally separated in SLs (Aarons 1994).

Thirdly, in some cases the signer hesitated between the subject and the verb, thus creating a prosodic boundary between them (22).

- (22) THERE BIRD / = BIRD / CL:FLY [Sh1-60]
 ‘There were birds flying there’

If we discard these three types of situation, then we are left with only 15% of clauses in which the subject is separated from the verb by a prosodic boundary. Therefore, I conclude that in the default case, the subject and the verb constitute one prosodic unit.

In the nine clauses with VS order, the prosodic facts are different. In four cases out of nine, there is a prosodic boundary between the verb and the subject. Therefore, the more marked word order (VS) is also more marked prosodically, which is in line with the hypothesis formulated in Section 3.

Considering my position that prosodic boundaries must not be equated with clause boundaries, the sequence of clauses in (23) is of interest.

- (23) BOY LOOK.OUT. SON / LOOK.OUT [x2-2,3]
 ‘The boy looks out [of the window]. The son looks out [of the window].’

These two clauses are almost identical, but in the second one the subject SON is separated into its own EDU. In other words: the same syntactic structure is mapped onto two different prosodic structures.

In the following section, the position of the object is discussed, including the factors that can influence it. I have checked whether these factors also influence the position of the subject, but none of them appeared to do so. I will therefore not discuss these factors for the subjects. The subject in RSL is clearly pre-verbal, and most likely the 5% cases with VS order can be attributed to afterthoughts or the like.

4.2 *Object position*

Determining the position of the object(s) in RSL is more intricate than specifying the position of the subject. Therefore, this issue will be approached in several steps. First, the quantitative data concerning the position of the object in the corpus is presented, and then the factors that influence the position of the object are discussed.

Before turning to the discussion of the object position, I want to mention that I also observed objects in sentences with three-place (ditransitive) predicates (like GIVE, SEND etc.). However, such clauses were too infrequent to allow for a systematic analysis. In addition, I faced the problem of not having sufficient data to determine which object is the direct one and which is the indirect one in a three-place predicate. Therefore, in the discussion below, I refer mainly to clauses where one object was expressed and discuss the position of this object.

4.2.1 *General picture*

In the corpus data, objects are expressed in 105 clauses (the experimental data are discussed below in sections 4.2.2 and 4.2.3). In 74% of the cases, the order is OV, and in 26% of the cases, it is VO¹². From this one can conclude that in the default situation, the object precedes the verb. However, later in Section 4.2.2, I will argue that it is not the case.

Pre-verbal objects are usually not divided from the verb by a prosodic boundary; see Table 4:

Table 4: Prosody with OV order

OV	1 EDU	2 EDU	total
	56	22	78
%	72	28	100

¹² Recall that doubling of the predicates (or objects) is not considered in this section.

When the word order is OV, the object is separated from the verb by a prosodic boundary in 28% of the cases. Still, there are also several types of situations when there is a boundary between the object and the verb.

Firstly, sometimes the signer hesitates, which naturally results in a prosodic boundary. In example (24), the direct object UMBRELLA is divided from the verb because of the hesitation.

(24) = UMBRELLA / GIVE FRIEND¹³ [S2-31]
 ‘[She] gave the umbrella to [her] friend’

Secondly, sometimes the signer clarifies or specifies the meaning of the object by means of some additional description, which can also lead to a prosodic boundary. In (25), for instance, the signer used the second sign UMBRELLA2 to clarify the meaning of the first sign UMBRELLA1, and this resulted in a prosodic boundary between the two nouns.

(25) UMBRELLA1 / UMBRELLA2 CL:THROW [S1-9]
 ‘He threw the umbrella’

Thirdly, when there is a role-shift between the object and the verb (Engberg-Pedersen 1993), the object forms its own prosodic unit (26).

role shift

(26) SISTER / CALL [X4-17]
 ‘[He] called his sister’

In example (26) the signer takes the role of the brother calling the sister after signing the object SISTER, resulting in a prosodic boundary. Within the framework of Prozorova (2009), this result is straightforward because role shift usually requires a body shift, which for Prozorova defines a prosodic boundary.

Fourthly, there was one instance of a clause with OSV order (27), which suggests that the object, which is also marked by raised eye brows, is topicalized. The possible topicalization may explain the prosodic boundary between the object and the rest of the clause.

top

(27) KITCHEN / IX(he) CL:GO [X3-11]
 ‘He went to the kitchen’

¹³ Here the verb is a three-place predicate, but the object relevant for the discussion is UMBRELLA.

Fifthly, locative clauses behave prosodically different from non-locative clauses. In these clauses, objects are more often prosodically separated from the verbs. Locative clauses will be discussed in detail in Section 4.3.

In sentences with post-verbal objects, it is more common for the object to be contained in its own EDU. Table 5 shows that 50% of the clauses with the VO order (i.e. 15 out of 30) consist of two EDUs..

Table 5: Prosody with VO order

VO	1 EDU	2 EDU	total
	15	15	30
%	50	50	100

If the hypothesis formulated in the methodology section is right, then this means that VO order is less basic, and thus also more prosodically marked. Below, however, I will show that this conclusion is not correct.

