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Reformulation structures in French Belgian Sign Language (LSFB) > French interpreting: A pilot multimodal study

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Abstract

This article examines reformulation structures when interpreting French Belgian Sign Language (LSFB) into spoken French. Reformulation structures are defined as two segments of discourse, where the first segment conveys a message and the second segment, introduced by a marker, expresses the same message differently. By adopting a multimodal approach, interlingual reformulation structures (between the source and the target languages) and intralingual reformulation structures (within the target language) are described, focusing on their distribution, form, and semiotic composition. The dataset comprises dialogues produced by two LSFB signers and their interpretations into French by two LSFB–French interpreters. Interlingual and intralingual reformulation structures are present in French interpretations, although less frequently than in LSFB source dialogues. The most frequent forms of reformulation structures are found in both datasets. Interpreters do not seem to be influenced in their gesturing by the signs produced in the source LSFB dialogues. Still, they engage their hands, bodies, faces, and voices in their renditions. Hence, interpreters draw on all their available semiotic resources to convey meaning but differ from how source signers do it. In future research, the dataset should be enlarged and the type of manual gestures and nonmanual articulators used should be more closely investigated.

Keywords

Reformulation structures, semiotic repertoires, interpreting, French Belgian Sign Language (LSFB), French

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1. Introduction

Reformulation is pervasive in spoken and signed languages (e.g., Blakemore, 1993; Cuenca & Bach, 2007; Cuxac, 2007; Meurant, 2022). This phenomenon has been attested in prepared and unprepared discourses, in monological, and conversational settings. That is, reformulation is intrinsic to all types of human communication, whether written, spoken, or signed. Although most people would agree that reformulation involves saying the same thing differently, the concept of reformulation may have different implications depending on the field of study.

On the one hand, reformulation has traditionally been defined in the field of linguistics as the process wherein two segments of discourse (X and Y) provide the same information using different words/signs or expressions in a language. This semantic equivalence established between X and Y is called paraphrastic reformulation and is illustrated in example (1)[1], taken from Meurant et al. (2022, p. 324). The speaker has been asked to describe a picture. She explains that because of an optical illusion, there are two possible perspectives from which the picture can be looked at and interpreted.

(1) *Ça se joue sur euh l'illusion optique, c'est-à-dire que euh il y a deux perspectives.*
<X1> M1 <Y1>
< It plays on uhm optical illusion, > <u>that is to say</u> < uhm there are two perspectives. >

A broader definition of the phenomenon under study is nonparaphrastic reformulation, in which the Y segment is used to narrow, expand, adjust, specify, clarify, define, correct, or modify different aspects of the X segment (Murillo, 2016). Example (2), also taken from Meurant et al. (2022, p. 349), belongs to a conversation about what having a good level of French means. The speaker says that there is a difference between oral and written practices (X segment) and expands this statement by saying that you can have different levels in these two modalities (Y segment).

(2) *Déjà si tu considères l'oral ou l'écrit parce que*
<X1> M1
tu peux avoir un niveau de français qui est très différent selon que tu le pratiques à l'oral ou à l'écrit donc.
<Y1>
< If you consider the oral or the written > <u>because</u> < you can have a very different level of French depending on whether you practice it orally or in writing so. >

Regardless of the types of reformulation structures, they can be marked and unmarked. In unmarked reformulation structures, there is no reformulation marker. That is to say, the two segments are not connected by a word or combination of words functioning as markers. Marked reformulation structures may have different types of markers. Traditionally, these markers have been characterized as either introducing paraphrastic reformulation (e.g., *c'est à dire que* 'that is to say' in example (1)) or nonparaphrastic reformulation (e.g., *in fact*). Nevertheless, the polyfunctional nature of markers is such that those that have traditionally been classified as paraphrastic are found in nonparaphrastic structures or that the marker of a reformulation structure does not typically belong to the realm of reformulation, as *parce que* 'because' in example (2) (Pons Bordería, 2013).

[1] French examples are written in italics. Below each line, the form of reformulation structures is presented. The translations into English are provided below (the different segments of the reformulation structure are delimited with angled brackets and the marker is underlined).

On the other hand, reformulation may be understood as the mechanism used by translators and interpreters to bridge the communicative divide between languages and their respective cultures. In this context, reformulation is found in any translation or interpretation, as it involves conveying the meaning of a text/discourse in the source language using the words/signs and the structures of the target language. This type of reformulation is what Jakobson (1963) calls 'interlingual reformulation', which involves modifications in syntax, semantics, and pragmatics across languages. However, translations and interpretations also have instances of 'intralingual reformulation' (Jakobson, 1963), that is, cases in which reformulation takes place within the target language for different reasons, such as the lack of one-to-one correspondence for a concept between two languages.

In this paper, the concept of reformulation includes paraphrastic and nonparaphrastic structures as well as interlingual and intralingual reformulation structures. In what follows, previous research on the type of reformulation structures produced by interpreters is presented alongside a theoretical framework that supports the analysis of different human communicative practices.

1.1. Interlingual and intralingual reformulations, description and depiction

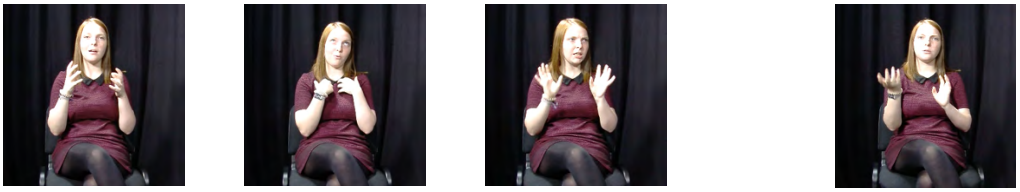
Translated and interpreted texts/discourses are composed of different types of reformulations, which may offer insights into the cognitive processes of translators and interpreters and the strategies they employ to convey meaning accurately and effectively. However, reformulation has been scarcely studied in the field of translation and interpreting. Using voice-recorded data, Woroch (2010) describes paraphrastic and nonparaphrastic reformulation structures produced by interpreters who work from French to Polish. She first examines reformulations in source French texts and then reformulations in target Polish texts. By comparing the source and target productions, she teases apart interlingual reformulations from intralingual reformulations. After her analysis, Woroch (2010) concludes that interlingual and intralingual reformulations add value to interpreted renditions, making the target Polish discourse more accessible to the audience.

