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CHAPTER 4

Syntactic functions of nonmanuals in Russian Sign Language

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This chapter presents the Russian Sign Language (RSL) Corpus and demonstrates its capabilities as a research tool by summarizing three corpus-based studies primarily focused on syntactic functions of nonmanual markers. The first study considers question marking in regular wh-questions and in question-answer pairs. It shows that the two constructions have very different nonmanual markers. The second study analyzes marking of topics in RSL, and shows that nonmanual markers of topics are typologically common, but are infrequent in naturalistic corpus data. The third study investigates conditional and concessive constructions in RSL. It demonstrates that these constructions make extensive and frequent use of nonmanual markers, but that no single marker is specialized for the function of expressing conditional or concessive meaning. Instead, complex combinations of multiple markers are employed in these constructions. All three studies also contribute to sign language typology by providing novel descriptions of syntactic and discourse phenomena in RSL.

Keywords: Russian Sign Language, nonmanuals, questions, topics, conditionals, concessives

1. Introduction

In this chapter, we present the Russian Sign Language (RSL) Corpus <http://rsl.nstu.ru/site/index/language/en>, and demonstrate its capabilities as a research tool by summarizing three corpus-based studies: one on question marking, one on topic marking, and one on conditional and concessive constructions. Some of the material reported in the chapter comes from previously published research by the authors, while other material is new and first reported here. These studies are primarily focused on nonmanual markers (Pfau & Quer 2010). We decided to

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focus on them in order to test and showcase the possibilities that the RSL Corpus offers for the study of nonmanuals, and also to show the current limitations of using the corpus. Furthermore, these studies contribute to understanding of nonmanual markers cross-linguistically, and can be compared and contrasted with similar corpus-based studies in other sign languages.

We group the three studies reported in this chapter under the umbrella term of syntactic nonmanuals because we study nonmanuals that appear in specific syntactic constructions: wh-question, topic construction, and conditional and concessive subordinate clauses. There is a theoretical debate in the field on whether nonmanual markers themselves are syntactic objects, prosodic objects, or both (see Pfau & Quer 2010; Sandler & Lillo-Martin 2006; Sandler et al. 2020; Wilbur 2021). We do not try to contribute to this debate in this chapter; instead, we focus on describing the basic properties of these constructions and nonmanual markers used in them as the first step towards further research.

Before discussing the corpus and the three studies, we give a brief background on RSL and linguistic research on RSL. RSL belongs to the Deaf-community sign languages (Meir et al. 2010). It emerged as a relatively standardized system of communication at the beginning of the 19th century, when the first schools for deaf children started to appear in Russia. Currently RSL is used all over the Russian Federation. Some signers also live abroad – in the former Soviet republics such as Kazakhstan, Uzbekistan, Tajikistan, Belarus, and Moldova, as well as in the USA, Germany, and Israel, where they emigrated from Russia over recent decades.

The information on the number of RSL signers in the Russian Federation differs significantly in different sources. According to the All-Russia population census 2010 (the only one in which RSL signers were counted), it is about 120,500 people. According to the All-Russian Society of the Deaf, this number is more than 300,000 people (Rukhledev 2014). Information on the number of RSL signers outside the Russian Federation does not exist.

Most RSL signers are deaf and hard-of-hearing people; almost all of them bilingual, that is, they can use to some extent spoken Russian in its written or oral form. A few RSL signers are hearing people: CODA (children of deaf adults), teachers working with deaf learners, interpreters, and linguists.

Since 2012, RSL has been officially recognized in the Russian Federation. Its status is reflected in the Federal Law on the Protection of Persons with Disabilities, which guarantees deaf and hard-of hearing people access to interpreting services at state institutions. In recent years, two universities in Russia have been training RSL interpreters: Moscow State Linguistic University and Novosibirsk State Technical University. In some universities, RSL is used as the language of instruction for deaf students: the teachers either use RSL by themselves, or teach through interpreters. However, in reality, state support of RSL is still weak. RSL is very limitedly used in

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schools and kindergartens for deaf and hard-of-hearing children. There is a huge shortage of RSL interpreters, and deaf people constantly face many difficulties related to their life within the hearing community.

The first publications about RSL date back to the 19th century. These are the lists of signs with the descriptions of their performance by Fleri (1835) and Bratolyubov (1872), which provide important information on diachronic change in RSL. However, RSL still remains insufficiently studied and documented. In fact, the study of this language by professional linguists has been conducted only for the past fifteen years. At present, there are a number of printed and video dictionaries, two short sketches of RSL (Davidenko & Komarova 2006; Grenoble 1992), several dozen articles on various aspects of the linguistic structure of RSL, and a Russian-language textbook on sign language linguistics (Burkova & Kimmelman 2019) that, among other things, summarizes research on RSL presented in the current linguistic literature. However, there is still no detailed descriptive grammar of RSL.

Long-term functioning of RSL only in the domain of everyday communication, and the lack of legal status and state support, have led to a deeply rooted prejudice among the hearing community, including teachers of the deaf, that it is not a full-fledged language. This has hindered the development of linguistic research of RSL. In addition, linguists are faced with certain difficulties in accessing RSL data, mainly because it is an unwritten language, and its signers constitute a special community. The laboriousness of collecting and processing RSL data and the consequent insufficient amount of data affect the accuracy of linguistic research on RSL. The RSL Corpus, opened to the public in 2015, aims to facilitate the access to RSL data for linguists and to intensify research. An important advantage of corpora is that they allow one to investigate a language in an almost naturalistic setting, while experimental methods of data collection create a somewhat artificial context for the language use. The corpus is also useful as a tool for language teaching, because it provides students who are learning RSL with natural language material in real communication situations. Currently, as seen in the increasing number of RSL researchers and corpus-based studies, the corpus is already in high demand.

2. The Russian Sign Language Corpus

The RSL Corpus has been developed during the Corpus-based Study of Morphosyntax and Lexicon of Russian Sign Language project, supported by the Russian Foundation for Basic Research (2012–2014). To carry out the research within the project, the project team recorded and annotated in ELAN approximately 240 monologues and dialogues conducted in RSL. This annotated corpus was originally intended for use by the project participants only, but later we decided to develop an online free access version.

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The current RSL Corpus has certain limitations. First, there are no annotations of nonmanuals. Second, there is also no option available to search for a specific combination of signs (only single-sign searches are possible). Third, only a few regional varieties of RSL are represented. However, when funding becomes available, further developments are planned, such as adding more video materials, including materials from different regional varieties of RSL, adding an English translation, adding annotation tiers for nonmanuals, and expanding search capabilities.

In the remainder of this section, we discuss the features of the corpus, namely the participants, the recordings, the annotation, and finally, access and use of the corpus.

