A matter of time: tense, mood and aspect in spontaneous Spoken Israeli Hebrew

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tense, mood and aspect in Spontaneous Spoken Israeli Hebrew

This study presents a new analysis of tense, mood and aspect (TMA) categories in the verb system of Spoken Israeli Hebrew (SIH).
The Israeli Hebrew verb system is generally perceived as a tense-based system, and is so presented in most of the traditional literature, as well as in a majority of textbooks. This analysis has been commonly accepted and has seldomly been criticized.
The research underlying this thesis was motivated by the fact that the traditional analysis of the verb system of Hebrew has to specify a large number of exceptions, and by the fact that many of the analyzed forms are inexplicable in terms of the tense-based analysis to Israeli Hebrew native speakers. It was therefore suspected that the verb system of SIH is not tense-based, but is rather based on other grammatical properties.
The study is based on a corpus of ongoing spontaneous conversations in Spoken Israeli Hebrew that were recorded in real-time. It contains authentic Israeli Hebrew speech as used by native speakers in everyday conversations.
Based on these conversations, an alternative analysis of the SIH verb system as aspect-based is proposed in this study. This alternative covers all the exceptions that cannot be explained within the traditional approach. Further, several additional points are observed in this study regarding the verb system of SIH: the absence of passive forms from the verb system, the derivation of imperative forms, the distribution of verbal patterns, and the presence of many concatenated verb constructions.

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ii-i List of abbreviations

Abbreviation	Full form
CoSIH	The Corpus of Spoken Israeli Hebrew
ICBS	Israeli Central Bureau of Statistics
IH	Israeli Hebrew
MA	Modern Arabic
MH	Modern Hebrew
PU	Prosodic unit
SIH	Spoken Israeli Hebrew
SU	Speech unit
TMA	Tense, mood and Aspect

ii-ii List of morphological glosses

Morphological glosses in this study are based upon the Leipzig Glossing Rules (revised version, 2008). The following glosses are additional, as they are not included in the Leipzig Glossing Rules.

Gloss	Full form
SUF	Suffixed form
PRE	Prefixed form
AS	Aspect
MD	Mood
TNS	Tense
CONT	Continuous
HAB	Habitual
EPS	Epistemic
DEO	Deontic

ii-iii List of Hebrew verbal patterns

Abbreviation	Full form
Qal, Paal	*Pa'al*
Nifal	*Nif'al*
Piel	*Pi''el*
Hifil	*Hif'il*
Hitpael	*Hitpa''el*
Pual	*Pu''al (*)*
Hufal	*Huf'al (*)*

(*) Please note that *Pual* and *Hufal* are not productive in the spontaneous spoken language

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1. Introduction

1.1. General

This study is aimed at the investigation of tense, mood and aspect (TMA) in the spontaneous Spoken Israeli Hebrew verb system. In most of the traditional literature (Berman 1978:142, Schwarzwald 2001:38, Azar 1995:4-27, Coffin-Amir and Bolozky 2005:35-36) and in textbooks (Blau 1967, 1975) the Modern Hebrew verb system is perceived as a tense-based system. In this research I will try to draw an outline of the Israeli Hebrew verb system as it is used in the everyday spontaneous spoken language.

I will focus in particular on temporal, aspectual and modal properties of the Israeli Hebrew verb system. It will be shown that this system is aspect-oriented rather than tense-oriented and that it also contains some modal structures.

For convenience, Spoken Israeli Hebrew will be subsequently referred to as SIH.

1.2. Research questions

The following questions are addressed in this research, after which their parallel assumptions will be presented.

- **The existence of tense, aspect and mood categories in SIH**

This research first investigates the possible existence of TMA categories in the verb system of SIH and attempts to answer the following questions: Do TMA categories exist at all in the verb system of SIH? If yes, is TMA associated with all or only a fraction of the categories? If TMA exists in only a fraction of the categories in the SIH verb system, which of these categories are relevant and which are not?

- **The means with which TMA categories are expressed in SIH**

The next goal is to investigate the linguistic means which are used to express TMA categories in SIH: If TMA categories are found in SIH, how are they expressed in the verb system? What linguistic strategies are used to express them, e.g. Morphological? Syntactic?

- **Differences in linguistic realization of tense, aspect and mood in SIH**

The next step is to see whether there are any differences in the linguistic methods for realization of each of the TMA categories in SIH? For example, is tense differently realized than aspect, or is aspect expressed morphologically, whereas mood is expressed syntactically? Further, what are the means to express each of them, and what are the differences between them?

- **Relations between semantic categories and linguistic structures**

This issue addresses the correlation between form and meaning. For TMA categories that exist in SIH, does a specific linguistic structure always express a specific semantic category, or is it possible that the discussed structure expresses more than one semantic category? In the latter case, is there any consistency in this division?

- **Interaction between semantic categories**

This point focuses on the relations and interaction between the TMA categories and is mainly relevant to structures which are inflected for more than one TMA category. What are the relations between the various TMA categories in SIH, and how do they interact? For example, if a verbal construction contains more than one TMA category, which part of the construction carries with it which TMA meaning?

- **Differences between populations**

This is a sociolinguistic issue, which discerns differences between populations. Do different populations of Hebrew speakers use TMA categories in different ways?

1.3. Research assumptions

The research assumptions that are presented were determined not only according to the available TMA literature in Hebrew and other languages, but also on the basis of the results of a pilot study carried out on a random sample of SIH speakers (see Dekel 2009a). The study served as a basis for the design of the current research. Each assumption is based on the parallel research question described in Section 1.2 above.

- **TMA categories in SIH**

The pilot study (see Dekel 2009a) suggests that TMA categories fully exist in SIH, i.e. all three categories were observed in the pilot study, and thus are expected to be found in the full study. The most widespread structures that express TMA categories denote aspect and mood. There are tense-expressing structures in SIH, yet, these are very rare.

- **TMA expressions in SIH**

According to the pilot study, TMA categories are linguistically realized both by morphological patterns and by syntactical verbal structures in the SIH verb system. Lexical means are also used to express TMA in SIH. Thus, it is assumed that linguistic realization of TMA semantic categories is achieved by all possible linguistic means: morphology, syntax and lexicon.

- **Differences between linguistic realization of tense, aspect and mood in SIH**

From the pilot study it is apparent that Mood in SIH is expressed mainly by morphological means, for example prefixed verb patterns. It can also be

expressed by syntactic structures, but there are much fewer available. Aspect is linguistically realized by morphological means in the verb system exclusively. Tense is mainly realized lexically, sometimes also syntactically.

- **Relations between semantic categories and linguistic structures**

Evidence from the pilot study suggests that there is a direct correlation between form and meaning of TMA categories. Therefore, it is assumed that the trend is that a specific linguistic structure in SIH would express a parallel semantic category. For example, according to the pilot study prefixed verb patterns in SIH always express mood. Yet, there are cases whereby a linguistic category expresses more than one semantic category. In such instances, it is assumed that the speakers are guided by linguistic criteria, and that the decision whether to choose apparently identical forms is not arbitrary. On the other hand, from the pilot study it appears as if the same semantic category would not always be expressed by the same linguistic structure.

- **Interaction between semantic categories**

On the basis of the pilot study it is pre-supposed that the roles of verbal constituents in relation to TMA categories are strictly defined and clear. It is assumed that in the case of multiple TMA categories in a verbal construction, each constituent would bear only a single TMA meaning, where the same type of constituent will always bear the same TMA meaning.

- **Differences between populations**

Relying on the pilot study, it is assumed that no significant differences exist between different populations of Hebrew speakers, such as males and females or people from different origins and education levels. Differences between age groups are not referred to in this research, since there were insufficient informants to represent all age groups.

1.4. Research methodology

- **General**

This study is corpus-based. All the analyses are based on a corpus of spontaneous Hebrew spoken in Israel, which was specifically designed for this study (see later in this dissertation). Details of the corpus are presented in 2.1 below.

- **Analyses and presentation of examples**

All the analyses are illustrated with examples. A text sample of the transcriptions is attached in Appendix 1. The examples and text sample are presented using Sampa transcription[1]. Please note that the sound ***h*** exists in some Hebrew patterns, but is usually not pronounced in speech. Since transcription is phonetic, all occurrences of ***h*** were omitted, unless they were actually uttered. The same holds true for the glottal stop symbol ***?***. Morphological glosses of the examples and translation into English are provided with each of the examples.

All the examples presented in this thesis are taken from the corpus, unless otherwise noted; all examples represent real spoken data.

1.5. Thesis structure

This thesis provides a detailed description of the research performed and the results thereof. To start with, methodological strategies used in this research are presented in Section 2. Next, various theoretical views on TMA systems are reviewed and discussed in Section 3. A detailed background on Spoken Israeli Hebrew, which includes a description of its verbal system is presented in Section 4. Based on the results of the study, the relations between the morphological verb system of Israeli Hebrew

[1] See Sampa transcription home page (Hebrew): http://www.phon.ucl.ac.uk/home/sampa/hebrew.htm; note that although a central short vowel (***schwa***) exists in speech, it has no representation in Sampa. Therefore, the pronunciation of ***schwa*** is represented by a phonetically similar vowel, usually ***e***.

and its TMA meanings are presented in a two-way perspective in Section 5: from form to meaning and from meaning to form. Also in this section, the morphological forms of SIH verb system and their TMA meanings are discussed – each one separately. Finally, TMA meanings and their correlation to morphological forms in the Israeli Hebrew verb system are presented. Next, in Section 6, TMA in IH is reviewed in this study vs. previous studies, and is compared with other Semitic languages. Differences between populations, which were observed in the study, are presented in Section 7. A summary of the conclusions and recommendations are presented in Section 8.

