

Question and Negation in Israeli Sign Language

Irit Meir

University of Haifa

The paper presents the interrogative and negative constructions in Israeli Sign Language (ISL). Both manual and nonmanual components of these constructions are described, revealing a complex and rich system. In addition to the basic lexical terms, ISL uses various morphological devices to expand its basic question and negation vocabulary, such as compounding and suffixation. The nonmanual component consists of specific facial expressions, head and body posture, and mouthing. The use of mouthing is especially interesting, as ISL seems to use it extensively, both as a word formation device and as a grammatical marker for negation. Interrogative and negative constructions interact in with other grammatical categories in the language; i.e., the distribution of various negation words is determined by the lexical category of the negated word. Thus, the distribution of negation words provides evidence for the existence of Nouns, Verbs and Adjectives as formal categories in the language. Finally, a diachronic comparison between present day ISL and earlier stages of the language reveals interesting traits in the development of these systems.

Keywords: negation, interrogative constructions, suffixation, mouthing, nonmanual markers, Israeli Sign Language

1. Introduction

Similar to other sign languages, interrogative and negative constructions in Israeli Sign Language (ISL) consist of both manual and nonmanual components, which I describe in this paper. Since sign languages seem to vary greatly with respect to the particular lexical items for question and negation, attention will be given to describing the form, meaning and use of question and negation words. Upon examining the ISL question and negation lexicon at first glance,

it might seem more restricted than it turns out to be on closer inspection. The reason for this is that there are several pairs or even triplets of signs which are quite similar yet distinct, both semantically and formationally. For example, there are three negative-imperative signs, which differ from each other in subtle ways. The same holds for the negative-completive and the negative-past signs, as well as the two negative existential signs. A careful and precise investigation of these forms reveals the differences between them, and the richness of the system.

In addition to the basic lexical terms, ISL uses various morphological devices to expand its basic question and negation vocabulary. Of particular interest are the use of compounding to create new question words, and the use of a negative suffix, glossed as -NOT-EXIST, which derives adjectives such as IMPORTANT+NOT-EXIST 'unimportant' and INTERESTING+NOT-EXIST 'uninteresting'.

The nonmanual component consists of specific facial expressions, head and body posture, and mouthing. The use of mouthing is especially interesting, as ISL seems to use it extensively, both as a word formation device and as a grammatical marker for negation. All three nonmanual components interact with each other in various ways.

Interrogative and negative constructions interact in interesting ways with other grammatical categories in the language. For example, the distribution of various negation words is determined by the lexical category of the negated word. Some negators can co-occur with verbs only, while others are used to negate nouns or adjectives. Thus, the distribution of negation words provides evidence for the existence of Nouns, Verbs and Adjectives as formal categories in the language.

Finally, I present some documentation concerning these constructions in earlier stages of the language and provide a brief diachronic comparison.

2. Interrogative constructions

The formation of interrogative constructions in Israeli Sign Languages makes use of several mechanisms: lexical items (question words), word order and nonmanual markers. Polar interrogatives (yes/no) employ only the latter, that is, they differ from declarative sentences merely by the use of a specific facial expression. Content questions (wh-questions) are formed by using question words, which tend to come in a particular position in the sentence, as well

as certain nonmanual features. I begin with an investigation of the lexicon of question words — their meaning, use and formation (2.1), and then turn to examine the nonmanual component involved in interrogative constructions (2.2).

2.1 Question words

ISL has a basic paradigm of question words, comprised of six signs. This basic list is expanded by the use of two formational means: mouthing of Hebrew question words accompanying the manual signs, and complex word formation. Another word formation mechanism, initialization, has been introduced into Signed Hebrew, a contrived system designed to represent Hebrew manually. Though these invented signs have not found their way into ISL proper, some signers may, nevertheless, use them, especially when talking to hearing people. In addition to these word formation mechanisms, some non-interrogative signs function as questions in specific contexts. The basic question words, coupled with the forms derived by the above devices, constitute the question word vocabulary of ISL.

2.1.1 *The basic paradigm*

The basic question words are presented in Table 1.

Table 1. The basic paradigm of question signs in ISL

Signs	Examples
WHO	WHO INDEX ₃ WHO? 'Who is it?'
WHAT	YOU BUY WHAT YOU? 'What did you buy?'
HOW-MANY	HALL INDEX _a SEAT _{x₃} HOW-MANY? 'How many seats are there in this hall?'
WHERE	ROOM POSS ₂ WHERE? 'Where is your room?'
	ROAD INDEX ₃ WHERE? 'Where does this road lead to?'
FROM- WHERE/WHO	PRESENT INDEX ₃ FROM-WHERE/WHO INDEX ₂ ? 'Where (who) did you get this present from?'
WHAT'S-THIS	MOVIE INDEX ₂ SEE YESTERDAY WHAT'S-THIS? 'Which movie did you see yesterday?'

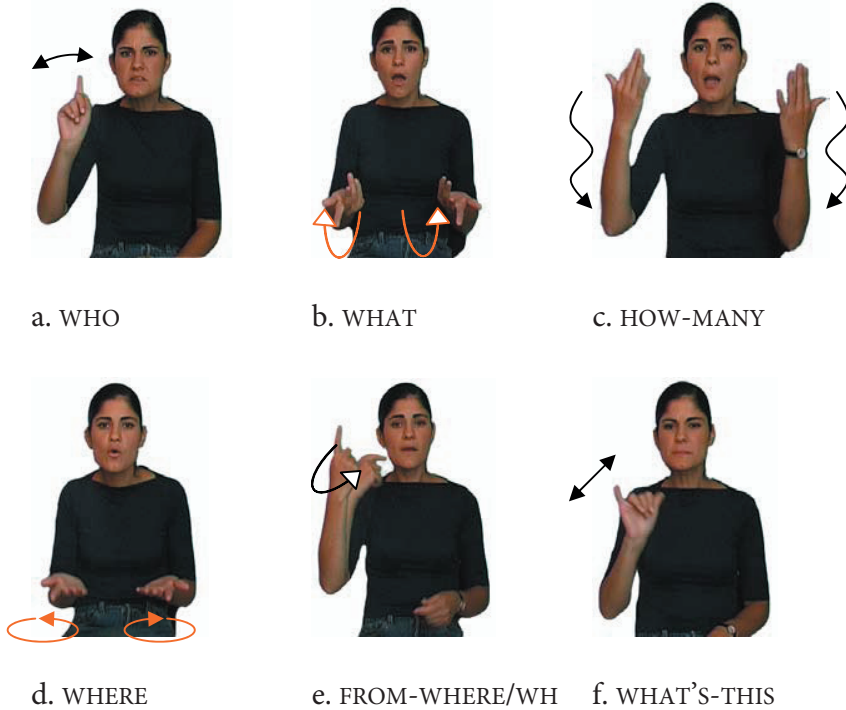


Figure 1. The basic question words in ISL

Several comments are in order with respect to this basic paradigm. First, the sign *WHAT* seems to be the general interrogative word in the language. It is sometimes used instead of other, more specific question words. It combines with non-interrogative words to derive more specific question words (see 2.1.2b below), and it is also the base form for deriving initialized question words (see 2.1.2d). It is worth noting that this sign is very similar to an interrogative gesture found in the hearing community — a rotation of the wrist from a palm-down position to palm-up position, resulting in two open hands. It may well be that the sign has developed from the gesture. Though I have no concrete evidence to support this hypothesis, it is noteworthy that in earlier stages of ISL this sign was used as a general question word, covering the semantic ranges of all the question words except for *WHO* and *FROM-WHERE/WHO* (Namir & Schlesinger 1978:135).