2.1 Participants

In total, 45 male and female RSL signers, ranging from 17 to 63 years old, with varying degrees of deafness (deaf, hard-of-hearing, deaf-blind, and hearing CODA), were filmed for the RSL Corpus, see Table 1. Most of the signers currently reside in Novosibirsk; in the past, some were long-term residents of other regions of Siberia (the provinces of Tomsk, Kemerovo, and Sverdlovsk; the Altai and Krasnoyarsk territories; and the Republics of Altai, Sakha (Yakutia), Buryatia, and Khakassia), and the north-eastern part of Kazakhstan. The rest of the signers reside in Moscow;

Table 1. Statistics of participants in the RSL Corpus

Age	under 15 years old	–
	16–30 years old	17
	31–45 years old	16
	46–60 years old	9
	over 60 years old	3
Gender	male	21
	female	24
Place of permanent residence at the time of recording	Novosibirsk	30
	Moscow	12
	Uzbekistan	1
	Israel	1
	Germany	1
Degree of deafness	deaf	33
	hard-of-hearing	10
	blind-deaf	1
	CODA	1
Age of RSL acquisition	from birth up to 7 years old	39
	8 – 10 years old	5
	later than 10 years old	1

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in the past, some of them were long-term residents of Kirov, Vladimir and Yaroslavl provinces, and the Republic of Tatarstan. There are also videos filmed from three RSL signers living abroad in Uzbekistan, Israel, and Germany. Participants gave consent to process their personal data, including the publication of their video recordings for research purposes.

In general, we tried to include in the corpus as many video recordings as possible from deaf people who were children of deaf parents and who have acquired RSL from birth.[1] We also tried to avoid including recordings in which the signers used Signed Russian (a system of sign communication which translates spoken Russian into signs, following the word order of spoken Russian). However, it was not possible to fully comply with these limitations. Moreover, in our view, that would not be representative of the language in use. The community of RSL signers is very heterogeneous in terms of their degree of deafness, the conditions of their RSL acquisition, and the influence of the surrounding spoken Russian language on their signed language. For example, even a deaf person from a deaf family might not start using sign language from birth, but much later. Similarly, depending on the topic under discussion and the conditions of communication, even a highly qualified RSL native signer may either not code switch at all, or, on the contrary, use a significant number of Signed Russian constructions. These are the diverse sociolinguistic conditions under which RSL exists. That is why, when developing the RSL corpus, we did not aim to obtain only 'ideal' recordings in 'pure' RSL, without inclusions of Signed Russian, filmed only from 'qualified' native signers. In our view, both recordings received from native signers, and recordings interspersed with Signed Russian are all manifestations of real-life functioning of RSL. In addition, the texts that include Signed Russian constructions provide important material for studying the interaction of RSL with the surrounding spoken language, the mechanisms of code-switching, code-mixing, and borrowing.

2.2 Recordings and conditions of filming

Table 2 presents the types of recordings found in the RSL Corpus. Many recordings are spontaneous monologues (mostly life stories, as well as funny stories and anecdotes which are very popular in the deaf community), and monologues based on stimulus materials (cartoon retelling, picture-based storytelling). Cartoon retellings include, among others, retellings of the Canary Row cartoons, which is important because they have been used as stimuli for many different sign languages, thus facilitating a direct cross-linguistic comparison (see e.g., Coppola & Senghas 2010;

1. Only a small percentage of Deaf children are born to Deaf parents (Brentari 2010: 5). However, it is the Deaf from Deaf families, for whom a sign language is the first native language and a daily presence, who are usually considered native signers.

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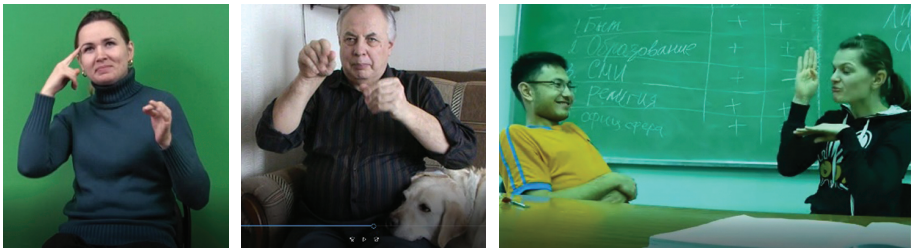
Kimmelman et al. 2019). A smaller part comprises conversations and interviews discussing relevant issues in the deaf community. The corpus also contains two texts obtained through elicitation.

Table 2. Statistics of the types of recordings in the RSL Corpus

Spontaneous speech		Stimulus-based monologues	Elicitation	Total
Monologues	Conversations			
83	4	84	2	173

Some discourses were filmed in video recording studios (Figure 1a). However, not all the informants had the opportunity or desire to be filmed in the studio, which is why the corpus also includes videos filmed in an informal atmosphere at home (Figure 1b), or in a classroom (Figure 1c). While this affected the quality of the video recordings, it made it possible to obtain many natural and diverse texts.



a. **b.** **c.**

Figure 1. Examples of videos for the RSL Corpus filmed: (a) in studio, (b) at the informant's home, and (c) in the classroom

When filming the texts for the RSL Corpus, the addressee was either a deaf/hard-of hearing person (for most recordings) or a fluent L2 hearing signer, and this is indicated in the name of the corresponding file (see Section 2.4).

2.3 Technical capabilities

The RSL Corpus provides the following options: (1) viewing annotated video recordings; (2) viewing translation of a video recording into spoken Russian; (3) changing video playback speed; (4) repeating playback of a selected video-fragment; (5) viewing signers' data (gender, age, degree of deafness, regions of long-term residence, age and conditions of sign language acquisition); (6) sorting texts by metadata (type of text, place of recording, topic, year and month of recording, signers' data); (7) searching tokens on selected tiers in a separate file; (8) searching tokens on selected tiers in a group of files sorted by metadata.

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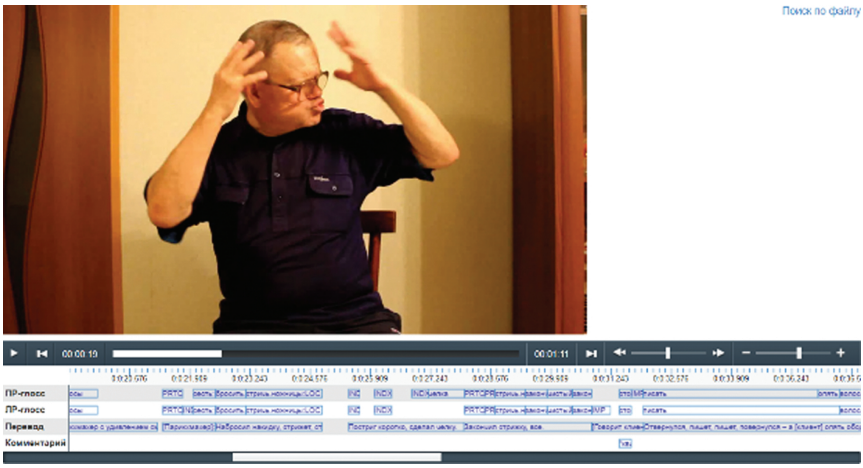
2.4 Annotations and types of markups

In the original offline version of the RSL Corpus, the maximum depth of annotations of videos in ELAN reached fifteen tiers. In the online RSL Corpus, video texts are available with either standard or simplified markup. Standard markup (see Figure 2a) provides annotations on four tiers: glosses in Russian for the signs produced by the right ("RH") and left ("LH") hand respectively, translation of each RSL phrase into spoken Russian ("Translation"); and optional additional explanations ("Comments"). Simplified markup provides annotations only on the "Translation" tier (Figure 2b).



a.

b.