Turning again to my claim that prosodic boundaries must not be equated with clause boundaries, the sequence of clauses in (17) – repeated here as (28) for convenience – is of interest:

- (28) a. ROOM / ENTER [X3-19]
 b. ROOM ENTER. [X3-20]
 ‘[He] entered the room’

In (28a) the object forms its own EDU, while in (28b), which is manually identical to the (28a), the object and the verb are not prosodically separated.

4.2.2 *Verb class and object position*

For many SLs, the verb class has been shown to have an influence on the word order (Kegl 2004a,b; Rathmann 2001; Vermeerbergen et al. 2007; de Quadros 1999; Milković et al. 2006; Hendriks 2008). Agreeing verbs may behave differently from plain verbs, and classifier constructions can also display a different syntax.

In order to test whether the same holds in RSL, I had to determine verb classes first. This process is not trivial, and the existence of clear-cut verb classes (such as plain and agreeing verbs) has even been questioned (Schembri & Cormier 2009). Concerning verb classes, the following decisions were taken:

- A verb is considered a classifier construction if its handshape is meaningful, i.e. if it refers to a class of objects by depicting some of their form characteristics. These verbs include verbs of motion (e.g. CL:CAR.GO), verbs of location (e.g. CL:PERSON.STAND), and verbs of manipulation (e.g. CL:GIVE.THICK.OBJECT, CL:HOLD.THIN.OBJECT).
- Verbs that change their form (movement and/or orientation) to agree with referents, but in which the meaning of the handshape is not meaningful, are considered agreeing verbs. Examples are GIVE.PRESENT, LOOK, FOLLOW.EXAMPLE, OFFER.
- Verbs that do not change form depending on one of their arguments are considered plain verbs (examples are BE.IN.LOVE, WANT).

In the corpus data, agreeing verbs were only used in three clauses with overt arguments. However, plain verbs and classifier constructions were used sufficiently often to allow for a comparison. In 78% of the clauses with classifier constructions (63 out of 81), the object was pre-verbal (OV), while in 22% it followed the verb (VO). This distribution is very similar to the distribution in the corpus in general. The picture was different, however, for sentences with plain verbs. Only in 4 out of 11 cases the word order was OV, while in the other 7 cases it was VO. However, given the small number of clauses with plain verbs and an overt object, it would be premature to determine whether the verb class influences word order.

In the experimental data, too, most of the verbs were classifier constructions. The distribution of word order within this group of clauses is approximately the same as in the corpus data: 81% (36 cases) display OV order and 19% (8 cases) have VO order¹⁴. With plain verbs (BE.AFRAID, SELL, BUILD, BEHAVE), the (S)VO order appeared eight times in the experimental data, while (S)OV and OSV were observed one time each. With agreeing verbs, the (S)VO order was used eight times while SOV was attested only once. Therefore, it is clear that the experimental data confirm the results obtained from the corpus data: plain and agreeing verbs in RSL are used predominantly with the SVO order, while sentences with classifier constructions show a clear preference for the SOV order.

This is further confirmed when we focus on the pool of SVO examples with plain and agreeing verbs. In the next section, I will show that there are additional semantic and syntactic factors that can favour the SVO order, namely reversibility of the situation and animacy or heaviness of the object. However, among the clauses with SVO order, 11 contain a simple inanimate object, in two cases the object is heavy, in four cases the object is animate, and three out of

¹⁴ Again, locative sentences and sentences with predicate doubling are not included here.

these four cases are reversible (all others are non-reversible). For example, in example (29) with the agreeing verb LOOK, the object is not heavy, it is inanimate, and the situation is not reversible.

- (29) LITTLE GIRL LOOK-3 TV. [Eks3-25]
 ‘A small girl is watching TV’

Therefore, most instances of SVO order with plain and agreeing verbs cannot be attributed to other factors; thus this order is really determined by the verb class.

4.2.3 Other factors

Several other factors turned out to have a potential influence on the position of the object in RSL. Before discussing these factors, however, I want to mention two factors that could possibly be thought to be of influence, but that do not appear to be in these data.

First, working with the corpus I got an impression that the use of *fingerspelling* could influence the position of the object. However, when I considered the fingerspelled objects in the corpus (e.g. G-R-U-Š-I in (20)), the predominant object position was still pre-verbal.

Secondly, I also supposed that the use of *pronouns* vs. full noun phrases could influence word order, as has been described for various signed and spoken languages of the world, including ASL (Wilbur 2002) and HZJ (Milković et al. 2006). However, in my data, the use of pronominal objects did not result in a word order different from that observed with full noun phrases¹⁵. Maybe a larger corpus would reveal that these factors also play a role, but based on the data analyzed here, no such influence can be assumed.

Still, there is evidence for the influence of several other factors on word order in RSL. In the data I analyzed, all verbs inflected for *aspect* (habitual or progressive, in other words, aspect types that are phonologically realized by reduplication) appeared in the clause-final position. However, given the small number of examples, this issue requires further research. Interestingly, verbs marked for aspect have been reported to appear clause-finally in some other SLs, too, namely in ASL (Chen Pichler 2001) and LSB (de Quadros 1999).