2. Research plan and methodology

The design of the research plan and methodology were based on a pilot study, which was carried out on a sample of 22 Israeli Hebrew speakers, out of which 4 were non-native from different origins, living in Israel for at least 5 years (See Dekel 2009a). However, the current research was performed on Israeli Hebrew[1] native speakers exclusively.

For a schematic description of the research plan see Figure 2-2 in section 2.4. A description of the planning and performance of the research is presented below.

2.1. Corpus

A corpus of approximately 44,000 words was established for this study, out of which at least one half was uttered by the informants. The rest of the words in the corpus were uttered by people surrounding the informants, which were used as a control group to support the findings, assuming that these background speakers have similar demographic characteristics as the informants.

The conversations included at least 8 minutes of speech per informant. Continuous speech of 8 minutes contained about 1000 words, including conjunctions, and excluding truncated words, unclear speech and chunks of laughter. These 8 minutes of recordings also contained the speech of speakers surrounding the informant, in a similar quantity of words, i.e. about 1000 additional words that were not uttered by the informant. These 1000 additional words were collected from all recordings and served as a control. See below for further details.

The research corpus includes SIH speakers. It is based upon recordings of **spontaneous** conversations, some of which were recorded

[1] For the definition of Spoken Israeli Hebrew see Section 4.1 below.

independently by the author for this study, others were taken from the CoSIH pilot (Corpus of Spoken Israeli Hebrew; see Harry and Izre'el 2003, Izre'el 2003). The research group includes 22 Israeli citizens and residents, native speakers of Hebrew, in different cross-sections. Non-native speakers were excluded from this research. This is because in the pilot study, in which a small group of non-native speakers was also investigated, differences were found between this group and the group of native speakers. Thus, in order to determine the basic TMA system, this study uses data from Israeli native speakers only. For additional details about the findings in different population groups in the pilot study, see Dekel 2009a. This research, furthermore, does not include minority groups such as Arabs, Druze, and others, who use Hebrew as a second language. These populations usually live in areas where Arabic is the first spoken language, and their contact with Hebrew is unlike that of other groups of Hebrew speakers, such as new immigrants, who are scattered among the Israeli population. The control group includes approximately the same number of additional speakers from the informants' surroundings, who took part in the conversations. The demographic distribution of the population in this study was based upon the reports of the Israeli Central Bureau of Statistics (ICBS 2009), and included Israeli Hebrew native speakers, both males and females, ages 16 and up, from different origins and educational levels.

In this corpus an attempt was made to yield sub-groups of at least 5 informants, so that statistical significance of the linguistic characterization of one population group or another would be possible. For example, to check if the group of highly-educated women, ages 50-70, speak differently than a highly-educated group of men of similar ages. The distribution is presented in Table 2-1 below.

Table 2-1: Distribution of the research corpus according to cross-sections

Age	Education	Origin and sex				Speakers per education group	Speakers per age group
		Ashkenazi		Oriental			
		Male	Female	Male	Female		
18-34	Up to14 (l-m)	2	2	2	2	8	13
	15 and up (h)	1	2	1	1	5	
35-49	Up to14 (l-m)			1	1	2	4
	15 and up (h)		1		1	2	
50-70	Up to14 (l-m)	1		1		2	5
	15 and up (h)	2	1			3	
Total speakers by sex:		6	6	5	5	Total speakers: 22	
Total speakers by origin:		12		10			

According to the above table, it is possible to check several, but not all, population groups. The groups which are compared and presented in this study are the younger age group (18-34; 13 speakers) vs. the other two age groups, combined (i.e. ages 35-70; total 9 speakers), the two groups of origin (Ashkenazi vs. Oriental), which contain 11 speakers each, the sex groups, which contain 11 male and 11 female speakers and the education groups of low to medium education level (12 speakers) vs. high education level (10 speakers).

About two thirds of the corpus were manually transcribed and annotated by the author. The remaining one third was manually transcribed and annotated by another linguist. Transcriptions and annotations were then switched between the author and the other linguist for QA checking to ensure their accuracy. Transcription was basically done using Hebrew orthography. After the corpus was fully transcribed and annotated, all the data were inserted into a database computer file, where they could be easily filtered and analyzed according to different criteria. In this file, all verbal forms were tagged according to their TMA category, form, pattern, root, and any other details, which might be

relevant for the analysis, such as voice and transitivity. The data were then sorted according to these tags and analyzed to obtain the number of occurrences for each of the cases.

The corpus was divided into speech units (SUs) rather than into sentences. Since discourse contains units, which are not sentences, the latter are irrelevant analytical units in spontaneous speech. For an explanation on speech units and the division guidelines, see Section 2.3.2 below.

2.2. collection and organization of the data

As mentioned above, the data for this research are recordings of spontaneous conversations, some of which were recorded by the author, others that were taken from the pilot corpus of SIH. Suitable informants were chosen from these recordings to yield a corpus, which would demographically represent the Israeli population and correspond to the data supplied by the Israeli Central Bureau of Statistics, see 2.1 above. The data are sorted according to several criteria (see 2.3.3 and 2.3.4 below).

In order to analyze speech, it is necessary to record the discourse and transcribe it. The transcription is a written representation of the recorded speech, which can be used for linguistic analyses, but it cannot stand alone without simultaneously listening to the parallel spoken text when analyzing, especially because it contains prosodic features, which can never be transcribed in such a way that the analyst can imagine the conversation exactly as it was originally uttered. The transcribed discourse is divided into speech units (SUs), which are elsewhere also referred to as prosodic units (PUs). For details on speech units, see section 2.3.2. There are several ways to transcribe texts. In some corpora the standard writing system of the language is used, in others phonetic symbols of different conventions are used (IPA, Sampa). The speech in this corpus is transcribed with standard Hebrew orthography. Text samples and examples in this thesis are phonetically transcribed using Sampa symbols (see Sampa transcription home page). Hebrew writing system is historical

and does not correspond to speech. For example, letters, which represent pharyngeal and emphatic sounds, are never pronounced as such. Some of them became identical in pronunciation to other sounds in the language; others were assigned new, European pronunciations. Also, two and even three different orthographic symbols can represent the same sound in speech. Therefore, it was decided to transliterate rather than transcribe the roots in this thesis using IPA symbols, so that the representation of roots in the orthography would be reflected.

This research, as mentioned above, is based upon continuous spontaneous conversations. These conversations include at least 8 minutes of speech per informant. The average number of words per speech minute of an informant in Israeli Hebrew was about 132 in the pilot study (see Dekel 2009a), including conjunctions and overlap chunks, and excluding truncated words, unclear speech parts and laughter chunks. Therefore, continuous speech of 8 minutes contains about 1000 words of the informant. These 8 minutes of recording also contain the parallel informants' conversation mates, in a similar quantity of words, i.e. about 1000 additional words, which are not uttered by the informant. These 1000 additional words were collected from all recordings and were analyzed together, but separately from the group of informants, to serve as a control group. Additional recorded minutes were added as required if the minimum of 1000 words per informant was not met, so as to reach at least 1000 words for each of the informants, while words from the people surrounding the informants constituted an addition. The addition of these speakers doubled the number of words in the corpus. This way, a mini-corpus of at least 44,000 words was obtained (22 informants, 1000 words per informant + about 1000 words of the informant's conversation mates x22 recordings), out of which about a half was uttered by the informants themselves. The rest of the words in the corpus (about 22,000 as well) are used as a control group to check and verify the findings, again assuming that the background speakers have similar demographic characteristics as the informant.

Previous studies define that a corpus suitable for linguistic analyses should include between 1000 to 20,000 words, depending on the type of

research (Oostdijk 1988:20, Biber 1990:258, Miller and Weinert 1998:10). Existing corpora of spoken languages are evaluated according to various criteria, such as the number of words in the corpus, the number of expressions in the corpus and the number of recorded speakers. Corpora that are measured by the number of recorded speakers, are usually meant for the speech recognition market (Elda, Appen). In these corpora each speaker utters several items, which are pre-defined as regards number and content. These items cover various categories, such as digits, company names, dates etc. The speakers are recorded in pre-defined environments and via pre-defined networks. Corpora meant for linguistic research can include different language communication channels (written or spoken), registers and speakers. For example, such corpora can contain journal chunks, as well as speech recorded on the street, where one speaker can utter only a few words, another speaker can provide a whole conversation, and a third speaker can produce a formal interview. Such corpora cannot be defined by the number of speakers, as each speaker contributes a different type and amount of speech to the corpus, whereas some of the chunks in the corpus represent written language and have no speakers. It is thus more convenient to measure such corpora by the number of words they contain. Each such corpus has a different amount of words, depending on the tested language and the research requirements. For example, the Corpus of Swedish of the University of Göteborg contains 1,200,000 words (and 1,400,000 tokens; Swedish corpus). The Corpus of French of the University of Provence contains about a million words (French corpus). The Corpus of Italian of the University of Florence contains about 650,000 words (Italian corpus). The Spoken Dutch Corpus contains 9,000,000 words, but only unknown small part of it is spontaneous speech (Dutch Corpus). These corpora represent much larger populations than the one used in this study, and are divided into many more cross-sections to also cover dialectal divergence. In addition, these corpora include language samples of different speech registers and levels, such as the media, formal meetings, courtrooms and the like, not only spontaneous spoken language. The part of spontaneous speech in these corpora can be relatively small. In the Swedish corpus, for

instance, out of the 1,400,000 tokens, only 6 speakers provided spontaneous conversations with a little more than 13,000 tokens.