Woroch (2010) provides a comprehensive account of the different types of reformulation structures that she found in conference interpreting, so her research can be a good starting point for a replication study using another pair of languages. However, if we understand language as multimodal, we need another theoretical framework with which the other semiotic resources available to speakers/signers and interpreters can be accounted for, including the manual and nonmanual activity. Following Peirce (1955) and Clark (1996), Ferrara & Hodge (2018) propose that spoken and signed communication involves three modes of signaling:

- *Description* includes "lexicalized manual signs of deaf signed languages [see examples in Figure 5, from pictures 2 to 8], the spoken or written words of spoken languages [see examples (1) and (2)], culturally-specific emblematic manual gestures such as the OK and THUMBS-UP gestures […], and conventionalized intonation contours [e.g., the intonation of a question]" (Ferrara & Hodge, 2018, p. 3).
- *Indication* is defined as indexing referents with a variety of "forms such as the English function words *it* and *this*, as well as hand-pointing, lip-pointing, and other culturally-specific bodily actions during which speakers or signers extend parts of their body (or objects that act as an extension of their body) in a direction toward, or contacting, some referent in the context of the utterances" (Ferrara & Hodge, 2018, p. 4).
- *Depiction* may include tokens with "[varying degrees] of conventionalization across a community" (Ferrara & Hodge, 2018, p. 5), such as depicting signs in signed languages or metaphoric manual gestures in spoken languages, as well as the enactment of the

actions, words or thoughts of a referent (which could be prior acts of description or indication).

Hence, these three modes of signaling are not exclusive categories. For instance, Figure 1 illustrates an example in which the speaker criticizes the point of view of the Académie française and combines description and depiction in the two segments of a reformulation structure for this purpose. Most of the time, the mode of signaling is description. However, when she says '*la langue c'est sacré'* ('language is sacred'), *'féminiser c'est complètement absurde'* ('feminizing is completely absurd'), and '*on va tuer la langue française'* ('we are going to kill the French language'), she enacts the point of view of the Académie française in a dramatic way using her intonation together with movements of both hands, the head and the chest, and her facial expression.



Et il faut pas euh je pense dire que la langue c'est sacré que, par exemple,

<X1> M1

avec la féminisation euh des noms de métier, des titres et tout ça, euh quand on entend le point de vue de l'Académie française, c'est quand même un peu aberrant où il en ils en viennent à dire que

<Y1

féminiser c'est complètement absurde. « On va tuer la langue française ! ».

Y1>

< And one mustn't uh I think say that language is sacred that, > <u>for instance</u>, < with the feminization uhm of job titles, diplomas and all that, uhm when you hear the point of view of the Académie française, it's a bit aberrant when he they say that feminizing it's completely absurd. "We'll kill the French language!" >

Figure 1. Excerpt of a dialogue in French in which the speaker combines description and depiction (adapted from Meurant et al., 2022, pp. 349–350)

The choice of this theoretical framework (Ferrara & Hodge, 2018) for the present research is motivated by the fact that not only does it allow the comparison of spoken and signed languages, but it has also been used for the study of different phenomena in sign language interpreted renditions and in both interpreting directions (e.g., Meurant et al., 2022; Bø, in press; and Bø, this volume).

1.2. Objectives and hypotheses

To the best of my knowledge, reformulation structures have not been studied using multimodal interpreted spoken data and have been scarcely studied in sign language interpreting (Meurant et al., 2022). This paper addresses these shortcomings by describing interlingual and intralingual reformulation structures in signed-to-spoken language interpreting using multimodal data, i.e., video recordings. Furthermore, this paper will add to the small body of research on the signed-to-spoken language direction in interpreting, which has received less attention than the spoken-to-signed language direction so far (Wang, 2021). The languages under study are French Belgian Sign Language (LSFB) and spoken French (Belgian variety). Both languages are used in Wallonia (southern Belgian region) and in Brussels (where they coexist with Flemish Sign Language (VGT) and spoken Flemish). In these two regions, LSFB remains a minority and minoritized language.

The objectives of this paper are threefold:

1. To study the distribution of reformulation structures. In line with Woroch (2010), this phenomenon is first identified in source LSFB data and later in target French data so that interlingual and intralingual reformulation structures can be teased apart.
2. To describe the form of reformulation structures. Once identified, the arrangement of the X and Y segments, the position of the markers, and their form (e.g., lexicalized signs, pause fillers, etc.) are detailed.
3. To examine the semiotic composition of reformulation structures and the modes of signaling. In other words, the interplay between the manual and nonmanual activity in LSFB and the interplay between speech and the manual and nonmanual activity (i.e., eye gaze direction, facial expressions, and head and body movements) in French to describe and depict[2].

Two hypotheses are formulated. The first one is that interpreters may use fewer reformulation structures in their productions than LSFB signers, given the cognitive demands placed on interpreters such as memory, cognitive load, and time lag. The second hypothesis is that interpreters will incorporate the signs and gestures of source signers in their reformulations in line with Janzen et al. (2016).