As in other SLs – for instance, VGT (Vermeerbergen et al. 2007), LIS (Volterra et al. 1984), HZJ (Milković et al. 2006), and LSB (de Quadros 1999) –

¹⁵ The use of pronouns did not influence the position of the subject either, although in some other SLs, subject pronouns can appear clause-finally (e.g. NGT (Crasborn, van der Kooij, Ros & de Hoop 2009) and HKSL (Sze 2008)). Pronominal spatial adverbs also did not differ with respect to the position from full spatial adverbs.

reversibility influences word order in RSL. In reversible situations the (S)VO order is preferred.

In the corpus data, reversible situations are much rarer than non-reversible ones. In order for a situation to be reversible, the arguments usually should be either both animate, or both inanimate. The latter type of situation did not appear in my data at all, so in all reversible clauses discussed here both arguments are animate.

Table 6 shows that in the corpus data reversible situations displayed the (S)OV order 8 times and the (S)VO order 7 times, while in non-reversible clauses the SOV order was more dominant (74%).

Table 6: Influence of reversibility in the corpus data

		Number	%
Reversible	(S)OV	8	53
	(S)VO	7	47
	total	15	100
Non-reversible	(S)OV	70	74
	(S)VO	24	26
	total	94	100

The distribution for the experimental data (Table 7) shows a similar picture: approximately half of the reversible clauses contained the SVO order, while in the non-reversible clauses the SOV order was predominant.

Table 7: Influence of reversibility in the experimental data

		Number
Reversible	(S)OV	5
	(S)VO	5
	OSV¹⁶	1
	total	11
Non-reversible	(S)OV	21
	(S)VO	8
	OSV	1
	total	30

Animacy of the object can influence its position in RSL, just as in some other SLs (e.g. LSA (Massone & Curiel 2004), HZJ (Milković et al. 2006), NGT

¹⁶ Both cases of the OSV order seem to result from object topicalization.

(Coerts 1994), and LIS (Volterra et al. 1984)). Obviously, this factor is related to the previous one, as in my data only animate objects participated in reversible situations. When discussing this factor, we therefore have to keep in mind that it cannot be decided whether one of these two factors is not a direct result of the other.

In the corpus data, animate objects appeared in the post-verbal position more often than inanimate objects. As can be seen in Table 8, the VO order was used in almost half of the clauses with an animate object, while inanimate objects were predominantly (74%) pre-verbal.

Table 8: Influence of animacy in the corpus data

		Number	%
Animate	OV	8	57
	VO	6	43
	total	14	100
Inanimate	OV	70	74
	VO	24	26
	total	94	100

Again, the experimental data yielded similar results. As shown in Table 9, animate objects are as frequently pre-verbal as post-verbal, while inanimate objects are mostly pre-verbal.

Table 9: Influence of animacy in the experimental data

		Number	%
Animate	OV	5	33
	VO	5	33
	VOV¹⁷	5	33
	total	15	100
Inanimate	OV	33	75
	VO	8	18
	VOV	3	7
	total	44	100

The last factor that I want to discuss is the *heaviness* of the object. “Heavy” objects, that is, object NPs that contain dependent material and which are therefore phonologically more heavy, tend to appear in clause-final position in,

¹⁷ Although doubling is discussed in a separate section, I include these numbers here for the sake of completeness. The same is true for Table 11.

for example, English, as is illustrated by the sentence pair in (30). This phenomenon is referred to as “Heavy NP Shift” (Larson 1988):

- (30) a. He [_{VP}donated [_{NP}the beautiful desk dating from the early Victorian period] [_{PP}to charity]]
 b. He [_{VP}donated [_{PP}to charity] [_{NP}the beautiful desk dating from the early Victorian period]] [Testelefs 2001]

I considered all object NPs containing more than one sign heavy. For example, an object can be modified by an adjective, it can be repeated, or it can be first signed and then fingerspelled. I reasoned that even one additional sign might make an object heavy, because in the RSL discourse I analyzed most of the noun phrases contained only a single sign. Also, the duration of a sign in a sign language is generally longer than the duration of a word in a spoken language (Bellugi & Fischer 1972), which means that it is “easier” to make a sign language NP phonologically heavy.

The corpus data did not provide evidence for the claim that the heaviness of an object influenced its position. Rather, as shown in Table 10, the positioning of heavy and non-heavy objects was strikingly similar: both appeared predominantly in the pre-verbal position.

Table 10: Influence of heaviness on the position of the object in the corpus data

		Number	%
Heavy	OV	66	74
	VO	23	26
	total	89	100
Non-heavy	OV	12	75
	VO	4	25
	total	16	100

However, the experimental data yield a different picture. As is evident from Table 11, heavy objects appear more often in post-verbal than in pre-verbal position, while with non-heavy objects the OV order is predominant.

Table 11: Influence of heaviness on the position of the object in the experimental data

		Number	%
Heavy	OV	1	10
	VO	6	60
	VOV	3	30
	total	10	100
Non-heavy	OV	37	74
	VO	8	16
	VOV	5	5
	total	50	100

At this point, I can only speculate about why the experimental data but not the corpus data showed an influence of heaviness on the object position. One possibility is that my definition of heaviness was too weak: maybe objects in the experimental data were in fact heavier than objects in the corpus data, and some of the objects in the corpus which were considered heavy should not have been analyzed as such. Probably a larger data pool is necessary to test this factor.