Figure 2. Videotexts in the RSL Corpus with (a) standard markup and (b) simplified markup

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The name of a video file in the RSL Corpus generally has the following structure: language and place of filming – type of text – signer's code – addressee's code – type of markup. The abbreviations for the language and place of filming are: *RSL* – Russian Sign Language; *N* – Novosibirsk; *M* – Moscow; *G* – Germany; *I* – Israel; *U* – Uzbekistan. The abbreviations for the types of texts are: *a* for materials obtained through elicitation, *b* for picture-based storytelling, *d* for conversations, *n* for spontaneous monologues, *m* for cartoon retelling. If there are several texts of the same type filmed from the same signer, they are marked with numbers, for example: *n1*, *b4*, *m3*. The signer's code is indicated by the letter *s* and a unique participant number. The addressee's code is indicated by the letter *d* for a deaf/hard-of-hearing RSL signer, and *h* for a hearing person. The type of markup is indicated by *std* for the standard markup, and by *dem* for the simplified markup. For example, a spontaneous monologue (*n*) with standard markup (*std*) filmed in Novosibirsk (*N*) from the signer *s2*, narrated in the presence of a deaf person (*d*), is coded as *RSLN-n-s2-d-std*.

2.5 Access

The RSL Corpus is a nonprofit information storage and retrieval system developed for research and educational purposes. Corpus access requires registration. Depending on their purpose of using the corpus, registered users have different levels of access to its resources: some levels give access to all the data in the corpus, while others exclude some data, such as the data elicited via questionnaires, as this type of data is not relevant to most users. Furthermore, a special category of users are students learning RSL, and this type of access gives additional capabilities useful for studying.

2.6 Overview of corpus-based publications

Already during its construction, several developers of the RSL Corpus conducted various research projects using the data. After the publication of the corpus, many more projects were conducted and many publications appeared based fully or partially on corpus data. These include studies of conditionals in complex clauses (Burkova 2012), information structure (Kimmelman 2014, 2015, 2019), quotation and role shift (Kimmelman & Khristoforova 2018), verbal aspect (Burkova & Filimonova 2014b; Filimonova 2015), reduplication (Burkova & Filimonova 2014a), plurality (Burkova 2015), and functioning of mouthing (Bauer 2019; Bauer & Kyuseva 2022). Two of these studies, namely on conditional structures and information structure, are partially reported below. In addition, a number of studies complemented corpus data with elicitation data (e.g., Burkova 2012; Kimmelman 2018). Finally, many students in Novosibirsk and Moscow wrote their term papers

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and BA and MA theses using data from the RSL Corpus. Some of these papers were also published, and hopefully, many others will follow.

The remainder of this chapter reports on three case studies: marking of wh-questions (Section 4), marking of topics (Section 5), and marking of conditional and concessive clauses (Section 6). Section 3 provides a brief discussion of the methodology used in these studies.

3. Method

In this section, we briefly address the methods used in all three studies. The existing RSL Corpus does not yet have annotations of nonmanuals: this is a voluminous and time-consuming technical work, which has yet to be done in the process of further refinement of the corpus. But since each study analyzes the use of nonmanuals in a certain type of structure, the corpus provides an opportunity to select video fragments with these structures, and then identify and analyze the nonmanuals used in them. Since the RSL Corpus is still quite small, some of the structures analyzed in the studies appear infrequently in the corpus. In such cases, it was difficult or even impossible to analyze them with the corpus data alone, so we supplemented them with elicited data.

The same basic procedure was followed in all three studies. First, the constructions were located in the corpus data. In the first and third studies, the construction (wh-words or the conditional conjunction) was located by searching for relevant Russian words in the gloss or translation tier. For the second case-study, all the utterances in a subset of the corpus were annotated for topic (see Section 4.1). Second, the results were manually inspected in order to filter out non-relevant findings. Third, the relevant nonmanual markers were manually annotated. The nonmanual markers to be annotated were determined based on previous research and observations during steps 1 and 2.

We decided to annotate the nonmanual markers only in rough categories, e.g., eyebrow raise vs. eyebrow lowering, not focusing on degrees/strength of raise or lowering, and not describing the muscles involved as in the Facial Action Coding System (Ekman et al. 2002; see Dachkovsky et al. 2013 for an example of applying the system to sign languages). Detailed manual annotation of nonmanual markers is extremely time-consuming, and of questionable reliability (Puupponen et al. 2015). It is also currently unclear (owing to the lack of research) what level of detail of annotation is sufficient for distinguishing linguistically relevant contrasts between different nonmanuals. We hope that recent developments in computer technologies, especially Computer Vision (Kuznetsova et al. 2021), will enable more reliable and detailed annotation and analysis of nonmanual markers in future.

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4. Case study 1: Wh-questions

The first case study is dedicated to two constructions involving interrogative signs, also called wh-signs: regular content questions (i.e., interrogative sentences with an illocutionary function of requesting new information), and non-polar question-answer pairs. Although marked with the same set of functional elements, these two constructions are different in nature. One of the ways to expose this difference is to look at the nonmanual marking of these constructions, which appears to be distinctive.

Regular questions in sign languages are generally associated with specific brow patterns (i.e., frowns and brow raises) and head movements (i.e., backward and forward tilts). Research revealed that dedicated nonmanual markers of questions can be observed in most if not all sign languages investigated so far, although the choice of particular nonmanual markers and their scope (the manual signs, with which nonmanuals overlap) may vary across sign languages (Cecchetto 2012; Kelepir 2021; Zeshan 2004). The observed variation in question nonmanuals proves the grammatical nature of these markers, as opposed to superficially similar gestural and emotional facial expressions observed in hearing speakers. Here, we focus on wh-questions only, because these are easy to find in the corpus by searching for wh-signs using the gloss tier. Conversely, polar questions (i.e., questions requiring a yes/no answer) and related constructions (e.g., polar question-answer pairs) are often not marked by manual signs, and therefore escape the corpus investigation.

Recent corpus-based research questions whether nonmanual marking of questions is obligatory. In a corpus study of British Sign Language (BSL), Hodge et al. (2019) find that, contrary to previous descriptions of the language, many questions are not marked by nonmanuals, and that the nonmanual marking that is present is quite variable. This shows the necessity for corpus-based research on question marking in sign languages.

Another domain of interest comprises so-called question-answer pairs (QAP), that is, questions followed by the answer attributed to the same author. An example from American Sign Language (ASL) (adapted from Caponigro & Davidson 2011: 329) is given in (1).

(1) $\overline{\text{JOHN BUY WHAT BOOK}}^{\text{br}}$ [ASL]
'What John bought is a book.'

In (1), the first clause JOHN BUY WHAT represents a question, which is immediately answered by the subsequent noun phrase BOOK. Similar constructions are widely attested across sign languages, and function to separate the focus from presupposed information (Wilbur 1996). Although related to the regular questions

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lexically (by also using wh-signs) and, probably also derivationally (Khristoforova & Kimmelman 2021), QAPs represent a completely different syntactic construction, which is made evident by distinctive nonmanual marking. Thus, while regular questions in RSL are marked by brow patterns and forward head movements, question parts of QAP feature lateral body and head movements, and change of an eye gaze direction away from the interlocutor.

Research on both question and QAP nonmanual marking benefits greatly from the corpus method. First, nonmanuals are notoriously difficult to elicit, and even more difficult to test in acceptability judgments, and both methods create an unnaturalistic setting that may bias participants towards restricted patterns of motion.[2] Second, both questions and QAP require a very specific pragmatic context, which is difficult to recreate in elicitation materials or acceptability judgment stimuli. The corpus method alleviates these problems by allowing one to observe nonmanual markers in (semi-)natural discourse in a variety of contexts.