In the remainder of this paper, the dataset used for this research is presented along with how reformulation structures were identified and characterized, and how videos were annotated. Afterward, the distribution of reformulation structures, their form, and their semiotic composition for source LSFB and target French data are described and later compared. Finally, the relationship between reformulation structures in target discourse and interpreting strategies is also discussed, as well as the implications of this paper for the field of interpreting research and training.

2. Methodology

2.1. The two datasets

This study draws on corpus data that were recorded in a studio setting. The source data were extracted from the LSFB Corpus (Meurant, 2015), namely the reference corpus for this sign language. It includes 100 signers from different places in Belgium where LSFB is used. There is a balance among signers regarding gender, age, and linguistic background. Participants not only provided dialogical signed data, but they were also asked to fill in a metadata form. Before the recordings, they also signed an informed consent allowing the recorded data to be made openly

[2] For this pilot study, indication is not analyzed in line with Meurant et al. (2022).

available on the corpus website, but not their metadata (which is restricted to researchers). The LSFB Corpus data are very convenient because deaf annotators previously annotated the signs produced in the dialogues and professional translators translated the videos into written French, in case future contrastive research between translated and interpreted data were to be conducted. Two dialogues between two female deaf LSFB signers (S055 and S056) who recount childhood memories and discuss issues related to the differences between deaf and hearing cultures were used for this paper. This small dataset of source LSFB dialogues totals 10 minutes (see Table 1).

Topic of discourse	Data	Participants	Duration
Childhood memories	Source LSFB	S055 & S056	4’53”
	Target French	I002	4’56”
		I006	4’51”
Cultural issues	Source LSFB	S055 & S056	4’46”
	Target French	I002	5’02”
		I006	4’58”

Table 1. Description of the dataset

The target data were taken from the CorMILS Pilot Project (Gabarró-López, 2018), which contains interpreted data by the first cohort of final-year students of the Master’s degree in LSFB – French interpreting of the UCLouvain. CorMILS’ data include the two interpreting directions, the two dialogues from the LSFB Corpus mentioned above, and two comparable dialogues from the FRAPé (Multimodal French) Corpus (Meurant et al., ongoing) used as source data. The six participants of the first cohort had different profiles, including two students with previous experience as interpreters in the educational setting and four non-experienced students. Similarly to the LSFB and FRAPé corpora, participants filled in a metadata form (which was inspired by the metadata forms used in these two corpora) and signed an informed consent form. Although they agreed to be recorded, their data are not openly available and can only be used by researchers.

The LSFB > French renditions produced by the two experienced students (I002 and I006) were selected for this pilot study, totaling 20 minutes. The two participants are a woman and a man, aged 30–40, with 5–6 years of interpreting experience in different educational institutions. This choice was motivated by the recording conditions. Participants were shown the videos twice. The first time they watched the source data and could ask questions about the meaning of signs or the signs to be used for a particular expression. Afterward, participants were shown the videos a second time and had to interpret them. As could be expected, non-experienced participants struggled while interpreting because of the speed of natural dialogues which could not be stopped, so they produced more omissions or interpreting errors than experienced participants. Therefore, it was decided to keep the data of the two experienced participants to avoid bias. Despite the small size of the dataset, which does not allow broader generalizations to be made, the foundations for the description of reformulation structures can be laid so that future research may build on them.

2.2. Annotation procedure: Identifying reformulation structures and characterizing them

After closely inspecting the videos of source and target data, they were annotated with ELAN (Lausberg & Sloetjes, 2009) following a three-step process: reformulation structures

were identified, their content was transcribed/summarized[3], and the articulators used for description and depiction were annotated. Once all reformulation structures were annotated in the source and target discourses, they were classified in the target renditions as interlingual (if they had been produced in LSFB) or intralingual (if they were only uttered in French).

Although reformulation structures have extensively been described in the literature, their identification in the wild is not a straightforward process, as there are other neighboring phenomena such as elaboration or false starts which are difficult to tease apart. Hence, a clear set of criteria, such as those proposed by Meurant et al. (2022: 329), was needed:

> On the one hand, it implies that, between the source and the reformulated statement there is something identical and something different. This makes it possible to distinguish reformulation from repetition (Tannen, 1989). On the other hand, since reformulation is based on the creation of an equivalence between two utterances, the act of reformulation implies a reflexive, or metalinguistic return to the first statement. This makes it possible to distinguish reformulation from all cases where the sequence of statements, from one to the next, advances the information, maintaining a common core to which new information is added.

Furthermore, only reformulation structures introduced by a marker were analyzed to ensure the comparison between the source and target data and the replicability of the present study. Regarding markers, they were identified on the go. When a chunk of discourse matched the definition of reformulation, the marker (if any) was identified. No *a priori* distinctions were made between the markers, that is, they could be produced by any articulator and be found in any position (Meurant et al., 2022). Before starting the annotation of the whole dataset, reformulation structures were first annotated by the author[4] and checked by another researcher for the first two minutes of I002 renditions to enhance the application of the three criteria mentioned above and to sort out ambiguities.

2.3. Annotation template

The manual activity of LSFB dialogues had previously been annotated using ID-glosses[5] and been translated into written French (see 2.1). However, interpreted French data had not received any annotation, neither for speech nor for manual and nonmanual behavior. To ensure comparability, a common annotation template was created in ELAN for source and target data, including four tiers (each of which was preceded by the signer or interpreter's code):

- *Refor_XY*: this tier was used to capture the scope of the reformulation structure, i.e., where the X and Y segments and the marker (M) of each reformulation structure started and ended. In the annotation, the X, the Y, and the M of a given reformulation structure were followed by the same number as in <X1> M1 <Y1>. The brackets surrounding the letters allow us to visualize where the marker was placed, as in <X1> <Y1 M1 Y1> (meaning that the marker is embedded in the Y segment) or whether the Y segment of a reformulation structure was the X segment of the next one, as in <X1> M1 <Y1 X2> M2 <Y2>.