Secondly, of this basic paradigm, four signs are among the most common question words in any language: *WHO*, *WHAT*, *WHERE* and *HOW-MANY*. Two signs, however, are unusual, and are also quite difficult to translate.¹ The first

is FROM-WHERE/WHO, which is used to ask about the source from which the addressee obtained information or possession, as in (1) and (2):

- (1) KNOW FROM-WHERE/WHO INDEX₂?
'Where did you get this piece of information? Who told you that?'
- (2) BOOK INDEX₃ FROM-WHERE/WHO INDEX₂?
'Where did you get this book from? Who gave you this book?'

The second unusual sign WHAT'S-THIS inquires about the nature of things, and is often used in contexts in which English would use 'what' or 'which'. The following sentences exemplify some of the contexts in which this sign occurs:

- (3) WHAT'S-THIS INDEX₃?
'What is it?/What kind of thing it is?'
- (4) CAR POSS₂ WHAT'S-THIS?
'What kind of car do you have?'
- (5) VCR INDEX₃ WHAT'S-THIS?
'What kind of a VCR is it? How do you operate it?'

The sign usually refers to inanimate objects. When asking about a person, as in PERSON INDEX₃ WHAT'S-THIS?, the signer actually asks about that person's behavior or nature ('What kind of a person is s/he?', 'How does s/he behave?'), and not about that person's identity.

2.1.2 *Expansion of basic paradigm*

I now turn to the three ways in which the basic paradigm of question words is expanded: through mouthing, complex question word formation, and initialization.

2.1.2.1 *Mouthing.* One means for expanding the basic paradigm of question words is by mouthing of a Hebrew question word. That is, the same manual sign can be accompanied by mouthing of two different words, resulting in two separate question signs in ISL. Thus the sign WHY is identical to the sign WHAT but with the mouthing of the Hebrew word *lama* 'why' instead of *ma* 'what'. WHEN and HOW-MANY have the same form, but the former is accompanied by with the mouthing *matay* 'when' and the latter with *kama* 'how many', and HOW is identical to WHERE with the mouthings *eix* 'how' and *eifo* 'where' respectively.²

2.1.2.2 Complex question words. Another way of creating more question words in the language is to combine certain nouns with the sign WHAT. Thus PLACE+WHAT means ‘where’, REASON+WHAT is ‘why’, and NEED+WHAT means ‘what for’. Notice that all of the complex words have corresponding simplex forms (Table 1.) Our consultants point out that these complex question words seem to have a more specific reading than the equivalent simplex forms. For example, (6a) will be used to inquire about the specific address, while (6b) inquires about a more general location, e.g. town:

- (6) a. HOUSE POSS2 PLACE+WHAT?
 ‘Where do you live? (What is your address?)’
 b. HOUSE POSS2 WHERE?
 ‘Where do you live? (which town)?’

Similarly, REASON+WHAT is used to inquire about a specific reason for doing something, whereas WHY can express the signer’s dissatisfaction with the addressee’s doings. In (7a) the signer inquires about the reason for the addressee’s late arrival. (7b), on the other hand, is more likely to be used to express the signer’s dissatisfaction with the addressee’s late arrival (as in the context “Why did you come so late?? I expected you earlier”)

- (7) a. LATE INDEX2 COME REASON+WHAT?
 ‘Why did you arrive late?’
 b. LATE INDEX2 COME WHY?
 ‘What is the reason for your late arrival?’

2.1.2.3 Non-interrogative signs as question words. Some content questions may be formed by using a non-interrogative sign with a facial expression for content questions (to be described below), without a question word (see also example 16).

- (8) TIME? ‘What time is it?’
 MONEY? ‘How much does it cost?’
 AGE INDEX2? ‘How old are you?’
 HEALTH INDEX₂? ‘How are you?’

2.1.2.4 Initialization. In Signed Hebrew, several question words were invented, in order to manually represent those Hebrew question words which do not have a parallel sign in the ISL vocabulary. In these invented signs, the movement of the hands and the place of articulation are the same as those of the sign WHAT (see Figure 1b), but their handshape is taken from the manual alphabet,

representing the initial letter of the Hebrew word. Thus WHY has an L handshape ('*lama*' in Hebrew), HOW has an A handshape (the Hebrew fingerspelling for the letter 'alef') then opening to a 5 handshape, and the polar question particle WHETHER is a reduced fingerspelled borrowing taken from the Hebrew word '*ha'im*' 'whether'. These contrived forms are not very frequent in bona fide ISL. As mentioned above, the signs WHY and HOW are expressed in ISL by means of mouthing, so that many signers find the initialized forms redundant. The polar question particle has no ISL counterpart, and is sometimes used in Deaf-hearing conversations in order to explicitly mark polar questions, which are otherwise marked by facial expression only. However, in all-Deaf conversations, all three signs are quite rare.

Both mouthing and initialization can be regarded as word formation devices which involve borrowing from the ambient spoken language. However, mouthing is much more common and prevalent in ISL than initialization, in the lexicon in general, not only in question words. Though a few initialized signs have become part of the core lexicon of ISL and are not perceived as foreign, most initialized signs are regarded as somewhat artificial by Deaf signers (Meir & Sandler 2004). ISL differs from ASL in that respect. In ASL, initialization is very productive, while mouthing is less common.³ In ISL, initialization is still felt to be much more strongly tied to Signed Hebrew, while mouthing is very productive and is regarded and used as an integral part of the language.

2.1.3 *Word order*

Question words tend to occur in sentence final position, sometimes followed by a subject pronoun. However, there is a certain degree of variation among the informants I worked with, some of them allowing also sentence initial position. Both (9a) and (9b) are acceptable, though (9b) is more common. It is not clear to me as yet whether this variation in word order is determined by discourse considerations, or it is just an indication that word order is less fixed for some signers. Additionally, it is also possible to have a question word both at the beginning and at the end of the sentence (as in 10).