In addition, many of these corpora were established for European languages. Hebrew words, having a more synthetic character, contain much more information each, than their counterparts in European languages, so that many Hebrew words are parallel to more than one word in European languages, for example:

The speech unit:

(1) ***aXalti*** ***kSeu*** ***ba***
eat (***ʔkl***-SUF-1-SG) when he come (***bwʔ***-SUF-3-M-SG)
'I was eating when he came' (3 words in Hebrew)

is parallel to the English speech unit:

I was eating when he came (6 words).
The different underline types denote which word in Hebrew corresponds to which words in English.

This research focuses on Spoken Israeli Hebrew (SIH hereinafter), in four main cross-sections: Sex, origin, age and education, see 2.1 above. The number of the Hebrew speaking Jewish population living in Israel by the end of 2008 is higher than 5.5 million (ICBS 2009). The number of the Hebrew speaking Jewish population born in Israel by the end of 2008 is higher than 3.8 million (ICBS 2009). It is assumed that the number of Hebrew native speakers is parallel to this number. Thus, 22,000 words of the informants and an additional 22,000 words of the informants' conversation mates, are assumed as a sufficient quantity to represent some trends of the linguistic system investigated in this research. The speech chunks are transcribed and analyzed according to the research methods and data analysis methods detailed in 2.3 below. Transcription includes basic characteristics of discourse[2].

[2] For an explanation on the transcription method see Du Bois et al 1992:17, Du Bois et al 1993:47. For explanations on the transcription of Hebrew see Izre'el 2004. See also Appendix 2.

2.3. Research methods and data analysis

2.3.1. Spontaneous discourse

The type of discourse guides the participants as regards the syntax to be used during speech (Karkkainen et al 2007:301). Usually, participants in the conversation take their turn to speak. In spontaneous conversations, under certain conditions, overlaps and pauses are part of the discourse, but still, most of the conversation, even when spontaneous, is based on turn-taking (Karkkainen et al 2007:306-309). Naturally, in spontaneous conversations, the speakers would use more subjective expressions than in other types of conversations, as their views about the spoken situation are expressed along the conversation (Karkkainen et al 2007:322-325). Self-repair is also a typical feature of spontaneous conversations, where the speakers make false starts and then repair their speech by re-starting it. Self-repair can be either syntactic or morphological. The syntactic type is a universal feature, and speakers use it in 20% of their expressions (Karkkainen et al 2007:336-337). The morphological repair depends on the type of language and its morphology (Karkkainen et al 2007:345).

An example of a discourse in Israeli Hebrew is provided in Appendix 1.

2.3.2. Division to Speech units

Speech units, according to which the texts are analyzed, vary in different types of texts. In written texts sentences are used. In spoken texts various kinds of divisions are used, one of which is prosodic units, which are speech units based on prosodic features. There is a wide range of terms assigned to prosodic units in the literature, such as: intonation units (Du Bois et al 1992:17, 1993:47), prosodic groups, and speech groups (Crystal 1997:171).

This research deals with spoken language, so that sentences are irrelevant as its analytical units. Therefore, prosodic units were used as the analytical units, and they will be referred to as **speech units (SUs)**

hereafter. A definition to show the differences between speech units in written and spoken texts is presented below for sentences.

There are two main definitions for a sentence: (a) a sequence of words containing a theme and a predicate to form a meaning; and (b) a sequence of words expressing one idea, which ends with a punctuation mark and begins after the previous sentence (Crystal 1997:94, Webster 2003:1134). A sentence, according to definition (b) is an independent, written syntactic unit with an independent meaning, regardless of its context. Its borders are determined by punctuation marks, and its structure reflects its writer's decisions (Miller and Weinert 1998:12, 30). Spoken texts have no punctuation marks, and each speech unit depends on the overall context. Thus sentences, as defined above, cannot be used as its analytical units (Miller and Weinert 1998:30). Many parts of discourse in spoken languages cannot be conceived of as sentences at all (Miller and Weinert 1998:40). Thus, prosodic units or speech units (see below), and not sentences, are used in this study.

Until recently, discourse units were referred to as intonation units (IU), and were defined as a sequence of speech produced under one coherent contour (Du Bois et al 1992:17, 1993:47). Intonation units, which are also called prosodic units/groups or speech groups, contain a combination of basic speech segments and prosodic elements. The basic speech segments include consonants and vowels, which are the building blocks of words. The prosodic elements are additional features which are supra-segmental and include for example rhythm, pitch, accents, stress and more (Crystal 1997:171). The borders of prosodic units are not determined only according to their intonation, but also according to other prosodic criteria, such as rhythm and length. Therefore, more recent studies have preferred the term prosodic units (PUs) as the basic analysis unit of spontaneous speech in several languages, and not intonation units (Quazza and Garrido, no year cited, Lee and Lee, no year cited, Portes et al 2002, Elordieta and Romera 2002, Tseng 2003). The notion of prosodic unit (hereinafter speech unit, SU) is used in this research as well.

2.3.3. Work methods and semantic sorting of the data

2.3.3.1. Tagging of relevant speech units

In all speech units, verbal forms were tagged in the transcribed text. Tagging was done on the transcription pages, where relevant speech units were marked differently than the rest of the text. Tagging was done manually, as currently automatic tagging in Hebrew is problematic.

2.3.3.2. Determination of the part which expresses tense, aspect or mood

Evaluation of the part which expresses TMA within the highlighted speech unit was then carried out. This was done to exclude cases where tense, aspect or mood, were expressed by lexical means and not by a pattern or a structure. For verification, words and structures were omitted from the text one at a time. This ensured that the TMA meaning was preserved, even when one word / structure or another was eliminated. If the meaning was not preserved, then the TMA meaning was carried by the omitted word. In this manner, the word / structure which bears the TMA meaning in the tested speech unit was isolated.

Examples:

(2) *maXaR at* ***oleXet*** *abajta aXaRe abXina* (D-3-4-1: 102)
tomorrow you (2-F-SG) go (***hlk****-Qal*-PTCP-F-SG)
home after the test
'tomorrow after the test you will be going home'

The word ***maXaR*** 'tomorrow' was omitted from this unit, since it may be responsible for the future/modal meaning of the speech unit. The whole unit has a modal meaning, and the modal meaning was preserved after the omission of this word. However, an additional evaluation of this unit was required in order to verify the modal meaning. This unit, in its current form, bears an epistemic meaning, since it is an interpretation of the

situation by the speaker, a situation in which the speaker is not involved. At this step, components of this unit were replaced by other, parallel words, to see if the meaning was preserved. Thus, the pronoun ***at*** 'you' was replaced by ***i*** 'she', and the verb ***oleXet*** 'go' (***hlk***-PTCP-*Qal*-F-SG) was replaced by ***kotevet*** 'write' (***ktb***-PTCP-*Qal*-F-SG) to eliminate cases where the meaning is part of the root semantics. The original, modal, meaning of the speech unit was preserved only when the pronoun was in the second person. Yet, leaving the second person pronoun in and changing the participle verb form into a prefixed form yielded a strange structure, one which would probably not be produced by native speakers during spontaneous speech (although it can be used in formal language). This meant that the modal meaning was carried by neither the pronoun, nor the participle, but probably by the combination of the two components. Similar units were found in my study, which had the same epistemic meaning. This unit was finally analyzed as expressing relative tense and not mood, since a relative time point (other than the word ***maXaR*** 'tomorrow') is noted in the context. The relative time point is ***aXaRe abXina*** 'after the examination'.

(3) *paam* ***baRaX*** *li naXaS katan*| (N-4-34:38-39)
once escape (***brħ***-*Qal*-SUF-3-M-SG) to me snake (SG) small (M-SG)
'once, a small snake escaped from me'

beulam aaRtsaot||
in the hall the lecture (PL)
'in the lecture hall'

The expression ***paam*** 'once' might denote a single-time action, and hence was omitted to verify that the perfective aspect was preserved without it. Also, the suffixed form of the verb ***baRaX*** 'escape' (***brħ***-*Qal*-SUF-3-M-SG) was replaced by the participle and prefixed forms of the same verb, one at a time. In these cases, the perfective aspect was not preserved, while both forms caused the unit to change meaning. Therefore, the perfective aspect was concluded to be part of the suffixed form of the verb ***baRaX*** 'escape'. The past tense meaning is derived from

the broader context. This unit was thus classified as expressing the perfective aspect.