[3] Although source LSFB data were previously annotated using glosses, the main ideas stated in the reformulation structures were summarized in written French to grasp easily what they were about. By contrast, target French data were not previously annotated, so what was said in the reformulation structure was fully transcribed.

[4] I am a hearing fluent user of LSFB and French. I am an academic trained first in translation and interpreting and later in linguistics, but I have not worked as a sign language interpreter.

[5] ID-glosses consist of words written in capital letters. They are used to label a sign consistently regardless of the context in which it appears (Johnston, 2010).

- *Refor_Content*: this tier contained a written summary or transcription of what had been signed or spoken for each segment of the reformulation structure and its marker. For the latter, additional information could be added in the annotation if, for example, the marker was spoken, and a gesture was produced simultaneously.
- *Refor_Description*: this tier comprises the annotation of the articulators, one after another, that signal description.
- *Refor_Depiction*: this tier comprises the annotation of the articulators, one after another, that signal depiction.

The articulators were annotated using the different abbreviations presented in Table 2.

Abbreviations	Articulators
MD	Movement of the right hand
MG	Movement of the left hand
VX	Use of speech
TE	Head movement
EX	Facial expression
BU	Body movement
RE	Eye gaze direction
MO	Mouth gesture
LA	Mouthing

Table 2. Abbreviations used to annotate the articulators (Meurant et al., 2022, p. 331)

The files containing target French renditions had an additional tier called *Refor_type* (also preceded by the interpreters' codes) in which it was annotated whether the reformulation structure was interlingual or intralingual (see Figure 2).

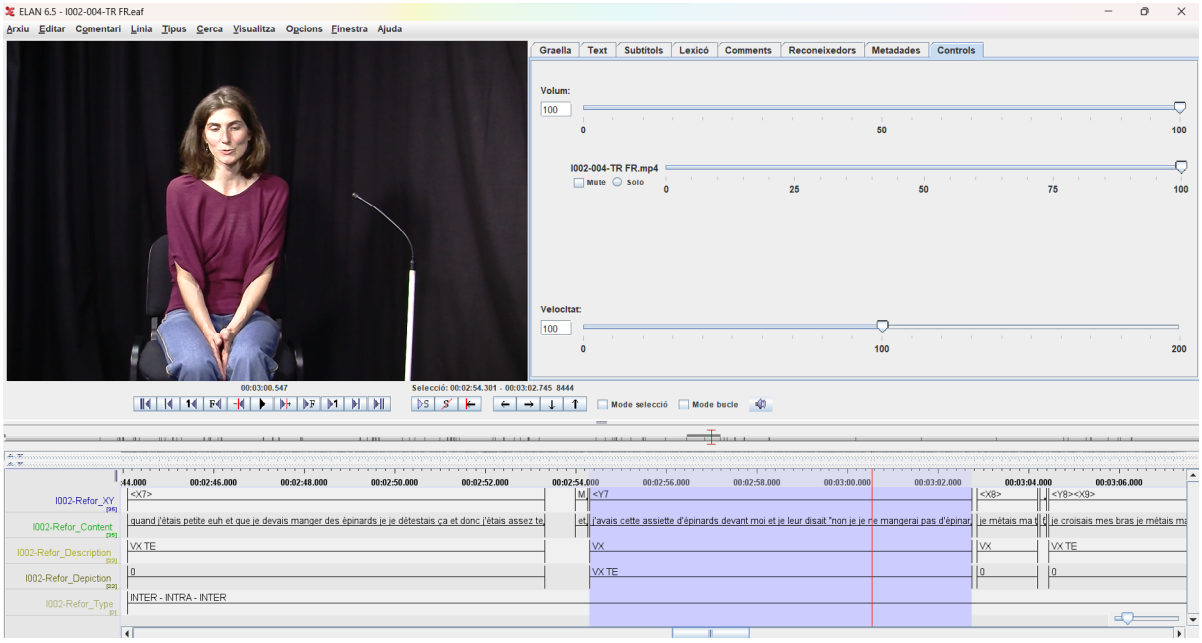


Figure 2. Screenshot of a target French data file

Once source and target videos were completely annotated, the annotations were extracted using Excel files for analysis.

3. Results

This section is divided into two parts: 3.1 is devoted to source LSFB data and 3.2 to target French data. Both parts have the same structure, including the number of reformulation structures produced by signers or interpreters, the form of these structures, the types of explicit markers used, the modes of signaling employed, and the semiotic composition of the X and Y segments.

3.1. Reformulation in source LSFB data

There are 25 reformulation structures in the source LSFB dataset: 15 were produced by S055 and 10 by S056. These reformulation structures can be independent, combined, or embedded with other reformulation structures depending on the arrangement of segments, as shown in Table 3.

Type of reformulation structures	Arrangement of segments	Number of cases
Independent	<X1> M1 <Y1>	14
Combined	<X1> M1 <Y1 X2> M2 <Y2>	5 (grouped in two reformulation structures of 3 and 2, respectively)
Embedded	<X1> M1 <Y1<X2> M2 <Y2> Y1>	6 (grouped in two reformulation structures of 3, respectively)

Table 3. Number of reformulation structures per type in source LSFB data

Most reformulation structures are independent (14 cases), and the marker is placed between the X and the Y as in example (3)[6], in which S055 recounts a memory of her friends at school.

(3) FRIEND HEARING YES SCHOOL PT:LOC HAVE SEVERAL
<X1> M1 <Y1>
< I also had hearing friends, > yes, < at school I had several hearing friends. >
CLSFBI2703_S055_02:58.495 – 03:00.973

The marker is placed after the Y segment only in one reformulation structure, represented in example (4). S056 mentions one of the differences between deaf and hearing cultures, namely the differences when calling a deaf or a hearing person.