- (9) a. WHAT INDEX3 SAY?
 b. INDEX3 SAY WHAT?
 'What did he say?'

- (10) WHO WRITE BOOK INDEX3 WHO?
 'Who wrote this book?'

2.2 Interrogative nonmanual features

One nonmanual mechanism, mouthing, was presented in the previous section, as it is part of the **lexical** component of interrogative constructions. In this section we turn to those nonmanual features which parallel intonation in spoken languages, in that they contribute to interpretation, and may spread over the entire clause.⁴ These features include the shape of the eyes and brows, and the posture of the body.

Polar questions and content questions are each accompanied by specific facial expressions. These facial expressions are the basic or prototypical expressions for each type of interrogatives. However, we find that each may be altered in certain pragmatic contexts.

The typical facial expression for polar questions is raised brows, open eyes and head and shoulders tilted forward (Figure 2a). This expression is used when the answer expected is indeed ‘yes’ or ‘no’. However, if the signer has additional intentions when asking the question, the facial expression often changes. For example, the question ‘Do you have any money?’ is usually uttered not just to inquire about the addressee’s financial situation, but to ask whether the interlocutor can borrow some money from the addressee. Likewise the question ‘Do you have a car?’ when asked towards the end of a social event means ‘Can I have a ride with you?’. In such cases, the accompanying facial expression is usually that of furrowed brows, more similar to the content question expression. (Figure 2b).⁵ Content questions are accompanied by pressing the brows downwards and towards each other, which results in a frown, and a forward tilt of the head and shoulders (Figure 2c). We often find that this facial expression is less pronounced than that of polar questions. In the case of at least one question word, *WHY*, the frown and the raised brows are both acceptable. Our consultants suggest that the frown might be interpreted as dissatisfaction on the part of the signer, whereas the raised brows do not have this interpretation.



a. polar question

b. polar question with special intentions

c. content question

Figure 2. Interrogative facial expressions

The scope of the two facial expressions is typically the entire clause, not including the topic:

- (11) _____ y/n
INDEX2 ALREADY JOIN AMUSEMENT-PARK ALREADY YOU?
'Have you ever been to an amusement park?'
- (12) _____ t _____ y/n
BOOK INDEX_a, INDEX2 ALREADY READ INDEX2?
'Have you read this book?''⁶
- (13) _____ t cont-q
BOOK INDEX_a, WHERE?
'Where is the book?'

In alternative questions, such as 'Do you want coffee or tea?', the y/n-q facial expression spreads over the first conjunct, but not over the second:

- (14) _____ y/n
INDEX2 LIKE ICECREAM VANILLA OR CHOCOLATE?
'Do you like vanilla ice cream or chocolate ice cream?'

Interrogative constructions in spoken languages are often used not for asking questions, but rather for making strong statements (as in '*Who needs you anyway?!*') or exclamations ('*Isn't she clever?!*'). ISL does not use interrogative constructions in such cases. However, one context in which question words are used in non-interrogative context is when expressing regret for doing something, as in '*Why did I have to do it?!*', '*Why do you have to argue all the time?!*'. There are two signs typically used in such contexts: WHY and NEED 'what for'. In these contexts, the signs are signed with a much slower and more pronounced movement, and the sign WHY does not have a rotation movement as the regular question word. The facial expression is different from both content questions and yes/no questions, and spreads over the entire clause (Figure 3).

- (15) _____ excl./regret
WHY INDEX1 GO MEETING NEG-PAST WHY?!
'Why didn't I go to that meeting??!!'
- (16) _____ excl
ARGUMENT NEED?!
'Why do you need to argue (all the time)?!'

What these examples seem to indicate is that there is no one-to-one correlation between the syntactic structure of a sentence and the facial expressions

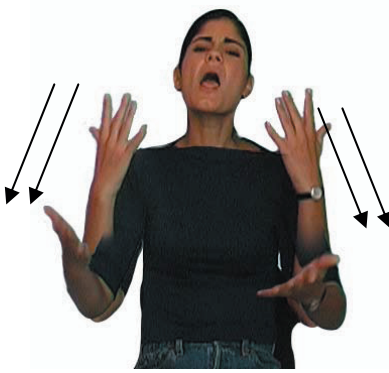


Figure 3. Facial expression in content questions in non-interrogative contexts

accompanying it. Both polar and content questions can occur with raised brows or with a frown, as well as the facial expression shown in Figure 3, depending on some pragmatic factors that need be further investigated in the future.

3. Negative constructions in ISL

As is the case with interrogatives, ISL negative constructions also involve both a manual and a nonmanual component. The vocabulary of negators in the language includes a substantial list of basic, non-derived signs (Section 3.1), as well as signs derived by affixation (3.2, 3.6). Nonmanual features include a headshake, mouthing and facial expression (3.3), each having a distinct function. Negative signs in ISL interact in interesting ways with other grammatical categories, such as tense (3.4) and parts of speech (3.5), providing evidence for the existence of these categories in the language.

3.1 Negation signs in ISL

3.1.1 *Basic negator*

The basic negator in ISL, glossed as NOT (Figure 4), has the form of a G handshape, and a small, rapid side-to-side movement. NOT can be used as a whole utterance, e.g. as an answer to a question. It is also used to negate adjectives and nouns in predicative position (example 18), and sentences denoting non-past events (example 17):



Figure 4. The basic negator in the language: NOT

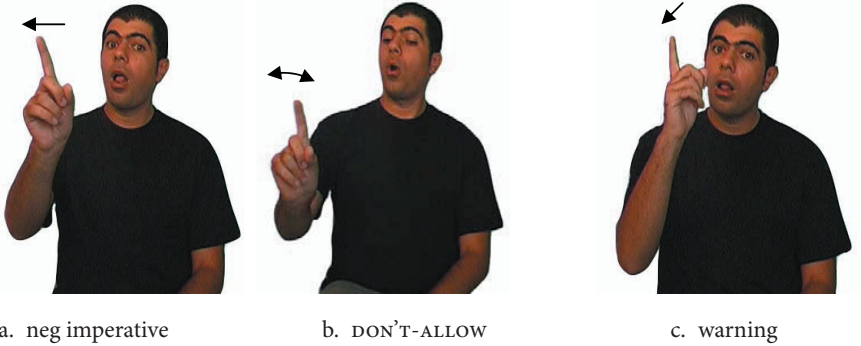
- (17) — INDEX2 LIKE BANANA? — LIKE NOT.
 ‘— Do you like bananas? — No, I don’t.’
- (18) CHAIR INDEX3, COMFORTABLE NOT.
 ‘That chair is not comfortable.’