(4) *vejom eXad **alaXti** bejom XoRpi*| (N-4-1:20)
and one day I walk (***hlk***-*Qal*-SUF-1-SG) in a day winter (ADJ)
'and one day I walked in a winter day'

The expression ***jom eXad*** 'one day' was omitted to verify that the perfective aspect was preserved without it, since this expression might hint at a single-time event. Also, the suffixed form of the verb ***alaXti*** 'I walk' (*Qal*-SUF-1-SG) was replaced by the participle and prefixed forms of the same verb, one at a time. In the first case, where a participle was inserted instead of the suffixed form, a possible expression was obtained, which would potentially be used in an imperfective context (durative) under the condition that the word *ani* 'I' would be attached to it:

(5) *vejom eXad **ani oleX** bejom XoRpi*|
and one day I walk (***hlk***-*Qal*-PTCP-M-SG) on a day winter (ADJ)
'and one day I was walking on a winter day'

In the latter case, where a prefixed form was inserted instead of the suffixed form, and in the given context, the obtained unit would be illogical:

(6) **vejom eXad **eleX** bejom XoRpi*|
and one day I walk (***hlk***-*Qal*-PRE-1-SG) in a day winter (ADJ)
and one day I will walk in a winter day'

In addition, the previous verbal units of this recording contained the same verb in a different structure, which enabled contrastive analysis. The previous units expressed a habitual aspect in the past, and contained the structure of ***hjj*** 'be' + participle, as follows:

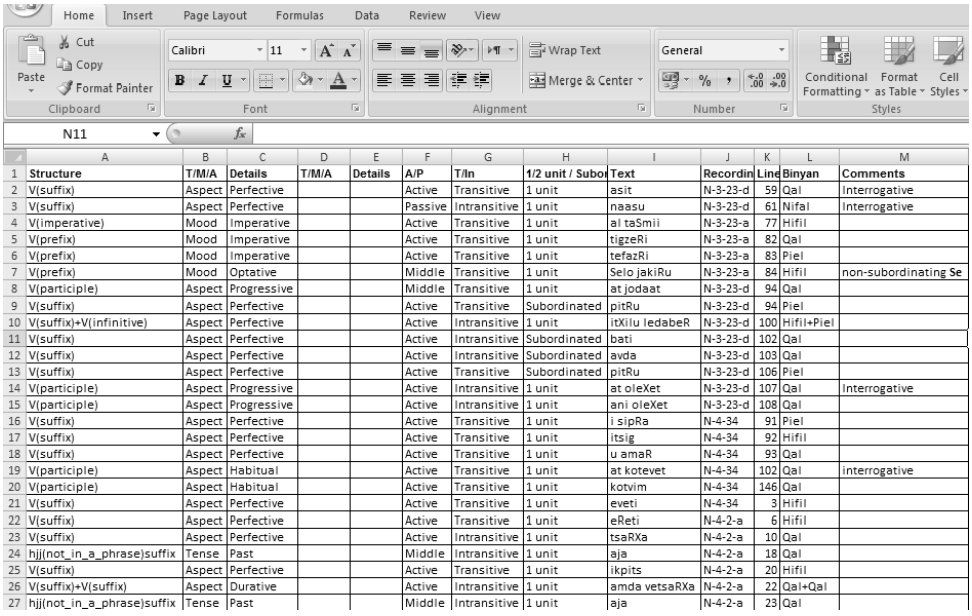
(7) *ve**aiti oleX***| (N-4-1:1, 6, 12)
and I be (***hjj***-*Qal*-SUF-1-SG) walk (***hlk***-*Qal*-PTCP-M-SG)
'and I used to walk'

Therefore, the perfective meaning in example (4) was concluded to be part of the suffixed form of the verb ***alaXti*** 'I walk', and this unit was finally classified as expressing the perfective aspect.

Since the perfective aspect does not refer to the internal structure of the predicate, but rather to the predicate as one complete unit, most of the perfective forms in this research were not categorized as quantifying or qualifying. There were some exceptions. For example, where the action was clearly punctual. In these cases punctual aspect was noted. For these reasons, most of the perfective forms in this research are noted as 'perfective' only. Cases of punctual aspect are rare.

2.3.3.3. Form / structure isolation

From the highlighted speech units, which were filtered as carrying TMA meanings in the previous step, all verb patterns were isolated and classified into groups, where each group included data with the same structure. For details of the classification of forms see 2.3.4 below. A sample of the data sorting is presented in Figure 2-1 below.



	Structure	T/M/A	Details	T/M/A	Details	A/P	T/In	1/2 unit / Subor	Text	Recordin	Line	Binyan	Comments
2	V(suffix)	Aspect	Perfective			Active	Transitive	1 unit	asit	N-3-23-d	59	Qal	Interrogative
3	V(suffix)	Aspect	Perfective			Passive	Intransitive	1 unit	naasu	N-3-23-d	61	Nifal	Interrogative
4	V(imperative)	Mood	Imperative			Active	Transitive	1 unit	al taSmii	N-3-23-a	77	Hifil	
5	V(prefix)	Mood	Imperative			Active	Transitive	1 unit	tigzeRi	N-3-23-a	82	Qal	
6	V(prefix)	Mood	Imperative			Active	Transitive	1 unit	tefazRi	N-3-23-a	83	Piel	
7	V(prefix)	Mood	Optative			Middle	Transitive	1 unit	Selo jakiRu	N-3-23-a	84	Hifil	non-subordinating Se
8	V(participle)	Aspect	Progressive			Middle	Transitive	1 unit	at jodaat	N-3-23-d	94	Qal	
9	V(suffix)	Aspect	Perfective			Active	Transitive	Subordinated	pitRu	N-3-23-d	94	Piel	
10	V(suffix)+V(infinitive)	Aspect	Perfective			Active	Intransitive	1 unit	itXilu ledabeR	N-3-23-d	100	Hifil+Piel	
11	V(suffix)	Aspect	Perfective			Active	Intransitive	Subordinated	bati	N-3-23-d	102	Qal	
12	V(suffix)	Aspect	Perfective			Active	Intransitive	Subordinated	avda	N-3-23-d	103	Qal	
13	V(suffix)	Aspect	Perfective			Active	Transitive	Subordinated	pitRu	N-3-23-d	106	Piel	
14	V(participle)	Aspect	Progressive			Active	Intransitive	1 unit	at oleXet	N-3-23-d	107	Qal	Interrogative
15	V(participle)	Aspect	Progressive			Active	Intransitive	1 unit	ani oleXet	N-3-23-d	108	Qal	
16	V(suffix)	Aspect	Perfective			Active	Transitive	1 unit	i sipRa	N-4-34	91	Piel	
17	V(suffix)	Aspect	Perfective			Active	Transitive	1 unit	itsig	N-4-34	92	Hifil	
18	V(suffix)	Aspect	Perfective			Active	Transitive	1 unit	u amaR	N-4-34	93	Qal	
19	V(participle)	Aspect	Habitual			Active	Transitive	1 unit	at kotevet	N-4-34	102	Qal	interrogative
20	V(participle)	Aspect	Habitual			Active	Transitive	1 unit	kotvim	N-4-34	146	Qal	
21	V(suffix)	Aspect	Perfective			Active	Transitive	1 unit	eveti	N-4-34	3	Hifil	
22	V(suffix)	Aspect	Perfective			Active	Transitive	1 unit	eReti	N-4-2-a	6	Hifil	
23	V(suffix)	Aspect	Perfective			Active	Intransitive	1 unit	tsaRXa	N-4-2-a	10	Qal	
24	hjj(not_in_a_phrase)suffix	Tense	Past			Middle	Intransitive	1 unit	aja	N-4-2-a	18	Qal	
25	V(suffix)	Aspect	Perfective			Active	Transitive	1 unit	ikpits	N-4-2-a	20	Hifil	
26	V(suffix)+V(suffix)	Aspect	Durative			Active	Intransitive	1 unit	amda vetsaRXa	N-4-2-a	22	Qal+Qal	
27	hjj(not_in_a_phrase)suffix	Tense	Past			Middle	Intransitive	1 unit	aja	N-4-2-a	23	Qal	

Figure 2-1: Processing of data – a sample of data sorting

2.3.3.3.1. Handling participles

Participles can be used both as verbs and as nominals in Hebrew, and were thus considered problematic. The decision whether to refer to units containing participles as verbal or nominal was done on the basis of the function of the participle in that unit. This function was determined according to the context where the unit appeared. Participles that had a purely verbal meaning, were classified as such, whereas participles with nominal meanings (mainly when used as nouns and adjectives) were excluded from this research. A similar classification was applied by Azar (1995:1), where he distinguished between participles denoting an action or an event in progress, and participles denoting a state or a result. A similar classification was also done by Meltzer (2007), who defined when a participle is verbal and when it is nominal. Meltzer characterizes nominal participles by their possibility to appear in the same expression with a copula, i.e., to be turned into a description of manner by adding the word ***beofen*** 'in a manner of', to be negated by adding the word ***bilti*** 'un-' and by their correlation to other participles with a similar character, but not to other participles with a verbal character. Examples for Meltzer's claims are presented below. The first example in each couple is a nominal participle, the second is a verbal participle.