To sum up, the data suggest that the use of fingerspelling and pronouns does to influence the position of objects in RSL. Aspectual marking on the verb and the heaviness of objects are likely to have an impact on the position of objects, but more data is necessary to verify this claim. Finally, the reversibility of the situation and animacy of the object do influence the object's position. One should keep in mind, however, that – as was shown in section 4.2.2 – the factor that determines the basic position of the object in the first place is the verb class.

4.3 *Locative clauses*

As mentioned in section 2, there is good reason to analyze locative clauses in SLs separately since they have been shown to behave similarly across different SLs, and even descriptions rendered in pantomime by non-signers show a similar pattern (Laudanna & Volterra 1991).

The corpus contains 70 locative clauses with one or more arguments expressed. Usually, in these constructions, the argument labeled S is the Figure which is located or moved relative to the Ground labeled O. Sometimes, in case of object manipulation, there are three arguments: the Agent (S) who performs the manipulation, the first object (the Figure) which is being manipulated, and the second object (the Ground) in relation to which the Figure is manipulated. Example (31) is of the latter type, but in this example, the Agent is not expressed, while the Figure is ROUND.OBJECT ('tray') and the Ground is CHAIR.

- (31) ROUND.OBJECT CHAIR CL:PUT [X3-21]
 ‘[He] put the tray on the chair’

Surprisingly, however, the word order in locative clauses in the corpus turned out not to be different from the word order in other clauses (see Table 12).

Table 12: Word order in locative clauses in the corpus

	Number	%
SV	46	98
VS	1	2
total	47	100
OV	24	83
VO	5	17
total	29	100

The subject preceded the verb in all clauses but one, and the object was also mostly pre-verbal. This distribution, however, is not very informative, because the difference between locative and non-locative clauses should appear when both the subject and the object are expressed, as this is when the OSV order should surface (that is, the Ground-Figure order found in previous studies).

In the corpus, there were 8 locative clauses containing both the subject and the object. However, only one of these clauses showed the expected OSV order (32); moreover, the object in this clause is non-manually marked (by raised eyebrows) which can be a sign of topicalization.

- _____ top
 (32) KITCHEN / IX(he) CL:GO [X3-11]
 ‘He went to the kitchen’

The other word orders were SOV (5 cases) and SVO (2 cases).

Therefore, on the basis of the corpus data, I was not able to confirm my hypothesis that locative clauses would show a word order different from that of other clauses in RSL. One should mention, however, that even in locative clauses, the SOV order is not unexpected because of the tendency to place animate Figures before the Grounds (Volterra et al. 1984). Therefore, we are left with only two clauses that do not use this locative word order. However, it is also curious that the OSV order which is very prominent in locative sentences in other SL (section 2) was not used.

Closer inspection of the prosody of locative clauses revealed an interesting pattern. As I have shown above, in non-locative clauses most pre-verbal objects

(the SOV order) are not separated from the verb by a prosodic boundary in the corpus. Interestingly, in locative clauses with the same word order, almost half of the objects are followed by such a boundary (see Table 13).

Table 13: Prosody with the OV order in locative clauses (corpus data)

OV	1 EDU	2 EDU	total
	13	10	23
%	56	44	100

Thus, there is at least a prosodic difference between locative clauses as a group and non-locative clauses.

The experimental data showed a different pattern with respect to word order: the OSV order is the most frequent one when both arguments are expressed (8 clauses out of 23) (33). The other word orders are SOV (34), and, in 8 clauses, OV (35); for the latter cases, it is impossible to deduce whether they are underlyingly SOV or SVO. There is also one case each of the SVO order (36), of the OVS order (37), and of the OVSV order (38).

- (33) CHAIR BIG CAT IX CL:SIT [Eks5-13]
 ‘The big cat sits on the chair’ (OSV)
- (34) CAT CHAIR CL:SIT [Eks4-12]
 ‘The cat sits on the chair’ (SOV)
- (35) CUSHION CL:SIT [Eks3-26]
 ‘[She] sits on the cushion’ (OV)
- (36) GIRL CL:SIT TABLE [Eks5-17]
 ‘The girl sits in front of the table’ (SVO)
- (37) TUNNEL CL:GO.OUT CAR [Eks3-28]
 ‘The car is going out of a tunnel’ (OVS)
- (38) CHAIR CL:SIT SMALL CAT CL:SIT [Eks3-12]
 ‘The small cat sits on the chair’ (OVSV)

Thus, the OSV order is the one usually used in locative clauses in the experimental data. In contrast, in non-locative clauses this order is used in only two of the cases (see Table 7), and both times the objects are non-manually marked, which may be a sign of topicalization (39).

- nod
- (39) GIRL YOUNG MAN OLD HELP [Eks1-13]
 ‘The old man helps the young girl’

Animacy of the subject influences its position relative to the object in locative clauses in RSL (as in other SLs). In 5 cases, animate subjects are placed before the object (the SOV and SVO orders), and in 5 cases after the object (the OSV, OVS, OVSV orders). In contrast, inanimate subjects (5 cases) were consistently placed after the object (the OSV order).