However, analyzing nonmanual markers in the corpus has its own limitations. Manual annotation of nonmanual markers requires much time and effort, and is prone to disagreement between individual annotators, especially if these are hearing L2 signers, which is often the case (Puupponen et al. 2015). New technologies such as computer vision and neural networks allow one to semi-automatize the procedure, but these are still in their infancy (Kuznetsona et al. 2021). Notwithstanding these challenges, corpus investigation remains a golden standard for research on nonmanual markers.

4.1 Regular wh-questions

In this section, we focus on regular wh-questions, that is, unembedded content questions involving wh-signs (e,g., WHO, WHAT, WHERE, etc.). To investigate regular wh-questions, Khristoforova and Kimmelman (2021) applied a corpus method by searching for various wh-signs on the glossing tier. Within the output, it was first necessary to weed out non-interrogative uses of wh-sign (e.g., as relative or indefinite pronouns) and embedded interrogatives (e.g., "I wonder **who** will come."). Keeping the typological variation in mind (see details below), the position of wh-signs and nonmanual marking could not be used as primary diagnostics, since these markers were still to be determined for RSL. Therefore, semantic and

2. Acceptability judgment experiments involve presenting participants with specifically developed strings of words (stimuli) and explicitly asking them to assess the acceptability of the stimulus in a target language (usually the native language of the participant). By contrast, elicitation materials do not require assessment, but rather aim at prompting a particular linguistic response (e.g., a short narrative, sentence or word) (Podesva & Sharma 2013).

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contextual cues were used. As a result of initial data treatment, 70 regular questions were identified in the corpus and described with respect to the sentence position of a wh-sign (Section 4.1.1), and the presence and scope of nonmanual markers (Section 4.1.2).

4.1.1 *Position of wh-signs*

Research on wh-questions in sign languages reveals that wh-signs tend to occur in the sentence-final position, in contrast to spoken languages where this position is rarely available for wh-elements (Cecchetto 2012; Dryer 2013). Depending on the sign language, wh-sign may also be found in the sentence-initial position, *in situ*, or may even be expressed in both initial and final positions in the sentence (Petronio & Lillo-Martin 1997).

In contrast to many sign languages, Khristoforova and Kimmelman (2021) report that wh-questions in RSL are often found with sentence-initial interrogative signs (2a) (25 entries, 36%), while sentence-final (2b) (14, 20%) or doubled (2c) (5 entries, 7%) wh-signs are also possible. *In situ* positions of wh-signs are difficult to tease apart from initial or final positions. Thus, (2d) can be interpreted both as sentence-final and *in situ*, given SVO for plain predicates in RSL (Kimmelman 2012). However, in this case, one may still expect to find non-peripheral *in situ* wh-signs targeting sentence-internal constituents, that is, separated from the sentence boundary by other constituents or adjuncts. Such examples were not identified in the corpus, which may point towards the *in situ* position being ungrammatical for wh-signs in RSL.

(2) a. $\overline{\text{WHAT DO}}^{\text{br}}$[3]
'What to do?' <http://rsl.nstu.ru/data/view/id/262/t/78460/d/79080>

b. BUILD $\overline{\text{WHO}}^{\text{hlb}}$
'Who built {the house}?'
<http://rsl.nstu.ru/data/view/id/214/t/124210/d/125540>

c. $\overline{\text{WHO}}^{\text{hlb}}$ MONEY GIVE$_1$ $\overline{\text{WHO}}^{\text{____}}$
'Who will give me money?'
<http://rsl.nstu.ru/data/view/id/176/t/268880/d/272920>

d. MUST EAT $\overline{\text{WHAT}}^{\text{hlr}}$
'What should {I} eat?'
<http://rsl.nstu.ru/data/view/id/278/t/194030/d/195750>

3. In this chapter, the original Russian glosses have been translated into English for convenience. See the Appendix for glossing conventions of nonmanual markers.

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The observed tendency for sentence-initial wh-signs in RSL thereby contributes to the typological variety of interrogative strategies, since the sentence-initial position of wh-signs is rarely predominant across other sign languages investigated so far (see e.g., Zeshan 2004). One sign language that patterns similarly to RSL is Austrian Sign Language (ÖGS), where sentence-initial wh-signs are also predominant (Šarac et al. 2007).

4.1.2 *Nonmanual markers of wh-questions and their scope*

Nonmanual marking of wh-question also features cross-linguistic variation. For instance, in ASL and Italian Sign Language (LIS) (Cecchetto 2012), and in Israeli Sign Language (Israeli SL) (Dachkovsky & Sandler 2009), nonmanual markers of wh-questions are frowned brows and forward head lean, while in Croatian Sign Language and ÖGS, the core nonmanual marker of wh-questions is fronted chin (Šarac et al. 2007), and in Indo-Pakistani Sign Language (IPSL), raised eyebrows and backward head tilt (Aboh et al. 2005).

In addition, the spreading of nonmanual markers varies across sign languages. For instance, in ASL wh-nonmanuals scope over the entire sentence, whereas in LIS the scope of nonmanuals depends on the syntactic function of the wh-sign: in subject wh-questions, the nonmanuals scope over the whole sentence; in object wh-questions, the nonmanuals scope over the wh-sign and the verbal domain, but not over the subject. Since wh-nonmanual markers are often analyzed as being overt realizations of wh-movement, the variation in spreading behavior is thus related to the different positions of wh-sign available in a language (Cecchetto et al. 2009; Neidle et al. 2000; cf. Sandler 2010; Sandler & Lillo-Martin 2006; Sandler et al. 2020).

Khristoforova and Kimmelman (2021) report that RSL wh-questions are marked by the same nonmanual markers previously identified for other sign languages, namely brow raises, frowns, backward head lean and fronted chin. The distribution of different markers illustrated in Table 3. While none of these markers are entirely unexpected, brow raises less commonly mark wh-questions in other sign languages (Dachkovsky et al. 2013; Göksel & Kelepir 2013; Kelepir 2021), whereas in RSL this marker occurs frequently in content questions.

Table 3. Distribution of nonmanual markers for questions in the RSL Corpus

Nonmanual markers for questions	Entries (percent of total annotated questions)
brow raise	23 (33%)
brow frown	20 (29%)
head lean back	30 (43%)
fronted chin	8 (11%)

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The scope of interrogative nonmanual markers depends on the type of nonmanual. Brow patterns often scope over the whole sentence, while head tilts and chin fronting co-occur with the wh-signs, sometimes stretching over the following sign unless the wh-sign is sentence-final.

The variety of interrogative nonmanual marking in RSL stands out compared to other sign languages. However, it may also be that the chosen method played a significant role in this regard, as previous studies on regular content questions were mostly based on elicitation and acceptability judgment data (or the source of data is not reported), which might have led to more restricted patterns (see e.g., Cecchetto et al. 2009; Göksel & Kelepir 2013; Quer et al. 2017). By contrast, the corpus method allows studying linguistic phenomena in their natural environment which might have fully exposed their diversity. Thus, basing his study on relative clauses in different sign languages, Kubus (2021) illustrates various shortcomings of experimental methods relevant for sign language research that can be alleviated by combining experimental methods with corpus studies (e.g., a large amount of individual variation).