As is evident from the examples above, the sign NOT usually follows the negated word. Nonetheless, for some signers NOT can also precede the negated element. For other negators, such as the negative imperative signs, negative existentials, negative completive and negative past, word order is more fixed, and they usually follow the negated element.

3.1.2 *Negative imperatives*

ISL has several negative imperative signs, all of which have a G handshape and a short rapid movement, ending with a hold (Figure 5). They differ from one another in the direction of movement (sideward vs. forward) and in body posture. The basic negative imperative sign (referred to as NEG-IMP) has a sideward movement and a slight forward tilt of the body and head (example 19). A second negative imperative sign, glossed here as NOT-ALLOW, has the meaning ‘I don’t allow you to...’. While producing this sign, the head is tilted backwards and the hand is held farther from the body. It is often used as a reply to a request (example 20). A third negative imperative sign DON’T is used for warning, as in ‘I warn you not to do that!’ It has a forward movement, and the body and head tilt forward (example 21).

- (19) READ NOW NEG-IMP!
 ‘Don’t read now.’



a. neg imperative

b. DON'T-ALLOW

c. warning

Figure 5. Negative imperative signs in ISL

- (20) (Context: 'I want to have another piece of cake.')
 — DON'T-ALLOW.
 '— No! (you can't have it).'

- (21) INTERFERE NOW DON'T(warning)!
 'I warn you not to interfere now (or: to stop interfering now).'

3.1.3 *Negative existential*

There are two negative-existential signs in ISL. The first, NEG-EXIST(1) (Figure 6a), is used to negate existence or possession.

- (22) (Context: 'I looked for the keys everywhere, but...') KEYS NEG-EXIST(1).
 'There are no keys.'
 (23) INDEX1 TV NEG-EXIST(1).
 'I don't have a TV.'

The other sign, NEG-EXIST(2) (Figure 6b), differs from the first in that it negates only existence, not possession. Additionally, it often has somewhat negative connotations, expressing a threat (as in 24) or disappointment (25).⁷

- (24) (Context: 'If you don't prepare your homework...')
 TV NEG-EXIST(2).
 'There is no TV (meaning 'You will not be allowed to watch TV').'
 (25) (Context: 'I went to several food-stores, but ...')
 BREAD NEG-EXIST(2).
 'There was no bread.'

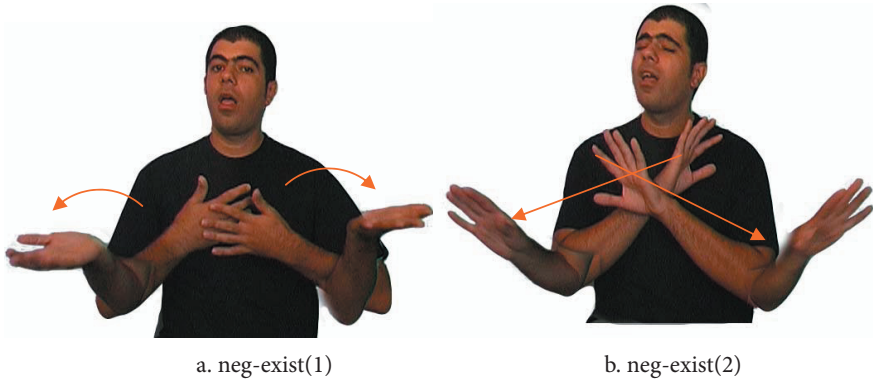


Figure 6. Negative existentials in ISL

3.1.4 *Negative completive*

ISL has a marker of the perfect aspect glossed as *ALREADY*.⁸ This sign cannot co-occur with a negation sign. Instead, a *NEGATIVE-COMPLETIVE* sign is used. This sign has an F handshape, a rapid downward zigzag movement, and a ‘whistling’ mouth gesture (Figure 7a).

- (26) INDEX1 EAT NEG-COMPL.
‘I haven’t eaten yet.’

3.1.5 *Negative past*

Verbs denoting past events are negated by a sign which is similar to the *NEG-COMPL* sign (and, in fact, both signs are glossed as *ZERO* by ISL signers). It has an F handshape, a circular movement, and is accompanied by the mouthing *efes* ‘zero’. It is translated as ‘not (in the past)’, ‘not at all’ (Figure 7b).

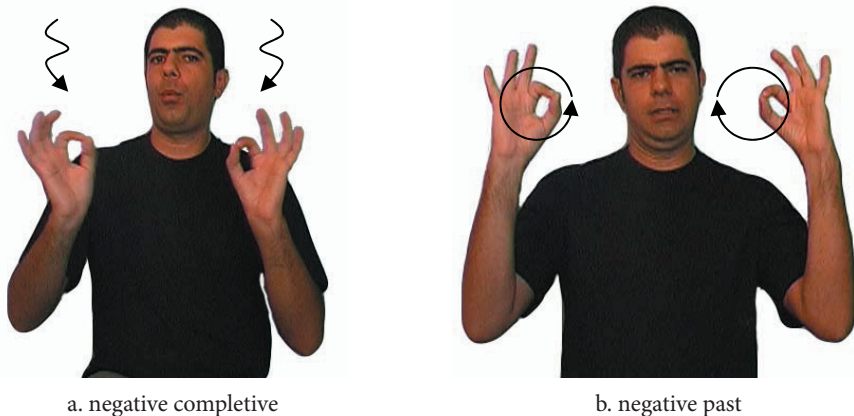


Figure 7. Negative completive and negative past

- (27) CAKE ALL-GONE, INDEX1 EAT NEG-PAST.
 ‘The cake is finished, and I didn’t eat (of it) at all.’ (i.e., ‘I didn’t even have one bite.’)

3.1.6 *Emphatic negation*

There are two emphatic negators, one relating to the past ‘never in the past’ (Figure 8a), the other to the future ‘never in the future’ (Figure 8b). The first has a G handshape and a large accelerating left-to-right movement. It is used as an emphatic negator relating to past events, as in the following contexts: ‘I never went to an amusement park’, ‘I never saw such a thing.’ It also negates general facts, such as ‘The sun doesn’t rise in the west’, ‘I don’t eat meat, I am a vegetarian’, which may be better translated as ‘The sun never rises in the west’, ‘I never eat meat’ (example 28). The other emphatic negator has a 5 handshape, and is often two-handed (though the one-hand version is also very common). It means ‘never again’, as in ‘I did something wrong. I’ll never do it again.’ (example 29).

- (28) INDEX1 EAT MEAT NEVERpast INDEX₁
 ‘I have never eaten meat.’
- (29) AGAIN INDEX1 GO THERE NEVERfuture
 ‘I’ll never go there again.’