I must conclude that the results of the experiment and of the corpus analysis are different. On the basis of the corpus data, it is impossible to conclude that locative clauses in RSL differ from non-locative clauses syntactically/with respect to word order (prosodically they do), but on the basis of the experimental data, it is clear that locative clauses in RSL are created using the same mechanism (i.e. Ground-figure order) as in other SLs. This discrepancy can be explained, however, once we take into account that RSL (and probably other SLs as well) uses **two strategies** for creating locative clauses, which I will refer to as the ‘syntactic strategy’ and the ‘spatial strategy’.

According to the *syntactic strategy*, locative clauses are created by means of the same rules as other clauses. When a signer uses this strategy, s/he neither uses signing space nor a simultaneous construction. As the rules are the same as in other clauses, the word order will most likely be SOV for RSL, because verbs in locative clauses are almost always classifier constructions. Consider example (40), illustrated in Figure 2.

(40) CAT CHAIR CL:SIT [Eks4-12]
 ‘The cat sits on the chair’



CAT

CHAIR

CL:SIT

Figure 2: The cat is on the chair (syntactic strategy)

In this example, the word order is SOV, as it would be in a non-locative clause with a classifier predicate. Note that the signer does not use the signing space for localization of referents. The sign CHAIR is not localized in a specific location; rather, it is articulated in neutral space, slightly to the right of the signer.

However, the classifier construction CL:SIT is not directed to the right, that is, it does not spatially agree with the location of the CHAIR. Also, there is no simultaneity in this example.

The *spatial strategy* is a universal visual strategy, probably determined by the cognitive mechanisms of representing locative situations (Laudanna & Volterra 1991, also see Perniss 2007). According to this strategy, the bigger object (Ground) is articulated first, followed by the Figure (mobility); also the animate object is mentioned first (animacy). Therefore, the word order in a clause created on the basis of this strategy will be OSV, or SOV with animate subjects. A signer using this strategy locates referents in space and uses these locations to express the spatial relation between the referents. Simultaneity is also likely to be used. This strategy is employed in example (41), illustrated in Figure 3.

(41) CHAIR-A CAT CL:SIT-A [Eks1-6]
 ‘The cat sits on the chair’



Figure 3: The cat is on the chair (locative strategy)

Example (41) is identical in content to (40). However, the word order here is OSV, as the Ground is mentioned first. The signer located the CHAIR to the right in the signing space, and then the classifier construction is directed towards this location. Another example of the spatial strategy was presented in Figure 1, where a simultaneous construction was used.

It should be emphasized again that, if we look at word order only, it is not always possible to distinguish these two strategies. The SOV order can be used with both strategies if the subject is animate. However, the OSV order unambiguously identifies *the* spatial strategy, and the SVO order the syntactic strategy. Moreover, the use of space and simultaneity can distinguish these two strategies. A different question is whether there is a sharp boundary between the

two strategies. Is it possible for a signer to use space actively, including simultaneity, but still stick to the SVO order, or to use the OSV order without using space? The latter seems extremely unlikely. I did not find any such examples in the experimental data. However, this is a question for future research.

As for the two available strategies, a hearing non-signer describing a locative situation with gesture does not have a choice: only the spatial strategy is available to him. In contrast, a signer can choose between the two strategies, and the reasons why s/he decides to use one strategy over another are probably extra-linguistic, or at least extra-syntactic. It is reasonable to suppose that when a signer is asked to describe a single picture with a locative situation, the spatial strategy is likely to be used, as it is natural to use a dedicated strategy to describe a spatial situation. When a signer is telling a story, however, the situation is different. The story usually does not consist exclusively of locative situations; it consists of a series of events which are signed using the syntactic strategy. When a locative situation appears among other non-locative events, it is also likely to be signed using the syntactic strategy, as switching between strategies is cognitively demanding. This might explain why locative clauses in the corpus data did not appear to differ from non-locative clauses, while in the experimental data they were clearly different.

Table 14: Spatial and syntactic strategies

	Spatial strategy	Syntactic strategy
Order	OSV or SOV order	SVO or SOV order
What determines word order	Universal principles (mobility and animacy)	Language-specific syntactic and semantic rules
Space	Active use of space	Less or no use of space
Simultaneity	Active use of simultaneity	No use of simultaneity
Used in what circumstances?	When describing single spatial situation	In narratives

Table 14 describes the distinction between the two strategies in RSL. However, it is likely that these two strategies are available in other SLs, too. The only cell in this table that may require modification to adapt it for other SLs is the word order in the syntactic strategy, as this is a language-specific feature.

4.4 Doubling

In this section, doubling of the verb (or the nominal predicate) is discussed. As I have mentioned in section 3.4, I decided to consider sequences containing two occurrences of one verb to be a single clause, if these occurrences are only separated by the arguments or adjunct of this verb, and if the occurrences are either identical or different only in morphological or non-manual marking. That is, if between the two occurrences of a verb referring to one situation another verb appears, I did not analyze this sequence as one clause containing doubling, but as three separate clauses. In making this decision, I do not deny that the mechanisms governing doubling in discourse are principally different from the mechanisms governing doubling in syntax (in clauses), but this research was only focused on the syntax of RSL.¹⁸

Doubling was analyzed only on the basis of the corpus data because prosody was an important parameter. In particular, I was interested in whether the occurrences of the doubled element would be separated by a prosodic boundary and whether the placement of this boundary can be used to determine what was the base position of the doubled element.