4.2 Question-answer pairs

QAP construction is attested in many sign languages, including ASL (Caponigro & Davidson 2011; Hoza et al. 1997; Wilbur 1996), LIS (Branchini 2014), Sign Language of the Netherlands (NGT) (Kimmelman & Vink 2017), and French Sign Language (LSF) (Hauser 2018). The focus of sign language research for many years, starting from Baker-Shenk (1983), the structural make-up of QAPs and their syntactic status remain hotly debated. Among existing proposals are:

i. Pseudo-cleft (also called wh-cleft) analysis (Wilbur 1996) suggests that wh-clauses are predicative phrases raised to the left periphery of the sentence.
ii. Copular clause analysis (Caponigro & Davidson 2011) suggests that question and answer parts of QAP are two clauses conjoined by a null copular within one complex sentence.
iii. Discourse-level combination of a rhetorical question and an answer (Hoza et al. 1997).
iv. Hybrid proposals suggest that different types of structures can coexist as different stages of the grammaticalization process (Hauser 2018; Kimmelman & Vink 2017).

One diagnostic for types (i–iii) is to compare the morphosyntactic marking of QAP with those of regular questions. If question parts of QAP are marked similarly to regular questions, this can be used as an argument in favor of analysis (ii) or (iii).

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Using the RSL corpus, Khristoforova and Kimmelman (2021) described and analyzed QAP in RSL. QAP containing wh-signs were chosen as a target, because these can be found by searching for relevant words on the gloss tier. QAP involving polar questions are also likely to exist in RSL, but since the available annotations do not allow their investigation, this type of QAP is left for future research. As with regular questions, all entries of wh-signs on the gloss tier were analyzed manually. Contextual factors were used as an initial diagnostic for QAP – if context revealed that the question and the answer could in principle be attributed to different authors, the construction was excluded. This was the case for the constructed dialogues, that is, sequences of questions and answers reported by one signer but actually being attributed to different participants of a reported discourse situation (Cormier et al. 2013). Constructions with non-interrogative wh-signs, and embedded interrogatives were also excluded. Applying these criteria, 53 QAPs were identified in the corpus and further annotated for nonmanual and other prosodic marking, position of wh-signs, and semantic relations between two parts of QAP.

4.2.1 *Two types of QAPs in RSL*

The analysis of identified examples of QAPs revealed that these can be divided into two subtypes based on the semantic relation between the question and answer parts. Khristoforova and Kimmelman (2021) dub these types as classic QAPs and discourse QAPs. In classic QAPs, the answer part directly answers the question in the question part, thus matching wh-signs. In (3a), the answer part consists of a focus DP DOG ALIEN FAT, hence matching the category of the interrogative sign WHO. Recall Example (1), where the same structure is exemplified by ASL, hence the label "classic". QAPs of this kind make up 38% of the dataset (20 entries). By contrast, discourse QAPs such as Example (3b) differ in that the answer part does not directly answer the question in the question part of QAP, but instead consists of a full declarative clause, e.g., NEED RESCUE).

(3) a. gaze ——— blr
FOLLOW WHO DOG ALIEN FAT
'Who follows? A fat alien dog'
<http://rsl.nstu.ru/data/view/id/129/t/11440/d/14570>

b. DO WHAT NEED RESCUE
'What to do? One should be rescued.'
<http://rsl.nstu.ru/data/view/id/127/t/23970/d/27840>

Despite semantic differences between two types of QAP in RSL, these constructions are indistinguishable with respect to formal markers such as the position of wh-signs and their nonmanual marking.

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4.2.2 *Position of wh-signs and nonmanual markers in two types of QAPs*

In contrast to regular questions, wh-sign in QAPs are almost always found at the end of the question part, thus marking the border between the two members of the pair.

Nonmanual marking of QAPs is consistent across different types of QAPs, but do not overlap with the interrogative nonmanual markers presented in Section 4.1.2 above. As shown in Table 4, question parts in QAPs are often associated with a change in eye gaze direction, and lateral body and head movements. However, these markers are found in less than half (40%) of the sample, revealing that nonmanual marking of the question part in QAP in RSL is not consistent.

Table 4. Nonmanual marking of QAP in RSL

Question part nonmanuals	**QAP entries (percent of all QAPs annotated)**
eye gaze direction change	21 (40%)
lateral head.body movements	18 (34%)
Answer part nonmanuals	
head lean forward	17 (32%)
lateral head.body movements	8 (15%)
QAP-internal clause boundary	
eye blinks	19 (36%)

The answer part of a QAP is marked even less consistently. Forward head leans generally scope over the focused material and are thus likely to be related to the information structure (Kimmelman 2014).The function of sideward head and body movements remains unclear, although they may serve to mark the prosodic contrast between two parts of a QAP. Apart from contrastive nonmanual marking, the border between the two clauses is sometimes marked by an eye blink; no significant pauses are identified.

4.2.3 *Towards formal analysis of QAPs in RSL*

As might have been anticipated, the nonmanual marking of the question part in QAP is not similar to that for question nonmanuals described in Section 4.1.2. Khristoforova and Kimmelman (2021) therefore suggest that QAP in RSL cannot be regarded simply as discourse-level combinations of questions and answers. Based on the middle-field sentence position of wh-signs in QAP, the authors also argue against analyzing QAP as cleft constructions involving free relative clauses, since free relatives have predominantly sentence-initial wh-signs. Instead, the observed distribution of nonmanual markers resembles another well-attested sign

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language phenomenon, namely role-shift, which presents the reported speech, thoughts, emotions or actions from the perspective of the agent/experiencer, that is, it allows the signer to shift into the role of the author (Engberg-Pedersen 1995; Lillo-Martin 1995, 2012). Role-shift nonmanuals generally consist of gaze and sideward body and head movements (Kimmelman & Khristoforova 2018; Lillo-Martin 2012; Quer 2018). However, with application to QAP, these nonmanuals cannot be interpreted as role-shift, since there is only one perspective, namely that of the signer. Khristoforova and Kimmelman (2021) thus hypothesize that QAPs in RSL might have derived from constructed dialogues, thereby suggesting some form of grammaticalization analysis.[4]

Additional corpus micro-study revealed that all 17 constructed dialogues identified in a selected sample of the RSL Corpus incorporate both role-shift nonmanual markers (to mark turn-taking) and interrogative nonmanual markers. Similar role-shift nonmanuals in constructed dialogues were reported for ASL (Metzger 1995; Wulf et al. 2002; Young et al. 2012), BSL (Cormier et al. 2013), Australian and New Zealand Sign Languages (McKee et al. 2011), and German Sign Language (DGS) (Herrmann & Steinbach 2012).

The present case study contributes to research on grammatical nonmanual markers (along with some other properties of wh-signs). It also highlights advantages of the corpus method, even though the dataset used in this study is rather small when compared with spoken language corpora and sign languages corpora such as Corpus NGT (Crasborn & Zwitserlood 2008) or Corpus DGS (Konrad et al. 2020). Small size notwithstanding, the RSL corpus identified significant differences in nonmanual marking of two superficially similar constructions – regular wh-questions and question-answer pairs – while also enriching the typology of these constructions by adding RSL to the picture.

5. Case study 2: Topic marking

Similar to many other sign languages, RSL uses nonmanuals to express information structure. The first description of expression of information structure in RSL appeared in a PhD thesis by Kimmelman (2014), and an updated version of this

4. Constructed dialogue is not to be confused with constructed action, which is a different, albeit related, phenomenon from role-shift. Refraining from the theoretical discussion orthogonal to the chapter's focus, we use the terms 'constructed dialogue' for the sequence of replicas of different authors each of which represent a quote. It is therefore not unexpected that many instances of constructed dialogue in the corpus are marked by role-shift nonmanual markers.