[6] LSFB examples are written in small capital letters, as established in the sign language literature. For long examples, omissions are marked with […]. PT stands for a pointing. If PT is followed by two points and another word, the latter defines whether the pointing is used as a first-person singular pronoun (PRO1) or to indicate a location (LOC). GSIGN is used for manual forms that are not lexicalized signs, i.e., gestures. Glosses composed of two words are separated by a hyphen (e.g., DEAF-CLUB). Below the glosses of each example, the form of the reformulation structure, the translation into English (following the same conventions of the examples in French, cf. footnote 1), and the reference of the example (session, task, signer, and time code) are presented. Bear in mind that the translation of some markers such as PALM-UP or PT are tentative as they do not have a one-to-one correspondence in spoken English or French.

(4) UNDERSTAND NOT CULTURE DIFFERENT HEARING DEAF DIFFERENT PLACE WAY CALL PALM-UP

<X1> <Y1> M1

< They don't understand that that's a different culture, > <deaf and hearing people call their peers differently, > indeed.

CLSFBI2704_S056_01:43.504 – 01:46.920

The remaining 11 reformulation structures do not stand alone. On the one hand, five reformulation structures are instances of a combination of the Y segment of the first reformulation with the X segment of the following one (i.e., <X1> M1 <Y1 X2> M2 <Y2>). These five cases are combined in two structures; one has two reformulation structures, and the other has three. In example (5), S055 explains why eye gaze is important for deaf children and their parents.

(5) ALSO LOOK ALSO PT […] PARENTS HEARING KNOW-NOT HOW CHILD ALSO LOOK PALM-UP

<X1> M1 <Y1 X2> M2

[…] PERSON DEAF KNOW HOW OR DEAF TEACH ON HEARING DO

<Y2>

< The eye contact is also important, > I mean, < […] hearing parents don't know how to make their kids look at them. > In fact, < […] a deaf person knows how to do it, or a deaf person should teach hearing parents how to do it. >

CLSFBI2704_S055_01:47.444 – 02:07.048

On the other hand, six reformulation structures are instances of embedment. In other words, the Y segment of the first reformulation has two reformulation structures embedded, similarly to <X1> M1 <Y1<X2> M2 <Y2> <X3> M3 <Y3>Y1>. Most embedded reformulation structures have the marker between the X and the Y segment, except for one reformulation structure in which the marker is placed after the Y segment. These two possibilities are shown in example (6), in which S056 states her preference for the deaf club over the cinema.

(6) CULTURE ALSO FOR PT:PRO1 ALSO GO CINEMA OR GO DEAF-CLUB DEAF DIFFERENT PALM-UP

<X1> M1

PERSON HEARING FEELING LOVE CINEMA DEAF […] NOT NEED BECAUSE […] BEFORE LITTLE NOT SUBTITLES

<Y1 <X2>

PT:PRO1 NOT NEED GO LITTLE UNDERSTAND NOT PICTURE ALSO LEAVE PT

<Y2> M2

MORE DEAF-CLUB GOOD BECAUSE DEAF SIGN-LANGUAGE THERE GSIGN MORE COMMUNICATION ALSO

<X3> M3 <Y3> Y1>

< Another cultural difference is what to choose between going to the cinema or the deaf club. > So < hearing people love going to the cinema, but deaf people don't [because it's stupid]. When I was a child, I didn't want to go to the cinema because there weren't subtitles. > < It's not worth going there to see pictures without understanding, > so < going

to the deaf club was a better option because I could sign, > I mean, < there was more communication. >

CLSFBI2704_S056_03:44.730 – 04:05.870

As shown above, different manual forms are used as markers. The most frequently used markers are gestural forms such as the PALM-UP gesture (Figure 3) and GSIGN (i.e., wiggling or rubbing fingers, which are used as pause fillers in LSFB), and partly-lexicalized signs, i.e. pointings (Figure 4). Different lexicalized signs may also be used as reformulation markers and combinations of forms (see Table 4).

Figure 3. PALM-UP gesture

Figure 4. PT (pointing)

Type of marker	Form	Number
Lexicalized signs	YES	2
	BECAUSE	2
	IT-MEANS	2
	EXAMPLE	2
	ALSO	1
	BUT	1
Partly-lexicalized signs	PT	3
Gestures	PALM-UP	6
	GSIGN	4
Combinations	GSIGN PT GSIGN PALM-UP	1
	WHY BECAUSE	1

Table 4. Type, form, and number of markers used in source LSFB dialogues

Regarding the modes of signaling, description is present in all 25 LSFB reformulation structures. The semiotic resources recruited for description within these utterances include the two hands, head movements, and mouthings, whereas facial expressions (e.g., raising eyebrows to ask a question), body movements (e.g., body tilts to present two alternatives) and changes in eye gaze direction (e.g., to place referents in the signing space) are frequent but do not appear in all cases. In 12 reformulation structures, description is combined with depiction, either in the X or Y segments. The articulators used within these utterances for depiction include the two hands, facial expressions, and head and body movements, while changes in eye gaze direction, and mouth gestures are sometimes employed for this purpose, but not in a systematic way. Figure 5 illustrates an excerpt from example (6), particularly the third line of ID-glosses, in which description and depiction are combined.

'When I was a child, I didn't want to go to the cinema because there weren't subtitles. It's not worth going there to see pictures without understanding.'

CLSFBI2704_S056_03:44.730 – 04:05.870

Figure 5. Combination of description and depiction in the same reformulation segment

In this figure, S056 explains her experience as a child in the cinema. She uses description in the first four and the last two pictures. To this end, she articulates signs with her hands, moves her head, and produces mouthings. However, from the fifth to the eighth pictures, she depicts herself when she was a child in the cinema. In addition to the articulators used for description, S056 uses facial expressions, moves her body, and changes her eye gaze direction.