Original expressions:

(1) *jeled* ***meanjen***
boy interesting (***ʕnjn***-*Piel*-PTCP-M-SG)
'an interesting boy'

(2) ** jeled* ***kofets***
boy jumping (***qpts***-*Qal*-PTCP-M-SG)
* 'a jumping boy' (ungrammatical in Hebrew)

Expressions with copula verbs:

(3) *hajeled nire* ***meanjen***
the boy look interesting (***ʕnjn***-*Piel*-PTCP-M-SG)
'the boy looks interesting'

(4) * *hajeled nire* ***kofets***
the boy look jumping (***qpts***-*Qal*-PTCP-M-SG)
* 'the boy looks jumping'

Expressions turned into a manner description:

(5) *beofen* ***meanjen***
in manner interesting (***ʕnjn***-*Piel*-PTCP-M-SG)
'in an interesting manner'

(6) * *beofen* ***kofets***
in manner jumping (***qpts***-*Qal*-PTCP-M-SG)
* 'in a jumping manner'

Negated expressions:

(7) *bilti* ***meanjen***
un-interesting (***ʕnjn***-*Piel*-PTCP-M-SG)
'not interesting'

(8) * *bilti* ***kofets***
un jumping (***qpts***-*Qal*-PTCP-M-SG)
* 'un-jumping'

Correlation to other participles:

(9) * *jeled* ***meanjen*** *ve****kofets***
boy interesting (***ʕnjn***-*Piel*-PTCP-M-SG) and jumping (***qpts***-*Qal*-PTCP-M-SG)
* 'an interesting and jumping boy'

In spite of her claims and examples, we can find participles in Hebrew, which can be either verbal or nominal, where the verbal / nominal meaning is context-dependent, for example:

(10)	(11)
aiS aze ***matsXik***	*abadRan* ***matsXik*** *et ajeladim*
the man this funny	the entertainer make laugh
(***tsħq***-*Hifil*-PTCP-M-SG)	(***tsħq***-*Hifil*-PTCP-M-SG) the children
'this man is funny'	'the entertainer makes the children laugh'

Examples for verbal and nominal participles in the corpus are presented below.

Verbal:	Nominal:
(12) *ze lo* ***oved*** (C 7-1-4:272) it no work (***ʕbd***-*Qal*-PTCP-M-SG) 'it is not working'	(13) *anaXnu* ***matimim*** (G 4-2-3:755) we fit (***tʔm***-*Hifil*-PTCP-M-PL) 'we fit each other'
(14) *em* ***osim*** *meXkaR* (C 2-1-1C:55) they do (***ʕsj***-*Qal*-PTCP-M-SG) research 'they are carrying out a research'	(15) *at* ***tsodeket*** (G 7-1-1:291B) you (F-Sin) right (***tsdq***-*Qal*-PTCP-F-SG) 'you are right'
(16) *i* ***mitXatenet*** (G 8-1-3:54) she marry (***ħtn***-*Hitpael*-PTCP-F-SG) 'she is getting married'	(17) *mamaS* ***mafXid*** (D 6-3-1:232) indeed scaring (***pħd***-*Hifil*-PTCP-M-SG) 'it is indeed scaring'

2.3.3.3.2. Expression of TMA in more than one speech unit

In verb phrases with two words or more, there are cases in which TMA is expressed in two subsequent speech units, and sometimes even three, where the first part of the verb phrase is uttered in the first unit and its remaining part(s) is/are uttered in the subsequent unit(s). Such structures were highlighted for further investigation in order to see if these TMA expressions are different from other verbal forms, due to their spreading out over a wider range of speech units. Examples for verb phrases which spread over more than one unit are presented below.

(1)
amaRt baeRev at ***Rotsa***|
liStof| (C 2-1-1)
you say in the evening
you want (***rtsj****-Qal*-PTCP-F-SG)
wash (***šṭp***-INF)
'you said (that) in the evening
you wanted to wash'

(2)
miSpaXti ***lakXa*** *oti lejafo*|
leeXol *glida mastik*| (C 2-1-1)
my family take
(***lqħ***-Qal-SUF-3-F-SG) me to Jaffa
eat (***ʔkl****-INF*) ice cream
'my family took me to Jaffa
to eat ice cream'

(3)
ktsat ***itXalti***|
leitkatev *im &/* (C 4-1-2)
a little I start
(***tħl****-Hifil*-SUF-1-SG)
to correspond (***ktb***-INF) with &
'I started
corresponding with & a little'

(4)
u ***javo*** *elaiX*|
leitXabeR *elaiX*| (G 7-1-1)
he come (***bwʔ****-Qal*-PRE-3-M-SG)
to you (F)
to connect (***ħbr***-INF) you
'he will come to you
to connect you'

2.3.3.3.3. Subordinate speech units

Some of the forms that express TMA appear as part of subordinate units. A subordinate unit is a syntactic part of the expression that constitutes an argument of a higher predicate, or one that is governed by a higher predicate in the expression, in order that its meaning will be complete (Hengeveld 1992:12). Two subordinate units are presented below, the former shows a completion of the verb phrase ***Rotse livdok*** 'want to check', the latter shows a completion of a verb of direct speech. The direct speech part can stand alone, but if we refer to it as an independent unit, it will be impossible to combine it within the text sequence, since it will entail changes in its original meaning. The material from subordinate units was also collected separately, in order to check for differences in usage between dependent and independent speech units.

Examples for subordinated speech units expressing aspects:

(1)
ani ***Rotse livdok***|
im ze ***maklit*** *beXlal* (C 2-1-2)
I want (***rtsj***-*Qal*-PTCP-M-SG)
check (***bdq***-INF)
If this record
(***qlṭ***-*Hifil*-PTCP-M-SG) at all
'I want to check'
'if this is recording at all'

(2)
vei ***omeRet***|
ani lo ***itkavanti***| (C 2-1-2)
and she say
(***ʔmr***-*Qal*-PTCP-F-SG)
I not mean
(***kwn***-*Hitpael*-SUF-1-SG)
'and she says'
'I did not mean it'

2.3.3.3.4. Speech units containing two TMA elements

Some of the speech units in the corpus express more than one TMA element. These units were isolated to see if both TMA components are grammaticalized or only one of them. For example, the speech unit below denotes perfective aspect and epistemic mood:

em kvaR ***XaSvu*** *al akol*| (C-2-1-1:114)
they already think (***ħšb***-*Qal*-SUF-3-PL) of everything
'they have already thought of everything'

The verb in this unit is a combination of the root ***ħšb*** 'think' in a suffixed pattern. Other verbs from the same root were found in the research, and were compared to this one. In all occurrences of the root ***ħšb*** 'think' a modal meaning is found. Yet, the aspectual perfective meaning change, when the pattern changes. Also, other suffixed forms do not express modal meanings. Therefore, it is concluded that the modal meaning is lexical, i.e., is inherited in the root, and is not grammaticalized. This unit was analyzed as perfective.

2.3.3.4. Semantic classification of forms and structures

At this stage, following classification of all the data into groups, each occurrence of each form / structure was checked separately. In speech units with TMA-bearing forms / structures, it was necessary to determine which part of the form / structure was responsible for its meaning: the form

/ structure itself, or some other element. Hebrew verbal forms / structures are synthetic, and thus each word may contain several meaningful elements. To determine which of the elements in the form / structure is the TMA-bearing element, contrastive analysis was carried out. The checked form / structure was compared to other forms from the sample and if possible from the same text and same speaker – which were apparently identical to the checked form, but different from it in only one element. This element could be the root, a synthetic, form-contained pronoun or similar. Also, the form was compared to other forms having the same root. This was done to verify that the semantic category is indeed carried by the form, and not by the root, which in Hebrew may contain modality, for instance, as part of its basic semantics.

Table 2-2 below shows examples of forms sharing similar meanings, having different patterns and different classifications; Table 2-3 shows examples of identical patterns with different roots, which were classified identically.

Table 2-2: forms having similar meanings but different patterns and their TMA classifications

Form	Root	Pattern	TMA category	Reference	Explanation
oleX	*hlk* (*k* is realized as *X*)	*Qal*-PTCP	AS – PROG	D-3-4-1:51	An ongoing action
oleXet			MD – EPS	D-3-4-1:102	An interpretation of the situation by the speaker
oleXet				G-7-1-1:421	
alaX		*Qal*-SUF	AS – PFV	C-2-1-2:212	An external observation on the action as a complete unit
alaX				G-4-2-3:206	
alaXti				D-3-4-1:25	
teleX		*Qal*-PRE	MD – DEO	G-4-2-3:774	The speaker expresses will
oleX oXel tsaaRajm	*hlk+ʔkl*	PTCP + PTCP	AS – HAB	C-2-1-1-C:130	A habit
oleX lifgoS	*hlk+pgš*	PTCP + INF	MD – DEO	C-2-1-1-C:103-104	Speaker's intention

The table presents several inflections of the verb ***alaX*** 'walk, go' (root: ***hlk***), where all forms have the common meaning of walking. The inflections are incorporated into various verb patterns, and denote various TMA categories. It can be seen from the table that no correlation was observed between the root ***hlk*** and TMA categories, which means that the meanings were not carried by the root.