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research has been published as Kimmelman (2019).[5] Importantly, most of the studies discussed in these publications are based on the data from the RSL Corpus. In this section, some of the main findings of these studies concerning topic marking are summarized.

The notion of topic (informally, the constituent specifying what the sentence is about), has been argued to be important for many different sign languages (see e.g., Calderone 2020 for LIS; Crasborn et al. 2009 and Kimmelman 2014, 2015 for NGT; Jantunen 2007 for Finnish Sign Language; Liddell 1980 for ASL; Rosenstein 2001 for Israeli SL; Sze 2008, 2015 for Hong Kong Sign Language (HKSL)). In fact, some sign languages such as ASL (McIntire 1982) and Israeli SL (Rosenstein 2001) are claimed to be topic-prominent, in other words, to structure sentences primarily around the topic-comment distinction, invoking similar claims made for some spoken languages (Li & Thompson 1976).

In many sign languages, topics are marked nonmanually, and by similar nonmanuals (see Sze 2015 for a cross-linguistic comparison). Most commonly, topics are marked by raised eyebrows and backward head tilts, and are prosodically separated from the rest of the sentence by a pause, a blink, or a change in nonmanual behavior. In both the theoretical literature and L2 courses of RSL, the prototypical example of a topic-comment structure of sentences in sign languages, where the topical referent is introduced in a separate prosodic unit, and marked nonmanually, is illustrated by Example (4) from RSL:

(4) br+bht ——— bl
CAT THINK
'The cat is thinking'. <http://rsl.nstu.ru/data/view/id/266/t/3853/d/4493>

However, in his corpus-based study of topics in RSL, Kimmelman (2015, 2019) found that while RSL uses typologically common nonmanual markers of topics, these markers are far from frequent in actual use. In the rest of this section, we summarize the results of this study.

In order to analyze how topics are marked in RSL, two types of texts from the RSL Corpus were analyzed, namely retellings of the Canary Row cartoons and personal stories. The choice of the data types was guided by the following considerations: personal stories represent the most naturalistic data type in the corpus, while Canary Row retellings allowed for a more controlled data set, making it possible to compare directly how different signers describe the same events, and have a clear narrative structure, enabling the analysis of information structural notions.

5. Kimmelman (2014, 2019) also studied focus in RSL using picture-based elicitation. Since the method did not rely on corpus data, we do not further discuss them here. However, focus in RSL appears to be rarely marked by nonmanuals (cf. Crasborn & Van der Kooi 2013 for NGT). Instead, focused signs are typically marked by modifications of manual prosodic aspects of the signs

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Only the data produced by six signers from Moscow was analyzed for this study. The signers were 30 to 58 years old at the time of recording, and all are deaf and have deaf relatives. The selection of signers was guided by the wish to minimize variation, specifically, regional variation and variation due to the age of RSL acquisition. However, this makes this study representative of only one of the many varieties of RSL, and it should be useful to test its conclusions against the other parts of the RSL corpus.

After selecting the data, it was necessary to identify topics and annotate the markers. Identifying topics is non-trivial, as there are different (sometimes conflicting) definitions of this notion (see Gundel 1988; Reinhart 1982). The most common definition ("what the sentence is about") is also difficult to operationalize, especially when working with corpus data. The procedure of topic identification capitalized on the fact that the topic status correlates with subjecthood and with givenness. Thus, following Sze (2008, 2015), prototypical aboutness topics were identified, namely subjects that are given information, or objects that are given information if the subject was new information. Sze also identified scene-setting topics, that is, place and time descriptions used to set up the scene for the events of the sentence. Scene-setting topics are sometimes argued to be a subtype of topics, as they share some functions with aboutness topics, and, in some languages, they are marked similarly (see Calderone 2020 for LIS; Crasborn et al. 2009 for NGT; Krifka 2008 and Sze 2008 for HKSL).

After identifying the two types of topics, all nonmanuals accompanying them were annotated and analyzed. In total, 1,612 sentences from the dataset which contained a topic (including a zero topic, that is, absence of the topic constituent) were identified and annotated.

In the RSL corpus data, the most common way to express an aboutness topic is to omit the topic constituent, as in Example (5). However, in 35% of all sentences with topics, the aboutness topic is overt. These topics can be nonmanually marked, typically by eyebrow raise and/or backward head tilt, and are prosodically separated from the comment part of the sentence, as in (5). The same markers are used for scene-setting topics.

(5) LOOK-THROUGH-BINOCULARS
'[The cat] looks through binoculars.'
<http://rsl.nstu.ru/data/view/id/239/t/17161/d/18441>

However, 51% of overt aboutness topics and 35% of overt scene-setting topics are completely unmarked nonmanually or prosodically. In other words, they are fully integrated into the sentence. Only 8% of aboutness topics and 24% of scene-setting topics are marked by nonmanuals.

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A second finding of the study is that shifted aboutness topics (that is, topics in sentences where the topic of the preceding sentence was different) were more likely to be nonmanually marked than non-shifted topics. However, even among such topics, only 26% were marked nonmanually. Thus, while topic shift creates an environment conducive to nonmanual marking, most shifted topics are still unmarked. This shows that while topic marking (including nonmanual marking) is present in RSL, such marking is not frequent in naturalistic corpus data. Instead, our findings indicate that the most common way of expressing a topic in RSL is to omit it; the next most common way is to not mark the topic in any particular way. That topic marking is quite infrequent casts serious doubts on the idea that RSL can be characterized as a topic prominent language (cf. Sze 2015).

This case study shows how analyzing a phenomenon using naturalistic corpus data reveals important empirical insights that have implications for theoretical analyses of sign languages. Most studies arguing for topic prominence of sign languages were based on elicited data (e.g., Rosenstein 2001). However, corpus-based studies, including this study of RSL, the study of NGT (Kimmelman 2014, 2019), a study of HKSL (Sze 2015), and, most recently, a study of LIS (Calderone 2020), all reveal that topics in these languages are marked infrequently by nonmanuals, or other prosodic and syntactic means.

6. Case study 3: Conditional and concessive constructions

Along with purposive and casual constructions, conditional and concessive constructions express causal relations between two situations. A prototypical conditional sentence 'if P, (then) Q' consists of two clauses, one of which (the protasis) expresses a proposition whose fulfillment or non-fulfillment is relevant to the degree of reality assigned to the proposition expressed by the other clause (the apodosis) (Trask 1993: 55). Concessive constructions are the "contradictory counterpart of causal constructions" (König & Siemund 2000: 341). A prototypical concessive sentence 'although P, Q' consists of two clauses, one of which (the antecedent), expresses a proposition which is unexpected in light of the proposition expressed by the other (the consequent). Unexpectedness is based on a presupposition 'if/when P, (then) normally not-Q'.

Conditionals are usually mentioned in descriptions of sign languages (see e.g., Baker-Shenk & Cokely 1981; Johnston & Schembri 2007; Sutton-Spence & Woll 1999; Zeshan 2000). There are a few dedicated studies, mainly focused on nonmanual marking of conditional relationships (e.g., Dachkovsky 2008; Liddell 1986; Pfau 2008). However, studies taking into account both formal and semantic features of these constructions are rare. In RSL, conditionals were previously described by Burkova (2012).