Before discussing doubling of verbal predicates, I will briefly mention doubling of nominal predicates. The corpus contained two clauses where the nominal predicate was doubled. In both cases, the occurrences of the predicate were identical. In the first case the clause constituted one EDU (42), while in the second case there was a prosodic boundary between the occurrences of the predicate (43).

(42) SUDDENLY WIND STRONG WIND [Sh1-18]
 ‘Suddenly there was a strong wind’

(43) SCARECROW O-G-O-R-O-D-N-O-E¹⁹ / SCARECROW [Sh2-63]
 ‘There was a scarecrow’

Verbal predicates are repeated in 21 clauses in the corpus. In 14 cases the occurrences of the verb are identical, so they can be classified as verbal echoes (44).

¹⁸ In fact, in the corpus data I analyzed there are other elements that can be doubled, namely noun phrases in argument positions, adjectives, adverbs, and even whole clauses but this goes beyond the purposes of this paper (for details, see Kimmelman 2010 (in Russian), Kimmelman in preparation).

¹⁹ In Russian *pugalo ogorodnoe* means ‘scarecrow’, as well as the word *pugalo* by itself. *Ogorodnoe* means ‘garden.ADJ’, and is fingerspelled in this example.

- (44) GIRL CL:STAND STILL CL:STAND [x2-22]
 ‘The girl is still standing’

In the other 7 cases the occurrences were different, and what is important, the second occurrence was always **more marked** (which is in line with the findings of Fischer & Janis (1990) for ASL). In two clauses the second occurrence was inflected for aspect: once progressive aspect (45), and once distributive aspect (46).

- (45) CLOSE / CL:GO THERE CL:GO-ASP.CONT [G1-20]
 ‘There he is going now’ (progressive meaning)
 (46) THREE GRATEFUL CL:GIVE / THREE CL:GIVE-ASP.DISTR²⁰ [G2-75]
 ‘[He] gave three [pears] to three [boys]’ (distributive meaning)

In two cases the second occurrence of the verb was marked with a meaningful (emotional) non-manual expression (47); see Figure 4 for illustration of the two occurrences of the verb LOOK.

- face: doubtfully
- (47) LOOK G-R-U-Š-A LOOK [G2-32]
 ‘[He] looked at the pear doubtfully’



LOOK

LOOK + non-manually ‘doubtfully’

Figure 4: The difference in the non-manual expression between the first and the second occurrences of the verb LOOK

In three cases the occurrences of the classifier construction which was doubled (X3-30, X2-30, Z3-32) were different in the shape of the movement in that the second occurrence contained a more iconic, detailed movement (48).

²⁰ The first sign THREE refers to the themes (three pears), while the second sign THREE refers to the recipients (three boys).

- (48) LIPSTICK CL:PAINT LIPSTICK CL:PAINT(detailed) [X3-30]
 ‘[He] painted with a lipstick’

In one of the clauses with doubling, the occurrences of the verb were adjacent (G2-16). In 16 cases the object was placed between the occurrences (the VOV sequence; see e.g. (46) and (47)), and in 4 cases an adverb (the VAdvV sequence; e.g. (44)).

If we look at the prosody of the clauses with doubling, we can see that the picture is quite diverse. Consider Table 15 showing the prosodic patterns of the cases in which the object or the adverb intervened between the occurrences of the verb:

Table 15: Prosody in clauses with doubling

Object	Number	Adverb	Number
V O V	2	V Adv V	1
V/ O/ V	6	V Adv/ V	2
V/ OV	4	V/ Adv V	1
VO/ V	3		
OV/ OV	1		
Total	16	Total	4

In most cases both occurrences of the verb and the object constituted separate EDUs. V/OV and VO/V boundary placement were less common, while the situation with all elements included in one prosodic unit was even less common. When the adverb was placed between the occurrences of the verb, there was usually a prosodic boundary in the clause, too.

To sum up, there are three observations that can be made concerning doubling of the predicates. Firstly, doubling of predicates is a fairly common clause-level phenomenon in our corpus (it appears in 21 out of 773 clauses), and in most cases the occurrences of the predicate are identical. Secondly, when one of the occurrences of the predicate is marked (manually or non-manually), it is always the second one. Thirdly, in most cases the clause with doubling constitutes more than one EDU and the placement of the prosodic boundaries in the clause seems arbitrary. The last two observations will turn out to be relevant for the discussion of the basic word order in the next section.

5 Discussion

In this section I want to discuss questions raised at several points in this paper. I will first address the question whether the notion of “basic word order” is applicable to RSL. Secondly, I will discuss the appropriateness of the methodology used.

5.1 *The basic word order of RSL*

One of the main questions guiding this research was whether RSL has a basic word order. As discussed earlier (section 3) the criterion of frequency was implicitly applied in this study, as – in the absence of other factors – the most frequent word order was considered the basic one. If frequency was used as the only criterion, then the basic word order in RSL would be SOV, as this is the most common order in the corpus analyzed. However, a number of factors were found to influence word order, which again raises the question of what might be called the basic word order.