Table 2-3: forms having similar patterns but different roots and their TMA classification

Form	Root	Pattern	TMA category	Reference	Explanation	Comments
tsoek	*tsʕq*	*Qal*-PTCP	AS-HAB	G-7-1-1:162	A habit	*ʕ* is not realized; *q* is realized as *k*
lokeaX	*lqħ*			G-4-2-3:56		*q* is realized as *k;* *ħ* is realized as *X*
alaX	*hlk*	*Qal*-SUF	AS-PFV	C-2-1-2:212	An external observation on the action as a complete unit	*k* is realized as *X*
amaR	*ʔmr*			G-4-2-3:732		*ʔ* is not realized
jatsa	*jtsʔ*			G-7-1-1:259		
alaXti	*hlk*			D-3-4-1:25		*k* is realized as *X*
Xalamti	*ħlm*			G-8-1-2:33		*ħ* is realized as *X*
amaRti	*ʔmr*			G-4-2-3:199		*ʔ* is not realized
teleX	*hlk*	*Qal*-PRE	MD-DEO	G-4-2-3:774	The speaker expresses will	*k* is realized as *X*
teSev	*jšb*			G-12-4-1:151		*j* is not realized; *b* is realized as *v*
oleX oXel *tsaaRajm*	*hlk+* *ʔkl*	*Qal* PTCP + *Qal* PTCP	AS-HAB	C-2-1-1-C:130	A habbit	*k* is realized as *X*; *ʔ* is not realized
joSev *medabeR*	*jšb+* *dbr*	*Qal* PTCP + *Piel* PTCP		G-4-2-3:57		*b* of *jšb* is realized as *v*

The table presents various verb inflections with different roots. The examples are mostly in the ***Qal*** pattern. For the complete results, see Section 5. This classification was done to determine if there is a direct relation between a specific affix and a TMA category. The table clearly shows that there is no correlation between the verb pattern and TMA categories, as each of the examples in the ***Qal*** pattern denotes a different

TMA meaning. On the other hand, it is clearly seen that there is some correlation between affixes and TMA categories. As in all forms where participles are included the meaning is a habitual aspect, whereas prefixed forms denote mood and suffixed forms denote perfective aspect.

2.3.3.5. Listing of linguistic means used to express TMA

At this last step, listing of the means that are used to express TMA in SIH was performed. This listing enabled evaluation of the quantitative relationships between various linguistic ways to express TMA and their distribution.

2.3.4. Methods for formative sorting of the data

Structures expressing TMA were inserted into a database in a computer file. In the file, they are sorted according to their form / structure, as illustrated in figure 2-1 above.

For example, all prefixed forms of verbs are classified as one group, all phrases of ***hjj*** 'be' + participle are classified as another group and so on. In the database, the data are sorted according to linguistic categories, age groups, education, sex and origin, and according to TMA categories. For the determination of the semantic categories, see Section 3 below. Verbs, including complex phrases and structures, are marked for their TMA categories. Each verb-oriented group is provided with detailed analyses to the level of roots, patterns or any other detail, which might be relevant for the analysis, including voice and transitivity. The database is designed to enable easy extraction of the data according to various criteria, i.e. to enable the characterization of different groups of data or population according to research needs. For example, it is relatively easy to extract all verbal data in the research relating only to native speakers of a specific age group and which are classified as expressing mood.

2.3.5. Statistical methods for the analysis of the data

The following parameters were checked in the data (see 2.3.4 above):

- Structures with a low number of instances were excluded from the research. The chosen threshold for the number of instances was 10, similar to the pilot study. The reason for this decision is because with few instances statistical calculations cannot be performed. Further, statistical calculations with only a few occurrences are not representative, their error rate is too high and finally they are negligible in relation to the general statistical calculations because of their number.
- After the exclusion of rare structures, the remaining data constitute the actual research findings. In these data, quantitative distribution and distribution in percentages were calculated for each semantic category and each structure in each population group.
- Correlation coefficient tests were carried out, to check the relations between various population groups and the use of structures. Correlation tests are meant to check the relations between two independent variables, for example, the relationship between the education level of speakers and the use of specific structures in language or the relationship between two population groups.

2.4. Schematic description of the research process

A schematic description of the research process is presented in Figure 2-2 below.

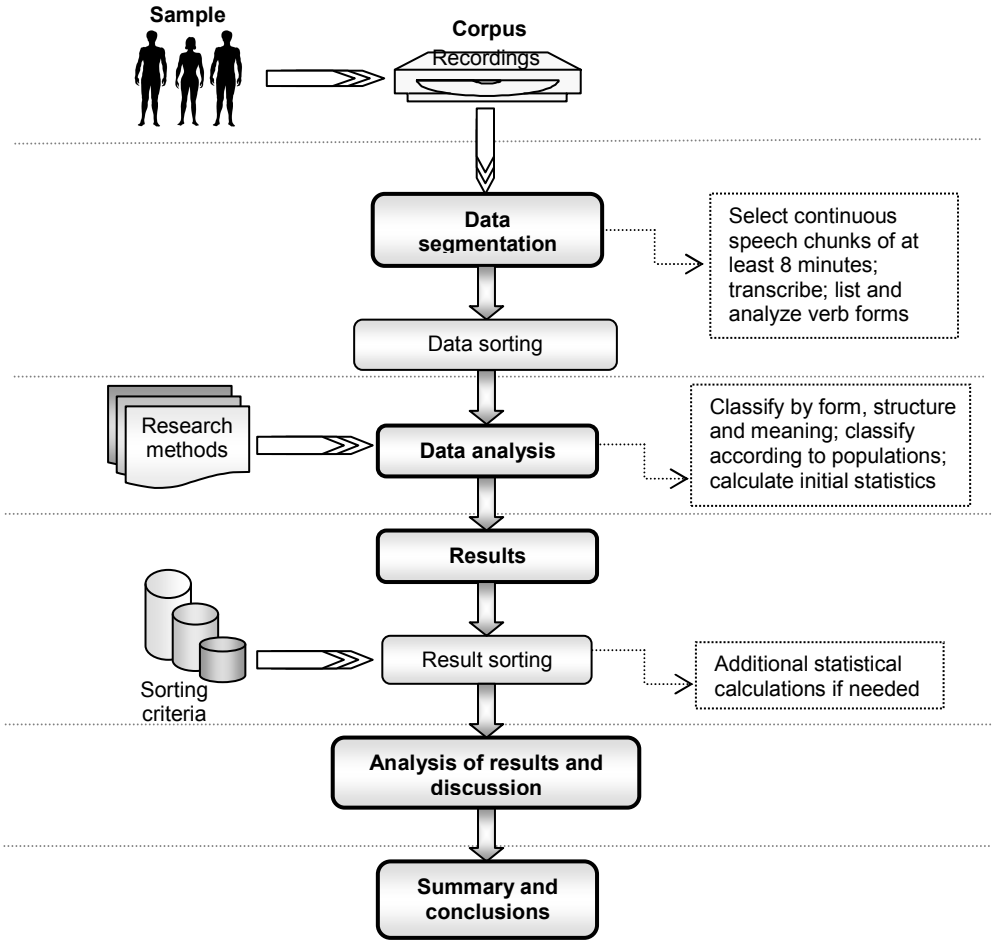


Figure 2-2: Schematic description of the research process

3. TMA systems

3.1. Definitions

3.1.1. Tense, aspect, mood

Tense, aspect and mood are **semantic categories**, expressed by various **linguistic means** (Dahl 1985:1). The common terminology for these categories in the literature is **TMA**, which is an abbreviated form of Tense, Mood, Aspect.

3.1.1.1. Tense

Tense in language is a grammatical way to assign a situation to a specific time point. The described time point can be either the speech time, in which case the tense is **absolute** (see section 3.3.1.1. below), or another time point, in which case the tense is **relative** (Comrie 1976:2, 6, 1985:9; see also section 3.3.1.2 below). Time reference in language is usually carried by the verb (Crystal 1997:438).

3.1.1.2. Aspect

Aspect is a grammatical way to describe the internal temporal structure of events, states or actions in a specific situation. These events can be either independent or related to each other (Comrie 1976:2, 3, 6; Dahl 1985:24; Crystal 1997:421; see also section 3.3.2 below). For the terms “situation”, “event”, “state” and “action” see section 3.1.2 below.

3.1.1.3. Mood

Mood is a grammatical way to describe the speaker’s attitude towards a situation or his/her opinion about this situation (Palmer 1986:2, 16), i.e.

attitudes, wishes or feelings, expressed by grammatical means (Crystal 1997: 432).

3.1.2. Situation, action, state and event

The terms aktionsart, situation, event, state and action are presented and defined below.

3.1.2.1. Aktionsart

Aktionsart is distinguished from aspect (see below) by being lexical rather than grammatical. This means that aktionsart represents an intrinsic meaning which is carried by the basic verb rather than by a grammatical structure (Binnick 1991:148). Aktionsart is different from aspect in that its aspectual meaning is carried by the verb, and not by grammatical markers, which denote grammatical aspect (Schalley 2004:22). This means that it is lexico-semantic in nature, as opposed to aspect, which is grammatical in nature (Schalley 2004:23). Aktionsart can be divided into four main types: states, which represent a situation, achievements, which represent events, accomplishments, which represent processes, and activities, which represent actions. Examples for these types of aktionsart are *be sick*, *explode*, *melt* and *walk*, respectively (Butler 2003:135). Although aktionsart seems to be different from aspect, they are claimed to be interrelated, as perfective-imperfective distinction is considered to have impact on aktionsart (Schalley 2004:23).

3.1.2.2. Situation

A situation consists of one or more events, states and actions, where events are dynamic, states are non-dynamic and actions are controlled events. Events, states and actions are evaluated by their dynamicity, telicity and duration (Comrie 1976:41-48, Dik 1997a:107). These factors have hierarchy, where the first distinction is made between dynamic and non-dynamic situations. In dynamic situations only, telicity is characterized, and, in telic situations, duration is specified. Only dynamic

vs. non-dynamic distinction is presented here to enable characterization of the three types of situations: events, states and actions.