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Until now, concessives in sign languages remain virtually unexplored. In spoken languages, conditional and concessive constructions often employ partially overlapping marking (König 1986). The analysis presented in this section aims not only to find out how conditional and concessive relations are expressed in RSL, but also whether the typological implication mentioned by König also applies to a language of visual modality. The available data show that the strategies used in sign languages to realize subordination do not crucially differ from those found in spoken languages (see e.g., Pfau & Steinbach 2016; Tang & Lau 2012), so we expect that conditionals and concessives in RSL also use similar marking. Our analysis is based on data from two sources, namely elicitation (215 and 165 examples of conditionals and concessives, respectively) and spontaneous and stimulus-based texts, most of which are available in the RSL Corpus (87 and 27 examples of conditionals and concessives, respectively).

6.1 Conditionals

Conditionals in RSL can be divided into two main classes, namely potential (also known as 'open', 'real', 'hypothetical', or 'neutral') conditionals (see Dachkovsky 2008; Palmer 1986; Podlesskaya 2001; Trask 1993), and counterfactual conditionals. The former represent a situation described in the protasis as probable or potentially realizable, whereas the latter represent the situation as unreal or unrealizable. This semantic distinction is reflected in the inventories of manual and nonmanual means used to express conditional relationships. Both potential and counterfactual conditionals in RSL have rigid order, with the protasis always preceding the apodosis. The boundary between the protasis and apodosis is marked by slowing down the hand movement and changes in nonmanual signals.

In potential conditionals, there is a special manual marker of conditional meaning, the sign IF, which always takes the initial position in the protasis clause, as in Example (6a). However, this sign is optional, and can be omitted, as in Example (6b).

(6) a. IF SMOKE BE-FUT NOT-CARE IX_a
FINE THOUSAND FIVE-HUNDRED DASH THOUSAND $THREE[6]
'If you smoke, if you don't care [about the ban],
you will pay a fine from 1,500 to 3,000 thousand [rubles].'
<http://rsl.nstu.ru/data/view/id/117/t/24850/d/28590>

b. FURNACE DISAPPEAR COLD CAN-NOT
'If the furnace cools down, it will get extremely cold.'
<http://rsl.nstu.ru/data/view/id/188/t/242680/d/244470>

6. The symbol $ is used for numerals.

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As exemplified in Figure 3 and (7) below, nonmanuals play a key role both in encoding the conditional relationship in general, and in specifying the semantic type of a potential conditional. In particular, two nonmanuals, namely 'raised eyebrows' ('br') and 'head thrust' ('hth'), obligatorily occur in the protasis clause. The scope of 'raised eyebrows' is typically the entire protasis clause. In any case, this marker always accompanies at least the first sign and never goes beyond the protasis clause. "Head thrust" accompanies the final sign of the protasis clause; typically coinciding with the slowing-down phase of the final sign (see Figure 3).

Three other nonmanuals occur in more than half of the potential conditionals in our data, namely 'raised chin' (64%), mouthing (65%, [jesl^{j}i]/[je], i.e., silent articulation of the Russian word *если* 'if' or its initial sound), and 'blinking' (61%). Raised chin ('rch') accompanies the first sign or several subsequent signs at the beginning of the protasis clause. Mouthing ('mth') typically accompanies the sign IF, or, if the latter is omitted, the first sign of the protasis. Blinking ('bl') accompanies the final sign of the protasis clause.

IF FREE CLF(1:PERSON)-GO IX$_1$ NOW DRIVE-OUT$_1$

Figure 3. 'If I let you in, I will be immediately fired.'

br
mth hth
rch bl

(7) IF FREE CLF(1:PERSON)-GO IX$_1$ NOW DRIVE-OUT$_1$
'If I let you in, I will be immediately fired.'
<http://rsl.nstu.ru/data/view/id/364/t/147490/d/149320>

Apart from mouthing, the nonmanuals mentioned above also appear in other types of sentences. 'Raised eyebrows' regularly occurs in RSL polar questions and also marks some types of topics (see Section 5 above). 'Raised chin' regularly occurs in wh-questions (see Section 4). 'Head thrust' and 'blinking' also occur in RSL in other types of clauses, both dependent and independent ones, and their function is apparently associated with marking the boundary between clauses.[7]

7. Prozorova (2009) showed that head thrust and blinking are used in RSL to mark boundaries between prosodic units ("elementary discourse units"), which in most cases correspond semantically and syntactically to clauses.

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Another nonmanual also rather frequent in protasis clauses in our data is 'narrowed eyes', which occurs in 35 percent of the examples. In Israeli SL, a similar nonmanual ("squint" in the authors' terminology) never occurs in potential conditionals, but regularly occurs in counterfactual ones (Dachkovsky 2008; Dachkovsky & Sandler 2009). A comparison of data from two unrelated sign languages, Israeli SL and ASL (Dachkovsky et al. 2013), showed differences in the distribution of some nonmanuals, including 'squint', in the two languages. RSL data also confirm that typological variation can be found in this domain. In RSL, this nonmanual is apparently associated with modal semantics. In a 'neutral' potential conditional, the implementation or non-implementation of a situation described in the protasis is evaluated by the signer as equiprobable ('maybe P, maybe not P'), but in the case of the nonmanual 'narrowed eyes', this evaluation shifts towards a lower degree of reliability ('rather not P than P'). The arguments for this assumption are regular use of this marker in non-categorical imperatives (when the signer admits that the addressee may not obey the imperative, see Borodulina 2012), and counterfactual conditionals. Thus, none of the above nonmanuals, except mouthing, is specialized to express conditional relationships. The conditional meaning rather results from a combination of several nonmanuals, each contributing in its own way to the structural and semantic frame of the conditional construction.

Potential conditionals can be further divided into two subtypes, namely prototypical (i.e., predictive, 'if P, (then) Q') and non-prototypical conditionals. In non-prototypical conditionals, the proper conditional meaning shifts towards iterativity ('whenever P happens, Q happens') or inference ('if P, therefore Q'). In conditional-iterative sentences, morphological (reduplication) and/or lexical (adverbs ALWAYS, CONSTANTLY, etc.) markers of the iterative meaning are used in the apodosis. Conditional-inferential sentences always have a specific set of nonmanuals in the apodosis clause: 'head slightly tilted aside' + 'frowned brows' + 'eye gaze directed away from the addressee', as in Figure 4. Optionally, lexical markers of inference can also be used, namely the signs THINK^INSIDE ('therefore'), KNOW ('therefore/so'), and CONCLUDE.

IF OPEN-WINDOW THINK^INSIDE HOME IX_a

Figure 4. 'If the window is open, there is somebody at home.'

Nonmanual marking in the protasis of counterfactual conditionals in RSL is similar to that in potential conditionals. 'Raised eyebrows' and 'head thrust' occur in

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100 percent of the examples, whereas 'raised chin' and 'blinking' occur in 56 and 64 percent of the examples, respectively. The only difference is in almost complete absence of mouthing [jesl^{j}i]/[je] and noticeably more frequent use of the nonmanual 'narrowed eyes', which occurs in 78 percent of the examples. This result is consistent with our hypothesis that this marker is used in RSL to encode the status of a proposition in relation to the real world.