3.2. Reformulation structures in target French data

In target French discourse, I002 produces 16 reformulation structures (12 interlingual and four intralingual) and I006 produces 11 (six interlingual and five intralingual). Similarly to what is found in source LSFB data (see 3.1), reformulation structures can be independent, combined, or embedded (see Table 5).

Type of reformulation structures	Arrangement of segments	Number of cases
Independent	<X1> M1 <Y1>	16
Combined	<X1> M1 <Y1 X2> M2 <Y2>	2 (which made one reformulation structure)
Embedded	<X1> M1 <Y1<X2> M2 <Y2> Y1>	9 (grouped in three reformulation structures of 3)

Table 5. Number of reformulation structures per type in target French data

The most frequent form of reformulation structures in target French renditions is also <X1> M1 <Y1> (12 occurrences), as shown in example (7). I002 interprets the excerpt presented in example (5), producing an interlingual reformulation structure.

(7) *Je veux dire aussi qu'en termes de regard euh il y a aussi quelque chose de différent.*

<X1>

Par exemple,

M1

un professeur, des parents sourds (savent) à quel point le regard est important, qu'il faut apprendre à ce que les enfants puissent fixer le regard, alors qu'un entendant ne sait pas spécialement, il sait pas comment faire.

<Y1>

< I want to add that in terms of eye contact erm there is something different. > For instance, < a teacher, deaf parents know to what extent eye contact is important, and that children need to be taught to keep eye contact, whereas a hearing person doesn't necessarily know how to do it. >

CorMILS_I002-004-TR FR_02:03.194 – 02:19.916

Independent reformulation structures can have the marker embedded in the Y segment (four occurrences), as in example (8). In this excerpt, which follows the previous one, there is a change of speaker (i.e., X1 corresponds to S055 and Y1 to S056). When I002 interprets it, she produces an intralingual reformulation structure not reproduced from the source LSFB discourse.

(8) *Et c'est vrai que si si euh s'il n'y a pas ce lien avec le regard, ça peut devenir très violent pour l'enfant.*

<X1>

Oui, c'est vrai, la la communication, en fait,

<Y1 M1

n'y est pas et oui, c'est une forme de violence.

Y1>

< And it's true that if if erm if there is not this eye contact, it can become very violent for the kid. > < Yes, it's true, the the communication, in fact, is not there and yes, it's somehow violent. >

CorMILS_I002-004-TR FR_02:27.860 – 02:38.817

There is only one combined reformulation composed of two reformulation structures in target French discourse, illustrated in example (9). It also has the <X1> M1 <Y1 X2> M2 <Y2> form, as in example (5) of source LSFB data. In (9), I006 interprets S056's experience with the Scouts, producing two chained intralingual reformulation structures.

(9) *Je faisais aussi partie des scouts autant que lui. Emmm…*

<X1> M1

C'était le temps de partir en camp scout, et je faisais partie d'une troupe, […] euh

<Y1 X2> M2

je suis partie en camp pour voir un peu comment ça se passe la vie de scout.

<Y2>

< I took part in the Scouts as he did. > Mmm… < It was time to go camping with the Scouts, and I was part of a group, […] > erm < I went camping to see a little bit how life with the Scouts is. >

CorMILS_I006-003-TR FR_00:18.363 – 00:41.273

In embedded reformulation structures, the embedding is found in the Y segment, which can either be preceded by the marker—as in example (10)—or have the marker embedded after the last embedded reformulation—as in example (11). Each of these two examples puts together three reformulation structures. Example (10) is the only case where the marker appears after the first X segment. I002 interprets a memory of S055 related to lunchtime at home. She produces three reformulation structures: <X2> M2 <Y2> is intralingual, while the other two are interlingual.

(10) *Quand j'étais petite euh et que je devais manger des épinards, je je détestais ça, et donc j'étais assez têtue, mes parents aussi.*

<X1>

Et donc

M1

j'avais cette assiette d'épinards devant moi et je leur disais "non, je je ne mangerai pas d'épinards", et pour leur montrer euh ma détermination,

<Y1

je mettais ma tête sur mes mains, fin,

<X2> M2

je croisais mes bras, je mettais ma tête sur mes mains sur la table, et ça veut dire que

<Y2 X3> M3

je ne ne voyais pas ce qui se passait autour de moi, donc impossible de communiquer avec mon entourage […].

<Y3>Y1>

< When I was a kid erm and I had to eat spinach, I I hated it, and then I was quite obstinate, and so were my parents. > And then < I had this dish with spinach in front of me and I told them “no, I I won’t each spinach”, and to show my determination, < I put my head on my hands, > I mean, < I crossed my arms, I put my head on my hands on the table, > which means that < I couldn’t couldn’t see what was going on around me, so it was impossible to communicate with people around […]. >

CorMILS_I002-004-TR FR_02:44.089 – 03:21.033

Example (11) illustrates one of the two cases in which the marker of the main reformulation structure appears embedded in the Y segment. Interestingly, each case is produced by one interpreter and refers to the same moment in the source dialogue. In (11), I002 interprets how S055 used to perceive the deaf and hearing worlds. She produces three interlingual reformulation structures, as they are interpreted from the source dialogue.

(11) *Quand j'étais enfant, je me je me souviens de, en fait, très fort de deux mondes différents.*

<X1>

Il y avait le le monde sourd, euh

<Y1 <X2> M2

je quand j'accompagnais ma maman […], et puis mon papa […], donc j'avais euh fort un lien fort avec cette langue ainsi que ma sœur.