3.1.2.3. Action

An action is an active deed, which is controlled by its first argument, meaning that its first argument takes the decision whether to carry out the action or not (Dik 1997a:112). Similarly to an event, an action is dynamic, but as opposed to an event (see section 3.1.2.5 below), an action is routinely controlled by its first argument, whereas an event does not necessarily need to be controlled by any of the entities involved. A controlled event, thus, is an action. A non-controlled event can be a process or dynamism (Dik 1997a:114).

3.1.2.4. State

A state is a non-dynamic situation, as it does not involve any change during the time when it occurs, i.e. the entities in the situation remain the same at all points along the described time interval (Dik 1997a:107). The following examples are states, which are non-dynamic situations (The examples are taken from Dik 1997a:107):

(1) *The substance was red* (a state)

(2) *John was sitting in his father's chair* (a position).

3.1.2.5. Event

An event, as opposed to a state, is a dynamic situation. This means that an event necessarily entails some change of the entities involved. The change can be either repetitive or a single event (Dik 1997a:107). The following examples relate to an event and an action, which are dynamic situations (The examples are taken from Dik 1997a:107):

(3) *The clock was ticking (*an event; dynamism)

(4) *John opened the door* (an action)

Being dynamic, an event can be further characterized by its telicity and duration, where duration is a subset of telicity. Thus, the next distinction is made between telic and atelic events. An event is telic when it has an intrinsic endpoint or a target. An event is atelic when it has no intrinsic endpoint (Dik 1997a:107-108, Comrie 1976:46). The English verbs *eat up* and *eat* demonstrate the difference between telic and atelic events, the former being telic, as it has an intrinsic end point, and the latter being atelic (Comrie 1976:46).

Telic events can be further evaluated by their duration. A telic event can be either punctual or not. Punctual events have no duration, and their beginning and end are nearly or completely parallel, whereas non-punctual events have some duration and they present a clear distinction between their beginning and their end point (Dik 1997a:111).

3.2. TMA systems

The categories of tense, mood and aspect are semantically interrelated. Each of them provides a different perspective of a situation, where combinations thereof form the whole picture – tense points at the time reference of the situation, aspect at its internal temporal character and mood at the speaker's view of the situation.

Languages grammaticalize different semantic properties. Grammatical elements are mainly expressed morphologically, but can also be expressed by syntactic means. Not all languages grammaticalize all semantic properties, some may use lexical means instead, whereas others may use different grammatical forms to express a semantic difference. Those which grammaticalize semantic properties, do so in different ways. Some languages add markers to their verbs (Binnick 1991:126-132), others grammaticalize semantic functions on nominals (Lecrame 1999, Nordlinger and Sadler 2000, 2003, Sadler AND Nordlinger 2001). The former would attach TMA markers to verbs only. Examples of languages, which attach TMA markers to their verbs, are English and Modern Hebrew. The latter can have TMA markers both on nominals and on verbs. An example of such a language is Pitta Pitta,

spoken in Queensland, Australia, where a past tense marker is carried by a verb, and a future tense marker is carried by a nominal (Sadler AND Nordlinger 2001:2).

Grammaticalization of semantic properties does not necessarily include all semantic properties in a language. For example, some languages grammaticalize tense, but not aspect, others grammaticalize modality, but not tense. In other languages additional semantic categories can be grammaticalized, such as case, voice or transitivity. For example, Standard Arabic grammaticalizes passive voice and case, whereas Modern Israeli Hebrew does not grammaticalize any of these (see Section 4). TMA categories are semantically interrelated, as they all serve as factors in the definition of events and situations. Hence, in many cases languages grammaticalize these three categories in either similar or complementary ways.

Semantically, both tense and aspect have temporal characteristics, but their characteristics complement each other, rather than coincide with each other. Binnick claims that it is not enough to define the relation between two events, in order to know the time they take place. This is why in many cases (though not in all) tense and aspect co-exist and interact in order to best define the relation between events (1991:128). According to Binnick, tense and aspect have been investigated together in many cases, since the semantic theories of tense apply to aspect as well, and since aspect is grammatically marked by tense markers (1991:131-132). However, this is not always the case. Indeed, there are cases where tense and aspect co-exist to yield a specific meaning of a situation, but such cases do not by default involve the use of tense markers for aspects or vice versa. An example can be found in English '*used to*' structures, which denote both aspect and tense: a habitual aspect in the past. The expression '*used to*' bears both the habitual aspect and the past tense, having the past tense marker (***-ed***) attached on the phrase which expresses aspect. There is no parallel structure for present or future tense habitual aspect. In this case, the habitual aspect is characterized by the expression '*use to*', and not by a tense marker, whereas only the past

tense is denoted by the past tense marker *-ed*. For a similar construction in Israeli Hebrew see section 5.

On the other hand, there are cases in which only tense or aspect are present in the grammatical system of a language. For example, there are languages that have perfective aspect, but not past tense and vice versa. Some Semitic languages, such as Biblical Hebrew, Arabic and Amharic, fall into the former category, having perfective aspect but no past tense forms. English can be considered as belonging to the latter category, having grammaticalized past tense (suffix ***-ed***), but not the perfective aspect. In such languages, where past tense and perfective aspect do not co-exist, people tend to comprehend and analyze perfective forms as past tense, since complete actions are perceived as done in the past. However, this is not necessarily so, as an action characterized as completed has no time reference, and is thus tenseless. (Additional evidence from Israeli Hebrew is provided later in this thesis). Therefore, tense and aspect are indeed interrelated, but they form an asymmetric system, being either completive or mutually exclusive: in the former case both of them would exist in one language, but their co-existence is conditioned and guided by some semantic parameters, while in the latter case the existence of one of them co-occurs with the non-existence of the other.

A similar distribution can be observed for the interaction between tense and modality. Researchers have suggested that often forms perceived as future tense coincide with modality. This means that we can refer to what many people perceive as “future” as if it were mood, since we cannot predict the future, and the “future” that we relate to is actually a collection of intentions and desires (Lyons 1977:677, Palmer 1986:216-217), which are modal. An example for this is the irrealis mood, which denotes thoughts, assumptions and speculations (Palmer 2001:1). Similarly to the mutual exclusivity between tense and aspect in some languages, there are languages that have grammaticalized irrealis mood, but not future tense. An example for such an interaction between future tense and modality can be found in English, where the future tense marker ***will*** grammatically behaves as the group of modals.

Aspect and mood are also interrelated. An example for the interrelation between aspect and mood can be found in the Arabic particle سوف [sawfa]. Arabic basically distinguishes between perfective and imperfective aspects only. Within the imperfective aspect a differentiation between an ongoing situation and a situation which has not yet happened is possible by the addition of the particle سوف [sawfa] (or its short form سَ [sa]) before the verb as a prefix. سوف [sawfa] is added as a separate word, whereas سَ [sa] is added as a prefix adjacent to the imperfective prefix and preceding it (Abu-Shaqra 2007:109).

Binnick points out that many researchers in the beginning of the twentieth century made attempts to understand verb semantics in the context of studying tense systems. According to Binnick, these attempts were not very successful, since these researchers tried to investigate the tense system as an independent one, whereas it is interrelated to other grammatical systems in the language, most of all aspect and mood. Binnick points to Comrie (1976:72) who claims that tense and aspect must co-occur in typical patterns and are interrelated. Also mentioned is Traugott (1978:372), who claims that the temporal system in a language is strongly connected to other categories of the language, for example future tense with modality and aspect with quantification. This goes hand in hand with the cases presented above, which show that tense, mood and aspect are interrelated categories, and their interrelation changes from one language to another.

Semantically, only one of the three TMA categories can be prominent in a language (Bhat 1999, see below). Indeed, languages tend to systematically present one semantic category which is more prominent than the others. For example, in Arabic the dominant category is aspect, where a clear distinction between perfective and imperfective exists (Abu-Shaqra 2007:78, 106). The imperfective aspect can be split into two modal structures, which, together with the imperative forms, are referred to as mood (Abu-Shaqra 2007:209-217). There is no tense category in Arabic, while mood is dependent on aspect, being a sub-division of the latter. In this regard, Bhat claims that it is possible to come to a better typological

understanding of natural languages by the tense-aspect-mood prominence distinction (1999:92), to which he clearly refers as components of the same complex. Similarly to Bhat, Binnick suggests that the understanding of tense cannot be complete without the understanding of aspect and mood (Binnick 1991:128-130). Because of its dependency on the speech time of the speaker, tense has been perceived as subjective and aspect as objective. Thus, tense always represents a relation between two times, and changes according to the movement of the speaker on the timeline, whereas aspect is connected to the unchanging relationship of events along the timeline.