One of the few studies of counterfactual conditionals in sign languages was made by Dachkovsky (2008), who showed that in Israeli SL, potential ("neutral" in her terminology) and counterfactual conditionals systematically differ in facial expression. As we can see, in RSL, nonmanual marking of both types of conditionals is not fundamentally different. The marker of counterfactual conditionality is not nonmanual, but the manual sign #WOULD. This sign is a fingerspelled borrowing (B-Y in RSL fingerspelling alphabet) from Russian *бы*, that seems to be fully adopted and adapted by RSL. Both fingerspelled letters have been reduced and are produced as a single sign. In addition, the position of #WOULD in a sentence, occurring at the beginning of a clause, differs from that of Russian *бы*, which is a second-position clitic. Typically, #WOULD is used in both clauses of the conditional sentence, as in Example (8a), although its use in the protasis seems to be optional, as in Example (8b).

(8) a. #WOULD ONE PALM-UP[8] POINT #WOULD EXACT DIPLOMA TAKE
'If [they had added] one more point, I would definitely get [an honors] degree.' <http://rsl.nstu.ru/data/view/id/301/t/37263/d/42244>

b. DOCTOR COME EARLIER #WOULD IX$_a$ CURE MAY
'If he had come to the doctor earlier, he could have been cured'.
[elicitation]

6.2 Concessives

The clause order in concessive sentences in RSL seems to be rather rigid: the antecedent (dependent) clause in almost all the examples in our data precedes the consequent (main) clause. Even if during elicitation the informants were offered sentences in spoken Russian with reverse clause order, they changed it when translating into RSL.

In spoken languages, concessives are closely related to certain types of conditionals and frequently derive from such conditionals (König 1994). Concessive constructions in RSL also show their structural resemblance to conditionals. As exemplified in (9a), nonmanual marking of the dependent clause is similar to that in conditionals. The nonmanuals 'raised eyebrows' and 'head thrust' occur in

8. The palm-up sign is used as a discourse marker.

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100 percent of the examples, whereas 'raised chin' and 'blinking' occur in 65 and 60 percent of the examples, respectively.

There are lexical signs used in the antecedent clause (YES meaning 'although', KNOW meaning 'even if', 'in spite of'), and in the consequent clause (THE-SAME, USELESS, ANY, ALWAYS). These signs are optional, and can be omitted, as in Example (9b). When present, these manual signs do not express the concessive relationship *per se*, but rather the type of concessive construction: prototypical concessive 'although P, Q' (Examples 9 and 10), conditional concessive 'even if P, Q' (Example 11), or generalized concessive 'whatever/however/whoever/whenever/wherever P, Q'. The last type is also specified morphologically, by reduplication of the predicate in the dependent clause (Examples 12 and 13).

br brf
hth lm

(9) IX$_1$ UMBRELLA BE-PAST GET-WET ALL
'Although I had an umbrella, I got wet'. [elicitation]

(10) **YES** IX$_a$ LATE **THE-SAME** IX$_1$ ANGRY NEG
'Although he is late, I'm not angry with him.' [elicitation]

(11) **KNOW** COLD ONE BAD BE-PAST COLD GET-UP DIFFICULT KNOW ENDURE GET-UP FURNACE MAIN ONE PURPOSE FURNACE TAKE HEAT
'But even if it was very cold and it was difficult to get up, I had to get up and heat the furnace.' <http://rsl.nstu.ru/data/view/id/188/t/265735/d/270740>

(12) IX$_a$ ANY ACT+ **ALWAYS** LOSE
'Whatever he does, everything is bad'. [elicitation]

(13) IX$_1$ TRY+++ NOT-BE-ABLE COUNT TASK
'However hard I tried, I failed to accomplish the task'. [elicitation]

As for conditionals, the key role in encoding concessive meaning is played by nonmanuals. A specific set of nonmanuals regularly occurs in the consequent (main) clause of a concessive construction: 'raised and slightly frowned brows' ('brf') + 'lowered corners of the mouth' ('lm'), as in Figure 5 and Examples (9), (14), and (15). This set of nonmanuals accompanies several signs at the beginning of the clause or at least its first sign.

Figure 5. Nonmanual marking in the main clause of the concessive constructions

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br brf
hth lm
(14) DIFFICULT THE-SAME IX$_1$ STUDY ACTIVE COMPETE EXAM PASS WIN PRF
'Although it was not easy, I actively studied and successfully passed the exams.'
<http://rsl.nstu.ru/data/view/id/176/t/235570/d/236620>

br brf
hth lm
(15) GIRL THROW-DISTR the-same JEW LOVE IX$_a$ MARRY
'Although the girl was dissolute, the Jew still loved her and married her.'
<http://rsl.nstu.ru/data/view/id/184/t/26190/d/28660>

Our analysis thus shows that RSL formally distinguishes between different semantic types of conditionals and concessives. Both types of constructions have specific manual and nonmanual marking, but manual markers are optional since the key role in building conditional and concessive sentences is played by nonmanuals. None of the nonmanuals used in conditionals and concessives in RSL is specialized to express the conditional or concessive relationships. These relationships rather result from a combination of several nonmanuals, each of which contributes in its own way to the structural and semantic frame of the construction.

7. Summary and conclusions

In this chapter, we described the creation and composition of the Russian Sign Language Corpus. One important advantage of this corpus is that it is available on-line in a dedicated interface that makes it possible to use both by researchers and other people, such as students of RSL. It is also worth noting some of its limitations, namely a relatively small size (compared to some other sign language corpora, such as the corpora of NGT and DGS, and especially compared to corpora of spoken languages), and the lack of annotation beyond the sign-by-sign glosses and sentence-level translations. Furthermore, the corpus does not reflect the full extent of regional variation of RSL in Russia, as it mainly represents signers from two regions. However, despite these limitations, the corpus has proven to be an invaluable tool in linguistic research on RSL.

In this chapter, we also report three case studies of nonmanual markers in RSL that were conducted partially or fully based on data from the corpus. First, we present a study of question marking in regular wh-questions and in question-answer pairs, and show that the two constructions have drastically different nonmanual markers. Second, we present a study of topic marking in RSL, and show that nonmanual markers of topics are typologically similar to the ones used in other signed languages, but are used infrequently in naturalistic corpus data. Finally, we present a study of conditionals and concessives in RSL, and show that these constructions

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make extensive and frequent (near obligatory) use of nonmanual markers, but that no single marker is specialized for the function of expressing conditional or concessive meaning. Instead, complex combinations of multiple markers are employed in these constructions.

These studies have some general implications. Firstly, they show that it is possible to use corpus data to study core grammatical topics in sign language linguistics. However, given the size limitations of corpora of natural sign languages, often a corpus-based study has to be supplemented with elicited data, as was the case for the study of conditionals and concessives reported here (and also for an ongoing study of question marking). Second, these case studies show that corpus-based research is in fact indispensable in order to reflect realistic patterns of variation attested in natural signing. For example, the corpus-based study of topics demonstrates how the often described nonmanual markers of topics are also used in RSL, but only for a minority of topics. The study of wh-questions also demonstrates that while nonmanual marking is almost always present, the choice of specific nonmanuals is very variable. Finally, an insight that comes from the third study discussed in this chapter is that many constructions use a constellation of several nonmanual markers to express a specific function, while no single nonmanual marker is specialized for this function.

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Appendix. Glossing conventions for nonmanual markers

bht	backward head tilt
bl	blinking
blr	rightward body lean
blr	eyebrows raised
brf	eyebrows raised and slightly frowned
hlb	backward head lean
hlr	rightward head lean
hth	head thrust
lm	lowered corners of the mouth
mth	mouthing
rch	raised chin

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