<Y2>

Mes parents tenaient tout de même à ce qu'on soit dans le monde entendant,

<X3>

et donc euh ils m'avaient inscrit à un cours de dessin […] avec les entendants.

M3 <Y3>

Eh donc J'étais vraiment partagée entre ces deux mondes.

M1 Y1>

< When I was a kid, I do I do remember, in fact, two very different worlds. > < There was the the deaf world, > erm < I when I went with my mum […], and then my dad [...], so I had erm a strong connection with this language as did my sister. > < My parents wanted anyway that we were in the hearing world, > and so erm < they sent me to drawing lessons […] with the hearing. > Erm so < I was in between these two worlds. >

CorMILS_I002-003-TR FR_02:09.500 – 03:02.940

In the target French dataset, three types of reformulation markers are found: connectors/ discourse markers, pause fillers, and combinations of connectors or connectors with pause fillers (see Table 6).

Type of marker		Form	Number
Connectors/discourse markers		*en fait* 'in fact'	4
		par exemple 'for example'	2
		oui 'yes'	2
		fin (enfin) 'well'	1
		et 'and'	1
		mais 'but'	1
Pause fillers		*euh* 'erm'	2
		emmm 'mmm'	1
Combinations	Connector + connector	*et puis en fait* 'and then in fact', *et donc* 'and so', *et voilà* 'and there you go', *et ça veut dire que* 'and it means that'	7
	Connector + pause filler	*et donc euh* 'and so erm', *euh donc* 'erm so', *et euh* 'and erm', *par exemple* emmm 'for example mmm'	6

Table 6. Type, form, and number of markers used in target French renditions

Regarding the modes of signaling, description is present in the 27 reformulation structures. The two interpreters use their voices to signal description in the utterances; that is, they produce words, sentences, and conventionalized intonation contours. Sometimes these tokens are combined with head movements (e.g., head tilts), facial expressions (e.g., eyebrows raised while asking a question or furrowed to express confusion), and hand gestures. In Kendon's (2004) terms, most of these gestures belong to the 'palm-up family' and only some to the 'palm-down family' (Figure 6). An example of the canonical form of a PALM-UP gesture is shown in Figure 3, but interpreters mostly produced one-handed or reduced forms (see Figures 7 and 8). These tokens are pragmatic gestures, which means that they relate to some aspects of discourse structure. For instance, the palm-down gesture's function is to "render unnecessary further action, inquiry or comment" (Kendon, 2004, p. 258) as expressed by I006 in example (12). While he produces the Y segment of the reformulation structure, he repeats the gesture three times (see underlined words).

(12) *Un jour où de nouveau je n'avais pas envie de manger, mes parents ont sans broncher m'ont dit de con... de manger mon assiette, sinon je ne me lèverais pas.*

'One day in which again I didn't want to eat, my parents told me without batting an eye to con… to eat my plate, otherwise, I would not leave the table.'

CorMILS_I006-004-TR FR_02:55.638 – 03:03.164

Figure 6. One-handed palm-down gesture

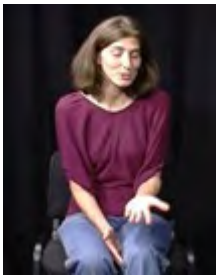


Figure 7. One-handed palm-up gesture

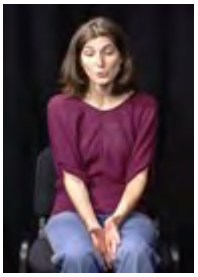


Figure 8. Reduced palm-up gesture

Reformulation segments in which depiction is combined with description are barely identified, only in one X segment and one Y segment of different reformulation structures. The hands are used in the former case to depict the word 'general', in which I006 draws a ball with his hands (see Figure 9). In the latter case, I002 uses her voice (i.e., she utters a sentence with a falling intonation contour) and head movements while she is enacting herself when she was a kid saying *'non, je je ne mangerai pas d'épinards'* ('no, I I won't eat spinach', see example (10) above).

Figure 9. Start and end position of the gesture depicting the meaning of 'general'

4. Discussion

The results presented in Section 3 show that fewer reformulation structures were used in target French discourse than in source LSFB discourse (16 and 11 reformulation structures produced by I002 and I006 respectively vs. 25 reformulation structures produced by S055 and S056 in the dialogues). These results indicate that the first hypothesis, namely a smaller number of reformulation structures in target French discourse due to interpreters' cognitive load and time lag (among other factors), is supported. However, it must be noted that only marked reformulation structures were considered in this study. In future research, unmarked reformulation structures should be included to confirm whether reformulation structures (marked and unmarked) are more frequent in source than in target texts.

The second hypothesis, namely the use of signs and gestures of the source signers by the interpreters, is not supported in this dataset. This may be explained by the experimental setting, as there was a camera in front of the interpreters instead of a user. After the recordings, interpreters acknowledged that they tried to control their amount of gesturing by holding their hands together most of the time because they were taught to do so in their training. Still, they produced some pragmatic gestures (Kendon, 2004) and self-adapters—namely touching their face, body, and hands to maintain mental focus and control stress (Ekman & Friesen, 1969). Self-adapters are not included in this paper because they are not used to signal description or depiction in the reformulation structures. The articulators used by interpreters to signal the two modes are the voice, head movements, and facial expressions, showing that interpreters draw on a combination of semiotic resources to construct meaning.

The main channels of expression in both modalities (i.e., the hands in LSFB and the voice in French) are always engaged for description in reformulation structures of the source and target discourses. Description is found in all reformulation structures in both datasets. By contrast, depiction is used in 12 reformulation structures in LSFB, but only in two reformulation structures in French. Interpreters may have changed the mode of signaling unconsciously because of interpreting constraints, or they may have done it deliberately as the opposite strategy to *role shifting* (Heyerick, 2021, p. 125). *Role shifting* is used in spoken-to-signed language interpreting when the interpreter enacts the actions or events in the target text presented from a narrator's point of view in the source text. In the opposite direction, it seems that I002 and I006 use *indirect reporting*, meaning that enactment in LSFB is transformed into indirect speech in French.