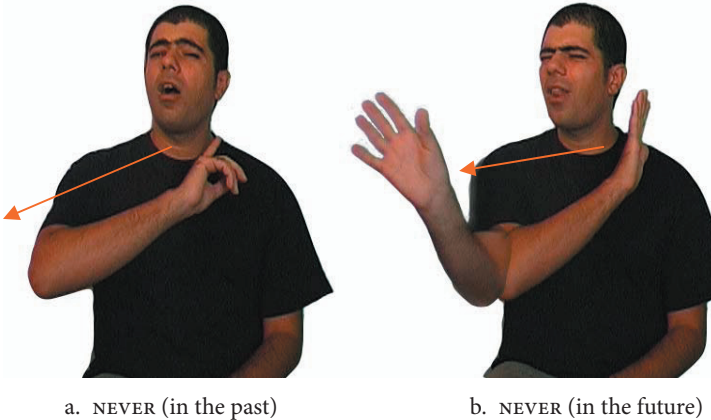


Figure 8. Emphatic negators in ISL: Forms of ‘never’ dependent on time

A third emphatic negator is the sign NOTHING, often used as a complement to verbs as in:

- (30) INDEX1 DO NOTHING
 'I did nothing (implying that I didn't do anything wrong).'

This sign seems to occur more in the signing of older people. Young signers often use the NEG-PAST sign with the mouthing *fum davar* 'nothing at all'.

3.1.7 Correcting misinformation

When a signer wants to correct information given in the previous utterance, a special negator NOT-RIGHT is used, which is very similar to the basic negator NOT (Figure 4), but is characterized by a slower and larger movement, a slow, pronounced headshake, and elongated mouthing of the Hebrew word 'lo' 'no'. The handshape can be either G or 5.

- (31) (Context: 'I was looking for the shop you told me about on Main Street, but couldn't find it').
 NOT-RIGHT, SHOP INDEX_a AROUND-THE-CORNER.
 'You were misinformed/wrong; this shop is located around the corner.'

3.2 Negative incorporation

Some verbs and adjectives have a special negative form, which involves an additional outward twisting movement attached to the basic sign. These signs include: CANNOT, DON'T-KNOW (both for knowing things and people), DON'T-BELIEVE, DIDN'T-COME, MUST-NOT.⁹ Another lexical specification involving negation applies to the signs GOOD and WANT. These signs cannot co-occur with a negator. The phrases *GOOD NOT and *WANT NOT are ungrammatical; instead, their antonyms, BAD and REFUSE, respectively, are used.

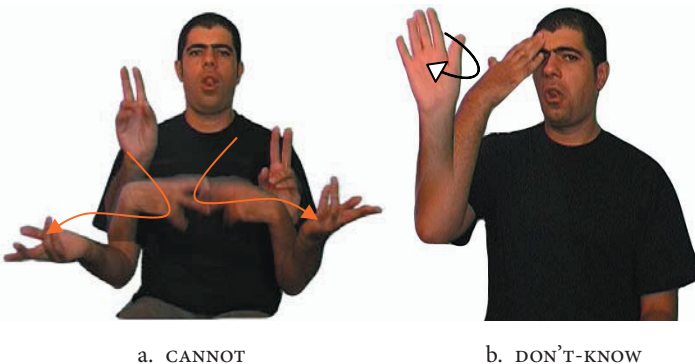


Figure 9. Signs with negative incorporation

3.3 Nonmanual features

At least three nonmanual features are involved in the production of negative constructions: head-shake, mouthing of a negative word from Hebrew and a particular facial expression.

3.3.1 *Headshake*

Most negative sentences are accompanied by a headshake, though its scope and intensity may vary greatly. The minimal scope for the headshake is the negation sign itself, but it can also spread over the negated element, or the entire clause. Topics are outside the scope of the headshake.

Not all negative sentences are accompanied by headshake. In particular, negative imperative sentences are not. In all sentences containing any of the three negative imperative signs (see 19–21 above), the head is held still, and the signer maintains constant eye contact with the addressee. Usually there is also a brief brow raise (cf. Figure 5). This posture and facial expression are characteristic of imperative sentences in the language. Thus it seems that in the case of negative imperatives, the imperative nonmanual features override those of the negation.¹⁰

3.3.2 *Mouthing*

Some negative signs are typically accompanied by mouthing of an equivalent Hebrew word, as is shown in Table 2.

However, the distribution of mouthing is not restricted to manual negation signs. The mouthing ‘*lo*’ ‘no, not’, together with the negative headshake, can function as the sole negators of a sentence. That is, some sentences may not contain any manual negation signs, and the negative meaning is expressed solely by these nonmanuals, as in (32b). This example is particularly interesting, since the sign GOOD cannot co-occur with a manual negator, as mentioned earlier.

Table 2.

Sign	Hebrew Mouthing	English translation
NOT	<i>lo</i>	‘no, not’
neg-past	<i>efes</i>	‘zero’
NEVER (in the past)	<i>af-pam</i> (reduced version of <i>?af-pa’am</i>)	‘never’
NOT-RIGHT	<i>lo-o</i>	‘no, not’
neg-exist(1)	<i>ein</i>	‘there isn’t’
neg-exist(2)	<i>ein</i>	‘there isn’t’

Yet its negation by nonmanual markers is perfectly grammatical in the language, and is enough to minimally distinguish a negative from an assertion.

- (32) a. *I FEEL GOOD NOT
 b. head: _____ neg
 mouthing: _____ lo
 I FEEL GOOD
 'I don't feel well.'

For some verbs, e.g. AGREE, UNDERSTAND, COME (in non-past contexts), the nonmanual negation is the most common way of forming negation.

3.3.3 Facial expression

In many negative sentences there is a particular facial expression — a slight wrinkling of the nose. It is not clear as yet whether this expression is a grammatical marker of negation or an affective facial expression accompanying sentences which are perceived as having a negative meaning or evoking an unpleasant attitude. One difference between the headshake and the nose wrinkle is that the latter may apparently span over a topic as well. However, more systematic study is in order before further conclusions can be reached.

3.4 Negation and tense

In many languages, certain grammatical categories are neutralized in negative sentences. That is, positive sentences will allow the expression of more distinctions than their negative counterparts. For example, a language may distinguish past and perfect in positive sentences, but not in the negative (see Dixon & Aikhenvald 1998). Surprisingly, in ISL we find the contrary. At least with respect to the category of tense, negative sentences show more distinctions than their positive counterparts. In particular, the choice of certain negators is determined by the tense-frame of the sentence. The sign NEG-PAST can only negate verbs denoting past events. If the verb refers to a non-past event, then a different negator NOT is used. Thus, a positive sentence with a verb may refer both to a past or non-past event (33). The equivalent negative sentence is specified for tense, by the choice of the negator (34–35):

- (33) INDEX3 SLEEP
 'He is sleeping/he slept.'
- (34) INDEX3 SLEEP NEG-PAST
 'He didn't sleep (at all).'