The most important factor that determines word order in non-locative clauses in RSL is the verb class. Plain and agreeing verbs are used with the SVO order, while classifier constructions are used with the SOV order. How can we decide which one of these two orders is basic? On the one hand, classifier constructions are morphologically complex, so they are more marked; hence, according to the criterion of morphological markedness, the SVO order should be basic. On the other hand, agreeing verbs are not morphologically simple either, although one might argue that they are simpler than classifier constructions. It is surprising to find that agreeing verbs pattern with plain verbs and not with classifier constructions in RSL, since, as discussed in section 2, the opposite pattern has been described for other SLs, for instance, for VGT (Vermeerbergen et al. 2007), LSB (de Quadros 1999).

We were able to identify additional factors which influence word order in RSL. Are they relevant for the question of the basic word order?

Aspectual marking favours the SOV order. If the verb is marked with aspect, then it is obviously morphologically marked, so again SOV is a marked order as compared to the SVO.

Heavy objects, as defined in this paper, appear in the clause-final position. One can safely assume that heavy objects are more marked than non-heavy objects, so with respect to this criterion the SVO order is more marked.

Reversible clauses favour the SVO order. Usually, it is assumed that the order in reversible clauses is more basic according to the ambiguity criterion. However, I think that logically this is not the right conclusion. The basic word order is the word order created by syntax when there are no additional factors

that can influence it. If we believe that reversible clauses more frequently exhibit the SVO order because this order resolves the ambiguity, then this situation is more marked, and semantic or pragmatic factors play a role in determining the word order. The unmarked case would then be exactly the non-reversible clauses, because in these clauses ambiguity is not an issue and the neutral/basic word order can be used. On the other hand, I have argued that the fact that SVO is preferred in reversible clauses may not be connected to ambiguity at all. In RSL the sequence NP NP V will also always be interpreted as SOV, unless it is a locative clause or there is a marker of topicalization; therefore, the SOV order is as suitable for ambiguous situations as is SVO. If this is true, then the fact that reversible clauses prefer SVO does not tell us anything about which word order is more basic.

The final factor is the animacy of the object. Animate objects occur more often in the SVO order, while inanimate objects favour the SOV order. Again, this factor does not tell us which order is more basic, because it is difficult to say whether an animate object is more or less marked than an inanimate object. Interestingly, in the literature on spoken languages, both points of view exist: Hopper & Thompson (1980) claimed that an animate direct object is unmarked, while Comrie (1979) considered an inanimate direct object to be the unmarked case.

Doubling of predicates is also relevant. On the one hand, most of the doubled predicates are doubled identically, so there is no way to decide which of the occurrences of the V in the sequence SVOV is the basic one, and which one is the copy. On the other hand, in cases in which one of the occurrences is more marked, it is always the second occurrence. Therefore, this may be an argument in favour of SVO order as the more basic one.

Thus of the factors that influence word order in RSL, two indicate SVO as the basic word order (verb class and aspect), one indicates SOV (heaviness of the object), and two are neutral (reversibility of the situation and animacy of the object); doubling facts probably also point towards a basic SVO order. The facts are thus contradictory. There are two possible ways to resolve the contradiction. One is to claim that SVO is the basic word order and that classifier predicates are more marked morphologically, which explains why SOV is then used. The alternative is to say that there are two main word orders: SVO for plain and agreeing verbs and SOV for classifier constructions, none of which is more basic. At this stage of research on RSL syntax, it is impossible to decide which of the two positions is to be favoured.

In section 3 I formulated the hypothesis that the marked word order would also be prosodically marked. This hypothesis has had to be rejected. With respect to the relative position of subjects and verbs, the VS order, which is clearly non-basic, is also marked prosodically: in the clauses with this order, the

subject is much more often separated from the verb by a prosodic boundary. However, the evidence from prosody does not support SVO as the basic word order either. In the SVO clauses the object was more often separated from the verb by a prosodic boundary. If we consider only the clauses with plain verbs and the (S)VO order, 4 out of 7 clauses contained a prosodic boundary between the verb and the object. Of course, the number of examples containing plain verbs is too small to allow for strong conclusions, but on the basis of the corpus analysis, the hypothesis cannot be justified. Clauses with doubling also show that prosody does not provide any evidence as to the basic position of the doubled element²¹.

5.2 *Methodological issues*

Firstly, I should point out that, although my experiment was mostly based on the experiment from Volterra et al. (1984), I used a different elicitation procedure, namely, the signer was asked to simply describe pictures one by one to another signer. This procedure worked out rather well, as I was able to elicit a substantial number of clauses with overt arguments, although the number of clauses containing only a verb was also considerable (almost a half), which may be the result of the modified procedure.

Secondly, the two kinds of data I used yielded slightly different results with respect to word order, so that I must conclude that both types of data are important. I had initially planned to use the corpus as the first step in the analysis in order to formulate hypotheses as to the influential factors and then explore these in more detail in the experimental data. However, some of the factors that turned out to be influential in the experimental data were not so obvious in the corpus data. Firstly, the heaviness of the object did not appear to influence the object's position in the corpus data, although it had a considerable influence on word order in the experimental data. Secondly, due to the very small number of plain or agreeing verbs, the factor of verb class, which is very relevant to the problem of word order, could have gone unnoticed if only the corpus data had been considered.