Despite the differences in the main channel of expression, the setting (dialogues vs. interpreted renditions), and the type of data (semi-spontaneous vs. interpreted data), the form of the most frequent reformulation structures is <X1> M1 <Y1> in both datasets. Combined or chained reformulation structures, i.e. <X1> M1 <Y1 X2> M2 <Y2>, as well as embedded reformulation structures, i.e., <X1> M1 <Y1 <X2> M2 <Y2> Y1>, are also found in source and target discourses. Although there is a generalized preference for the marker to be placed between the X and the Y segment in the dataset, it is embedded in the Y segment or appears at the end of it in some cases. Furthermore, there is a variety of markers used in LSFB and French expressed through the manual and vocal channels respectively.

The specificity of reformulation structures in target French data is that they can either be interlingual (i.e., generated by the source LSFB signers and reproduced by interpreters in their renditions) or intralingual (i.e., only generated in the interpreted rendition). Hence, these two types of reformulation structures trigger different interpreting strategies. When interlingual reformulation structures are produced, interpreters employ the following strategies (Heyerick, 2021, p. 191):

- Substitution: replacing an item of the source text with something similar but not exactly equivalent in the target text such as a synonym, superordinate, hyponym, or a reference to a locus.
- Omission: eluding information from the source text in the target text.
- Compression: reducing the message of the source text but preserving its meaning.

Since intralingual reformulation structures are not transferred from the source text, they are interpreting strategies *per se* used by interpreters to elaborate their discourse. In other words, intralingual reformulation structures can be seen as the hypernym of the following interpreting strategies (Heyerick, 2021, p. 191):

- Addition: introducing information in the target text which was not present in the source text.
- Paraphrase: using several different signs and/or constructions to present the information from the source text into a longer utterance in the target text.
- Repair: correcting an interpreting mistake, rendering initially omitted information, or improving the initial rendition through an alternative formulation.
- Repetition: giving information, which only appears once in the source text, at least twice in the target text.

Both I002 and I006 produced interlingual and intralingual reformulation structures in their renditions. Sometimes reformulation structures were used for the same chunk of source dialogues, and sometimes not. In other words, interpreters can interpret a marked reformulation of the source dialogue as a marked reformulation in the target discourse (interlingual reformulation), but they can also interpret the structure otherwise or even omit it. Although intralingual reformulations are created on the interpreter's initiative, interpreters can coincide in the chunks where these structures are employed (e.g., to clarify a concept so that the audience may understand it better).

5. Conclusions and future avenues for research

This paper describes reformulation structures in LSFB-to-French interpreting, including their frequency of use, form, and semiotic composition. Reformulations in target renditions can be interlingual or intralingual, depending on whether they appear in the source text or are only created in the target text. Therefore, the phenomenon was analyzed in two datasets of source LSFB and target French data to disentangle the two types of reformulations. The source LSFB data include two dialogues between two signers (totaling 10 minutes) from the LSFB Corpus (Meurant, 2015) and the target French data comprise the renditions of two experienced interpreters (totaling 20 minutes) from the CorMILS Pilot Project (Gabarró-López, 2018). Although reformulation structures are found in both datasets and often exhibit similar forms, they differ in the articulators used to express them.

It was expected that interpreters would rely on signs or gestures articulated by the source signers to produce reformulation structures, as reported in the literature (Janzen et al., 2016). However, this hypothesis was not supported, suggesting new avenues of research. First, the role of self-adapters (Ekman & Friesen, 1969) and embedded gestures, e.g., finger-lift movements while fingers of both hands are in contact (Cienki, 2021, 2023, this volume), should be investigated. These two categories appear several times in the dataset, within reformulation structures and outside them, and may be preferred by interpreters over other categories such as referential gestures, i.e., iconic or deictic gestures that refer to an object, person, location, or event (McNeill, 1992). Second, the renditions of more interpreters should be analyzed. In doing so, the differences in the number and types of gestures could be studied to determine

gestural styles (Zagar Galvão, 2020). Third, nonmanual gestures produced by interpreters when working from the signed-to-spoken direction could also be examined, as nonmanual gestures seem to play a prominent role in conveying meaning that remains unresearched to date.

The main shortcoming of the present research is the small size of the two datasets, which does not allow for broader generalizations. As mentioned earlier, future research should involve more interpreters and more interpreted discourses, ideally renditions that were elicited not only in experimental conditions (i.e., at least the users of the interpreting service should be present). Furthermore, results should be put into perspective with the number of signers producing the source vs. the number of interpreters producing the target. The interpreters' renditions may have been different if each interpreter were interpreting one signer at a time (i.e., the source text was a monologue), or if there were two interpreters in the setting, one for each signer participating in the dialogue.

Despite these shortcomings, this paper provided valuable insights into the use of reformulation structures in LSFB > French interpreting and, more generally, contributed to broadening our knowledge of the signed-to-spoken interpreting direction. This interpreting direction is understudied as compared to the spoken-to-signed interpreting direction (Wang, 2021). Yet, the former may have implications beyond the interpreter's role as a mediator between signers and speakers. In a society where most people lack signing skills and many prejudices surround deaf people, the interpreter's performance (who is voicing the signer's discourse) may influence the judgments of the hearing audience (Feyne, 2015). Therefore, more research on signed-to-spoken language interpreting is needed to provide interpreters with research-based insights. Hopefully, this type of research will see the light of day soon.

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