- (35) INDEX3 SLEEP NOT
 ‘He is not sleeping (right now).’

Similarly, the two signs glossed as NEVER encode tense differences. NEVER (in the past) refers to an event which has not taken place until the moment of speech, while NEVER (in the future) refers to events which will not take place from the moment of speech onwards (see examples 28–29). No similar distinction is found in positive sentences.

In addition, the verb COME can be negated in one of two ways: by adding a negative suffix (see Section 3.2), or by mouthing *lo* and a headshake. The choice between these forms is again determined by the tense of the sentence. The negative incorporation structure is restricted to events taking place up to the present moment. In non-past contexts, only the nonmanual negation is grammatical.

3.5 Negation and lexical categories

The various negators in the language differ with respect to their co-occurrence restrictions. Their distribution is best captured in terms of the lexical category (part of speech) of the negated element. The signs NEG-COMPL and NEG-PAST co-occur only with verbs. The two NEG-EXIST signs co-occur with nouns. Adjective and predicative nouns are negated by NOT. These co-occurrence restrictions are exemplified in 36–38:

- (36) CHAIR INDEX_a COMFORTABLE NOT/*NEG-PAST/*NEG-EXIST(1/2)
 ‘The chair is/was not comfortable.’
- (37) INDEX1 COMPUTER NEG-EXIST(1)/*NEG-PAST/*NOT
 ‘I don’t have a computer.’
- (38) INDEX3 SLEEP NEG-PAST/*NEG-EXIST(1/2)
 ‘He didn’t sleep at all.’

These findings are significant, since they constitute an argument for distinguishing the lexical categories of Noun, Verb and Adjective in the language. Word classes in various sign languages have been identified mainly on the basis of morphological inflectional paradigms, and distribution. Newport & Supalla (1978) identified systematic morphological differences between pairs of Nouns and Verbs sharing formational properties. Other inflectional processes mentioned in the literature are directionality (for a sub-set of the verbs in a given sign language), and intensive inflection for adjectives (Padden 1988).

In ISL we have not yet found an inflectional process which characterizes an entire word class. Directionality, as mentioned earlier, applies only to a subset of the verbs in the language (verbs denoting motion and verbs denoting transfer, see Meir 1998, 2002). The intensive inflection (see Sandler 1996a) applies to adjectives as well as to certain verbs denoting desires or emotional states, such as WANT, LIKE. Therefore, by looking only at morphological properties, it is not clear whether there is justification to assume that ISL has nouns, verbs and adjectives as formal lexical categories. Yet supportive evidence for this classification comes from the distribution of negators in the language, since it can be accounted for only by referring to the word class of the negated element. These distributional findings were further confirmed by looking at some morphological processes in the language. For example, signs which exhibit the property of directionality, which are a subclass of the class of verbs, can be negated by NEG-PAST and NEG-COMPL, the two verbal negators. Thus, corroboration of both distributional and morphological properties supports the existence of these lexical categories in the language, and provides tools for determining the word class of specific lexical items.

3.6 A negative derivational suffix

In addition to the various negators described in 3.1 and 3.2, ISL has a negative suffix (Meir & Sandler 2004; Aronoff, Meir & Sandler 2005). This morpheme is very similar in form to the sign NEG-EXIST(1) (see example 22–23), and has probably evolved from it by means of grammaticization. Yet, the suffix, glossed as NOT-EXIST, differs subtly from NEG-EXIST(1) in form, and more markedly in meaning and distribution. Phonologically, its movement is shorter than that of NEG-EXIST(1), with no twist movement of the wrist. Semantically, the suffix is similar to the English suffix *-less*. It attaches to nouns as well as to adjectives; the resulting complex signs are invariably adjectives. Some examples are presented in (39):

(39)	INTERESTING+NOT-EXIST	‘uninteresting’
	IMPORTANT+NOT-EXIST	‘unimportant, insignificant’
	WORTH+NOT-EXIST	‘isn’t worth it’
	SURE+NOT-EXIST	‘unsure (of one’s self)’
	SUCCESS+NOT-EXIST	‘unsuccessful’
	STRENGTH+NOT-EXIST	‘exhausted’
	ENTHUSIASM+NOT-EXIST	‘doesn’t care about it’
	SHAME+NOT-EXIST	‘shameless’

There are several indications that this sign is indeed a suffix and not an independent sign. First, its form is determined by the form of the base sign. This is common in affixation in spoken language. For example, the English prefix *in-* has four allomorphs: *in-*, *im-*, *il-*, *ir-*. The choice of the particular allomorph is determined by the initial consonant of the base word (*inadequate*, *impossible*, *illegal*, *irregular*). In ISL we find that the base word determines whether the suffix is one or two-handed: if the base sign is one-handed, the suffix will be one-handed as well; a two-handed base sign requires the suffix to be two-handed as well (Figure 10). Secondly, the suffix has a much shorter movement (both in duration and in size) than the independent sign NEG-EXIST(1) that it derives from, and the suffix lacks the wrist twist of the independent sign. In some cases, especially when the base sign is produced in neutral space, both the sign and the suffix are produced with a single movement. Such reduction has been found in compounds in ASL (Liddell & Johnson 1986; Sandler 1989), and we find it in ISL compounds as well. Additionally, the semantics of the resulting complex words are not always predictable. Some words have idiosyncratic meanings, as is characteristic of derivational morphology in general. For example, the complex sign SURPRISE+NOT-EXIST doesn't mean 'surpriseless' but rather 'doesn't interest me at all'; ENTHUSIASM+ NOT-EXIST means 'doesn't care about it' and not 'without enthusiasm'.

Finally, sentences containing this suffix are not accompanied by the negative headshake. This might indicate that such sentences are not perceived as negative sentences at all, in the same way as the English sentence 'This is worthless' is not a negative sentence. Thus, there is a clear distinction between the two following sentences:

(40) INDEX3 SHY+NOT-EXIST
'He is shameless.'

_____ neg

(41) INDEX3 SHY NOT
'He is not shy.'