Finally, a very important difference between the corpus data and the experimental data concerned word order in locative clauses. As I have shown in section 4, the spatial strategy to create locative clauses was used much more frequently in the experimental data. Therefore, if the purpose of the study is locative clauses, different kinds of data should be analyzed, because different genres can prefer different strategies.

²¹ This hypothesis is also not confirmed by the prosodic properties of other constituents (adjectives and adverbs) that I do not discuss in this paper.

6 Conclusions

The aim of this paper was to describe word order in RSL paying special attention to methodology. I used two types of data: corpus data and experimental data, which turned out to be a productive decision, as the two types of data partially agreed and partially complemented each other. I also decided to use an empirical approach, trying to presuppose as little theory as possible beforehand.

The analysis of the data showed that in RSL the basic word order (used with plain and agreeing verbs) is SVO, while classifier constructions are used with the SOV order. The data revealed that there are several factors that influence word order (apart from the verb class), namely aspectual marking on the verb, heaviness of the object, reversibility of the situation, and animacy of the object. I also found out that predicates (as well as other constituents) can be doubled in RSL clauses, and that the second occurrence is more (or equally) marked.

I claimed that RSL uses two strategies of creating locative clauses: syntactic and spatial. With the syntactic strategy, the word order is defined by the general syntactic rules, and the space is used minimally; this strategy is preferred in narratives. With the spatial strategy, the word order is defined by universal (for the visual modality) principles of mobility and animacy, and the space is used actively; this strategy is preferred in describing spatial situations in isolation.

I also looked at prosody and its correlation with word order. I claimed that prosodic boundaries cannot be used to define clause boundaries: although these boundaries often coincide, there is no one-to-one mapping. I have also failed to confirm the hypothesis that more marked word orders would be prosodically more marked.

Coming back to the two general questions raised in the introduction, RSL data shows that (1) SLs (including RSL) do use word order as an important grammatical device, and that (2) most properties of word order in SLs can be accounted for along similar lines as those described for spoken language, with exception of the word order in locative clauses, which is determined by the visual modality.

Appendix I

List of the pictures used in the experiment

Non-reversible:

1. The boy closes the door.

2. The girl eats the cake.
3. The girl watches TV.
4. The girl cuts the thread.
5. The man washes the dog.
6. The man builds the wall.

Reversible:

1. The mother embraces the son. (not from Volterra et al. 1984)
2. The girl slaps the boy. (not from Volterra et al. 1984)
3. The man combs the girl's hair. (picture modified)
4. The cowboy stabs the Indian.
5. The girl strikes the boy. (picture modified)
6. The truck pulls the car.

Locative:

1. The flowers lie near the vase.
2. The cat sits on the chair.
3. The car drives under the bridge.
4. The ball lies under the table. (picture modified)
5. The man stands near the car.
6. The tree is behind the house.

Plain verbs:

1. The boy steals the wallet from the man (reversible and non-reversible objects).
2. The man sells watermelons (non-reversible).
3. The boy falls in love with the girl (reversible).
4. The boy gets afraid of the dog (reversible).

Additional pictures:

1. The boy thinks about the girl (plain verb, reversible).
2. The man asks the women questions (agreeing verb, reversible).
3. The woman cooks a soup (plain verb, non-reversible).
4. The teacher teaches the pupils (agreeing verb, reversible).

Appendix II

Labels used in the transcription

- U – utterance consisting of one sign which I cannot attribute to any part of speech.

- S – Subject (the most Agent-like argument)
- O – Object, the most Patient-like argument. O(ground) – Ground in locative clauses; O(rec) – object-Recipient, O(theme) object-Theme, O(inst) – object-Instrument, O(loc) – object with a locative meaning, O(preposition) – object introduced by a preposition.
- V – plain verb with no aspectual marking; Vagr – agreeing verb with no aspectual marking; Vcl – classifier construction; Vasp – verb with repeated movement expressing habitual or progressive meaning. Vmod – modal verb; Vneg – verb with a negative meaning (incorporated negation).
- N – noun in the predicative or non-argument position.
- A – adjective, A(num) – number, A(S/O) – adjective in an argument position.
- DepN – nominal dependent of another noun (e.g. the owner of the goat).
- Adv – adverb
- Poss – the marker of possessive relation.
- Neg – negative marker.
- Conj – conjunction.
- Prep – preposition.
- Qadv/s/o – question word and its role.

Additional markers

- (fs) – fingerspelling.
- (nm) – non-manual signs
- = – hesitation
- + – simultaneity
- , – topicalized constituent marked by a pause and non-manual markers.
- # – incomplete clause.
- “” – direct speech (role shift with speech verbs).

Appendix III

List of sign languages with abbreviations

- American Sign Language – ASL
- Argentinean Sign Language – LSA
- Australian Sign Language – Auslan
- Brazilian Sign Language – LSB
- British Sign Language – BSL
- Croatian Sign Language – HZJ
- Flemish Sign Language – VGT

German Sign Language – DGS
Hong Kong Sign Language – HKSL
Irish Sign Language – IrSL
Israeli Sign Language – ISL
Italian Sign Language – LIS
Jordanian Sign Language – LIU
Russian Sign Language – RSL
Sign Language of the Netherlands – NGT
South-African Sign Language – SASL
Spanish Sign Language – LSE
Swiss French Sign Language – SFSL

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