The argumentation so far shows that -NOT-EXIST is not a free form, but rather part of a complex word. However, since compounding is also common in ISL (Meir & Sandler 2004), it is necessary to show that this form is indeed a suffix rather than a second element in a compound. The first fact that supports a suffix analysis is the recurrence of the form with a large number of bases. Compound members, in contrast, do not recur in such a productive manner with so many bases. Second, the allomorphic variation described above (the

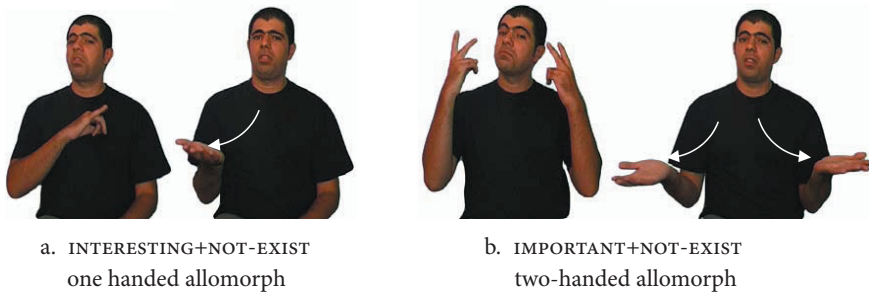


Figure 10. The negative suffix -NOT-EXIST

one handed vs. two handed forms), which is determined by the phonological structure of the base, is characteristic of affixes, much less so of compound members. The third argument comes from the lexical category of the resulting form. In compounds, it is the head that determines the lexical category of the complex form. If the forms with -NOT-EXIST were compounds, we would expect the lexical category of the complex forms to vary according to their heads; thus we would expect *IMPORTANT+NOT-EXIST* to be an adjective, while *STRENGTH+ NOT-EXIST* to be a noun. Yet we find that the complex forms are invariably adjectives. This follows straightforwardly from a suffix analysis, since affixes generally determine the lexical category of the complex word they form (English *-able* and *-less*, for example, form adjectives). Given the above arguments, I conclude that the form in question is an affix rather than a second element in a compound.

As mentioned earlier, this suffix has probably evolved from the sign *NEG-EXIST(1)*. In fact, this grammaticization process is still taking place, as evidenced by the variations that exist between signers concerning the use and grammaticality judgements of this suffix. Signers' intuitions are not always in accord when judging whether a specific instance is a complex word or a phrase containing *NEG-EXIST(1)*. There may also be disagreement between signers regarding the co-occurrence of the suffix with certain base signs. However, there is a significant core of complex words with regard to which there is general uniformity in use and judgments, and the analysis presented here is based on these.

4. Historical developments in interrogative and negative constructions

ISL is the major sign language of the deaf community in Israel. Though ISL is mainly associated with the Jewish Deaf community, it is also used in some Arab and Druze communities in the country. It is a relatively young language, which emerged with the formation of the Deaf community in Israel in the 1930's and 1940's. As Israel is a nation of immigrants, ISL has been forged and influenced by continuing contact with other sign languages and signing systems.¹¹ Though documentation of the very initial stages of the language is scarce and sporadic, more information is available on the language in the early 1970's, when the first research on ISL was conducted by I.M. Schlesinger and his research group. Publications that resulted from this research (e.g. Cohen, Namir & Schlesinger 1977; Namir & Schlesinger 1978) offer a glimpse into the structure of the language when it was about 30–40 years of age. Though their description of question and negation is quite succinct, it nevertheless contains some findings which are interesting from the point of view of this chapter (see also Meir & Sandler 2004).

First, it seems that the lexicon of the language was more limited then.¹² With respect to question words, the sign *WHAT*, which is referred to as “question” or “?” (Namir & Schlesinger 1978:135), was in wider use in the language, functioning as a general question word, for question such as ‘what’, ‘how’, ‘when’, ‘where’ and ‘why’. Finer semantic distinctions were obtained by the use of nonmanuals (e.g. turning the head around for ‘where’), and compounds such as *THERE+QUESTION* meaning ‘where’. Though *WHAT* is still the general question word in the language, its distribution and meaning is narrower, as the basic question word paradigm expanded. Interestingly, despite the very limited lexicon of question words, the sign glossed here as *FROM-WHERE/WHO* was in use in the language already thirty-five years ago.

The negation lexicon was also more limited in comparison with the current one, consisting of the sign glossed here as *NOT*, a sign similar to *NEG-PAST*, and a sign similar to *NEG-EXIST(1)*.¹³ Additionally, two nonmanual negators are mentioned: a headshake accompanied with a frown, and a shrug of the shoulders with the same facial expression. Namir and Schlesinger do not provide further details concerning the use of these nonmanual negators, hence it is not clear whether they had the same function in the language. The authors do point out (p. 133) that the sign *NOT*, the headshake and the shrug are all similar to gestures used by hearing people in Israel. In current ISL, the shrug is not part of the grammatical structure of the language. The headshake and frown both

persisted, but it seems that they have evolved in different directions. From what little is known about their function in the past and even today, it seems that each has acquired a different, more specific function. The headshake functions as a grammatical negation device, while the frown seems more like an affective facial expression.

Of the morphologically complex forms, two can be traced back to earlier days. Negative incorporation was attested at least with the sign CANNOT (which they translate as ‘impossible’), and the antonym of WANT was the sign REFUSE ‘don’t want’, which is unrelated formationally to WANT. Thus, it seems that some of the buds of the morphological processes described in this chapter were already present in earlier stages, and the language put these devices into much broader use as it matured.

One aspect of these constructions which has changed (rather than developed) is word order. According to Namir & Schlesinger (p.120–121), question words tended to occur sentence initially (though the sign WHO occurred also at the end of the sentence), and negation signs tended to precede the negated element, or to occur both before and after the negated element.¹⁴ Nowadays, the tendency is reversed: though question words can occur clause initially, they are much more common in clause final position; and negation words tend to follow the negated element. The cause for this change is unclear. In spite of the fact that more members of the contemporary community of ISL users have been exposed to Hebrew via the education system than was the case with previous generations, the change in word order cannot be attributed to the influence of Hebrew. This is because in Hebrew, the order is different from that of modern ISL: question words occur in the beginning of the Hebrew clause, and negators precede the negated element. The data on which the earlier research was conducted was quite poor in interrogative and negative constructions (as the authors themselves point out). It might be that word order was much less fixed then, with negators and question words occurring in various positions in the sentence, and as the language matured, more stabilized grammatical patterns evolved.

5. Conclusions

ISL negative and interrogative constructions reveal intricate grammatical form and patterning. The study of these constructions is of importance for its own sake, but also as a means of unravelling several aspects of the grammatical

structure and mechanisms of the language. First, it shows that what might seem at first glance a rather restricted system, is in fact a rich, complex one, encoding subtle semantic and grammatical differences. Small differences in the form, meaning and distribution of signs are of importance in that they differentiate between lexical items. That such differences are significant has been pointed out in various works on numerous phenomena in sign languages. For example, different types of movements distinguish between certain nouns and verbs in ASL (Supalla & Newport 1978); different use of space set apart agreement verbs and spatial verbs (Padden 1988). In the study reported here, types of movement, as well as body posture, differentiate between groups of negators and question words.

The study also draws attention to some word formation devices in the language, such as compounding (in the formation of question words) and affixation (the negative derivational affix). Both are instances of concatenative morphology, which differs markedly from the simultaneous morphology typical of sign languages.¹⁵ While compounding has been described in numerous sign languages (e.g. Klima & Bellugi 1979; Liddell & Johnson 1989; Sandler 1989; Brennan 1990; Sutton-Spence & Woll 1999; Zeshan 2000 among others), affixation seems to be rarer. A negative affix has been described in ASL (Sandler 1996a; Aronoff et. al. 2000, 2005; Aronoff et. al. 2003). Further study is needed in order to examine whether other sign languages have similar constructions as well.

Word formation devices in the language also include nonmanual features. Among these, a salient feature of ISL is the use of mouthing, as a means for creating more lexical distinctions in the language, as well as having a grammatical function as a negator (together with the headshake). The use of mouthing in ISL can be regarded as a kind of borrowing from a spoken language. However, when looking more closely at the lexical items derived by mouthing, it is striking that they are very different both in meaning and in use from their Hebrew counterparts. This is especially evident in the case of negation. For example, *efes* 'zero', the mouthing accompanying NEG-PAST, is not used as a negator in Hebrew at all; the signs involving the mouthing *lo* 'no, not' have a different distribution from their Hebrew counterpart. Thus, it seems that what ISL borrows from Hebrew is not the lexical items themselves, but rather a specific formational mechanism, which is fully integrated and incorporated into the grammatical structure of the language.

The study of question and negation in ISL also enabled us to take a closer look at the interaction of various components of the grammar. Two are

especially noteworthy. The first is the interaction between the distribution of the various negators and the lexical categories of the negated words, presented in Section 3.6. As pointed out, the distribution of the different negators provides evidence for the existence of certain lexical categories in the language. In addition, these negators can now be used to determine the word class of specific lexical items. For example, the sign glossed as INTERESTING could in principle be an adjective 'interesting' or a verb 'to interest'. The fact that it cannot be negated by NEG-COMPL and NEG-PAST indicate that this sign is indeed an adjective in ISL.

The second point of interest is the interaction between syntax and pragmatics in determining the facial expression and head posture in questions and negative sentences. In both, the basic, typical nonmanual features are suppressed in certain pragmatic contexts. The raised brows of polar interrogatives may not show up if the signer has additional intentions (Figure 2b); the negative headshake is suppressed in negative imperatives. Therefore, further investigation of the interaction between what seem to be the typical grammatical nonmanual features and different pragmatic factors will enhance our understanding of the role of nonmanuals in the language, and the interplay between the syntactic and the pragmatic component in the structure of the language.

Finally, the fact that ISL is a relatively young language, and the existence of some documentation of earlier stages of the language, enable us to track diachronic developments in ISL. Two major tendencies are noticed. The first is the expansion of the lexicon. The paradigms for question and negation terms, which were quite limited some thirty five years ago, have expanded significantly since. The second is the change in word order. From a tendency for question and negation words to occur in sentence initial position or to precede the negated element, nowadays the tendency is reversed: question words tend to occur sentence finally, and negators to follow the negated element. The fact that there still is variation, both among signers as well as within the same signer, may indicate that word order has not been completely stabilized yet, or that the language allows for a more flexible word order in contexts which need to be specified. What is striking is that the old word order was the same as in Hebrew, whereas the new word order is very much unlike Hebrew. Thus, these developments in the language cannot be attributed to the influence of a spoken language, but rather to internal developments and processes in the language itself.

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Notes

1. In Zeshan’s (2004a:17) crosslinguistic study of interrogative constructions in 35 signed languages, these two signs seem to be unique to ISL.
2. Mouthing is used distinctively not only in question words in ISL. A common use is to mark gender distinctions. ISL does not have a morphological gender marker, while Hebrew does. Thus, sometimes Hebrew mouthing is used to mark gender on an ISL sign. For example, the ISL sign *SIBLING* is not marked for gender. In order to distinguish ‘brother’ from ‘sister’, mouthing of the Hebrew words *ʔax* ‘brother’ and *ʔaxot* ‘sister’ is used.
3. I thank an anonymous reviewer for this point.
4. For an analysis of facial expression as paralleling intonation in spoken languages, see Sandler (1999).
5. This is not to imply that each intention has a distinct facial expression accompanying it. Rather, a similar facial expression characterizes all such cases, and the signer’s intentions are determined pragmatically.
6. The notation *ʔ* does not refer to a specific facial expression, but rather to the marking of a constituent as topic by the blink and headnod that follow it (Rosenstein 2001).
7. An anonymous reviewer raised the question whether the two *neg-exist* signs can be analyzed as verbs. As is mentioned below in Section 3.5✓, it is very difficult to find criteria for verbhood (and indeed for any lexical category) which are applicable to an entire word class. In fact, I suggest below that a very reliable test for word classhood is the co-occurrence of its members with a specific negator. However, this test cannot be applied in the case of the *NEG-EXIST* signs, since they cannot co-occur with any negator. This in itself may be taken as evidence that they are not verbs: the complementarity of *NEG-EXIST* and other negators is characteristic of negators, not of verbs.
8. For an analysis of this marker, see Meir (1999).

9. Interestingly, many sign languages use the device of negative incorporation with a very similar list of lexical items, mainly modals and verbs of cognition, e.g. KNOW, UNDERSTAND, and verbs of emotional attitude, e.g. WANT, LIKE (Zeshan 2004b: 50; see also Woodward 1974 for ASL; Sutton-Spence & Woll 1999 for BSL).
10. The interaction between the nonmanual features accompanying imperatives and those accompanying negation has not been reported in other sign languages, to the best of my knowledge. Future crosslinguistic study is needed in order to reveal whether this pattern is common in sign languages in general, or is particular to ISL.
11. Meir & Sandler (2004) provide a detailed description of the formation of the Deaf community in Israel and of earlier stages of ISL.
12. The following discussion is based on Namir & Schlesinger (1978).
13. As there are no pictures in the paper, one has to rely on verbal descriptions, which are not that detailed. This may cause some inaccuracies and misinterpretation, and therefore it is sometimes impossible to determine with certainty that the signs mentioned in the Namir & Schlesinger paper are the same signs which exist in the language today.
14. Though one of the examples cited elsewhere in their paper (p. 119) has the negator NEVER in sentence final position: I LOSE I CLUB HERE NEVER 'If I lose [the elections], I shall never come to the club again.'
15. See Aronoff, Meir & Sandler (2000, 2005) for a comparison and analysis of the two types of morphology in sign languages.

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Contact Information:

Irit Meir
Department of Hebrew Language and Department of Communication Disorders
University of Haifa
Haifa, 31905, Israel
Phone: 972–4–8288579
Fax: 972–4–8249958
Email: imeir@univ.haifa.ac.il