Bhat (1999) investigated the prominence of tense, aspect and mood across languages. He claims that languages can be tense-prominent, aspect-prominent or mood-prominent, depending on their verb system structure and the character of the language. A tense-prominent language has tense markers as an inflection of the verb (p. 13). The tense markers denote the time when the action was done, being relative to either the speech time (deictic) or another, grammaticalized, reference time point (p. 14-20). An aspect-prominent language has verb inflections, which denote aspects (p. 43-61). Similarly in a mood-prominent language verb inflections denote mood (p. 63-87). He suggests that languages tend to assign prominence to only one category of the three, where the prominent category is expressed in greater detail. The other two categories can co-exist, but are expressed in lesser detail, where usually the expression of the other two categories is done by means of periphrastic means, such as auxiliaries. For example, a language, which is tense-prominent, can also have aspect and mood, yet, aspectual or modal structures would be much fewer, less dominant in that language, and would probably be expressed by using auxiliaries or other periphrastic means (p. 91). English, for instance, is considered a tense-prominent language according to this theory. Indeed, English past tense marker is attached to the verb, while aspect is mostly expressed by peripheral means, especially by auxiliaries. In this regard, English follows this theory. But apparently, aspects in English are expressed by a wide variety of peripheral means and in great detail, whereas tense has only one marker, namely the past tense marker

-ed. The ***-s***, ***-es*** and ***-ø*** (zero) markers are attached to the verb and are claimed to express present tense, but in fact they express habitual aspect, as the expressions which contain these markers, are tenseless, and usually denote repeating actions or habits. An example for a pure tense-oriented language is Amele, which marks tense in great detail. In Amele, there are three different tense markers for the past. Each marker denotes an action in the past, but some of these actions are further removed from the moment of speaking than others, so that one tense marker denotes actions done earlier today, a second tense marker denotes actions done yesterday and a third tense marker denotes actions done before yesterday (Hengeveld and Mackenzie 2008:165).

Bhat also claims that languages make secondary use of their prominent category to express the other two, non-prominent categories. For example, he claims that in languages, which are mood-prominent, past tense is expressed by a variety of realis mood (which denotes real events or situations, see De Haan 2006:41), whereas in languages, which are aspect-prominent, past tense is expressed by a variety of the perfective (p. 91). Yet, there can be languages, which assign equal prominence to two of these categories, and thus two categories can co-exist as prominent in one language (p. 92). As mentioned above, in spite of this drawback it is possible to come to a better typological understanding of natural languages by the tense-aspect-mood prominence distinction (p. 92). Bhat suggests that the classification of a specific language into one of the three categories of prominence is done according to four criteria: (i) the degree of grammaticalization of inflections or affixes in the verb system as denoting tense, aspect or mood, (ii) the degree of obligatoriness of TMA markers in the verb system, (iii) their systematicity (or paradigmatization), i.e. to what extent they are integrated into paradigms, and (iv) their pervasiveness in the language (p. 103).

3.3. Theoretical background: tense, aspect and mood

Tense and aspect have been a mystery for researchers for many years. Although tense and aspect have been investigated over the years, until

now their understanding has been incomplete (Binnick 1991:vii, 135). Similarly, mood has also been studied over the years (Palmer 1986:2). TMA studies of the last few decades focused on different language channels, some of which were on written languages, others were on spoken languages. A research overview is provided below.

3.3.1. Tense

Dealing with the notion of time is not new. Many definitions were assigned to this notion, some of which are philosophical, others are mathematical and/or physical. The Sapir dictionary (Hebrew, 1997:276) defines time as a sequence of reality. Philosophical definitions tend to refer to time as dynamic: A continuum of events and experience, an infinite period or a dimension in which changes occur (Seddon 1987:3-5). Mathematical and physical definitions refer to time as a dimensionless sequence, in which some parts can be measured. These are the periods of time. Newton (1729) and Einstein (1920) tried to define time by means of mathematical formulas and Newton also by means of astronomical terms (1729). Also art has not ignored time: Dali, using liquid clocks in his masterpieces, and under Newton's and Einstein's inspiration, referred to time as a dimension used to express the perception of human memory.

Time has neither beginning nor end. Hence, we cannot locate events according to the beginning or end of time, but only relatively to other time points (Comrie 1985:13). Linguistic realization of time is the use of linguistic structures to establish states, actions or events at various time points. This means that tense is deictic, relative to real time. Thus, tense indicates the temporal location of an event, relative to the speech time or to another event specified in the context (Bhat 1999:43). When time points of actions, states or events are relative to the time of speech, then we are dealing with cases of absolute tense (see 3.3.1.1 below). When they are relative to other known time points, they are cases of relative tense (see 3.3.1.2 below; Comrie 1976:5-6, 1985:9). In the literature, time is presented as a straight line, which represents an imaginary timeline, where one point on this line represents the time of speech, and is called

"present" (Binnick 1991:4). Whatever exists on its left represents the past, i.e. all situations which happened before the defined speech time; whatever exists on its right represents "future" (Comrie 1985:2, Koschmieder 1996:13-14). Binnick (1991) and Koschmieder (1996) claim that the present does not really exist, but only constitutes a combining link between the past and the future. This claim is based on the idea that past and future are located in one sequence, and that the present is located between them, but is dynamic, i.e. it moves along the timeline and its location changes continually. This present is called "me" ("moi" by Koschmieder) or "now" (Binnick). Other events are relative to this "me" or "now", and change accordingly (Binnick 1991:5, Koschmieder 1996:13-14).

3.3.1.1. absolute tense

Absolute tense relates to temporal expressions which locate events, actions and states relative to the speech time. Thus speech time is part of their semantics. Speech time, in this case, is conceived as a deictic center (Comrie 1985:36). For example, an action or a state would be classified as "happened in the past" if their relative time point is the speech time and the action has already ended. An action or a state, which has not yet started during speech time, would be determined as "future". Jespersen (1924:257) represents (absolute) tense schematically, as in Figure 3-1 below.

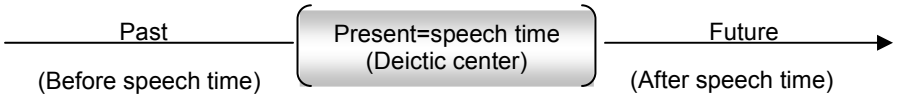


Figure 3-1: Absolute tense

3.3.1.2. Relative tense

Relative tense refers to temporal expressions that situate a state or an action relative to another time point on the timeline, and is context-dependent (Comrie 1985:56). For example, if we take a time point in the past, and the action or state under discussion has not yet happened at that time point, then the time point of the discussed action / state would express relative future tense with respect to this absolute time point in the past. There is no connection between speech time and this action / state, since it is possible that at the time of speech, this action / state has already happened, and it is possible that it has not. For a schematic demonstration of relative tense, see figure 3-2 below.

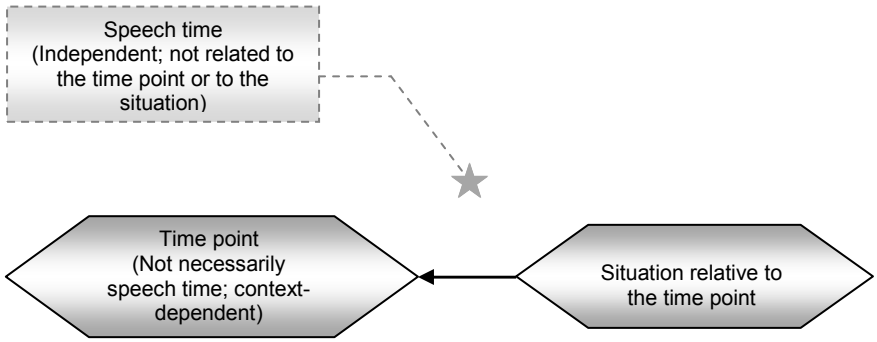


Figure 3-2: Relative tense

3.3.1.3. Absolute-relative tense

Absolute-relative tense situates states or actions on the timeline, by relating it to a time point that is not the speech time, but refers to it. It is thus a combination of an absolute with a relative tense. In fact, the following relationships exist: (i) a relation between the state or action to a specific time point; and (ii) a relation between the specific time point to speech time. There is not by necessity a linkage between the action or

state and the speech time (Comrie 1985:125). For example, if the specific time point is in the future and the state or action has already ended, the action or state will be determined as having an absolute-relative tense. The specific time point is in the future and it is compared to the speech time. Thus it represents absolute tense and the situation refers to this time point, and thus represents relative tense. This means that there is an absolute relationship between the time point in the future to speech time, as well as a connection between the situation under discussion relative to this time point in the future. The discussed situation is not necessarily connected directly to speech time: We know that the discussed situation precedes the future time point, but we do not know if it also precedes the speech time or not. For a graphic representation of absolute-relative tense, see Figure 3-3 below.

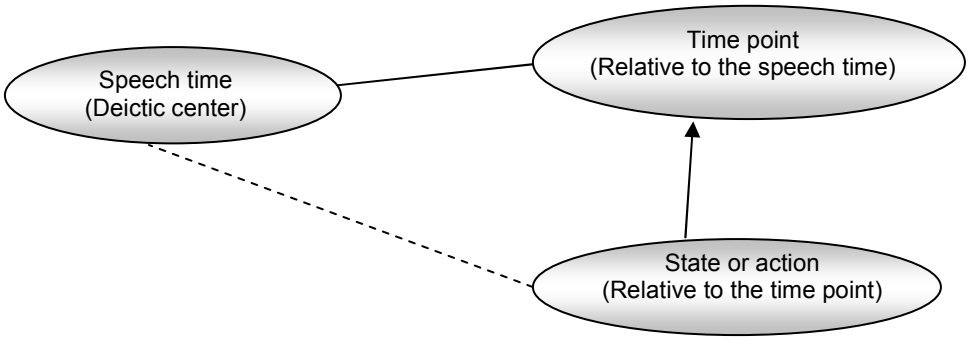


Figure 3-3: absolute-relative tense

The following expression from English illustrates absolute – relative tense:

(5) *He will have finished all his tasks by the end of this month*.

The end of this month and the verb ***will*** both refer to an absolute future point in time. The expression He will have finished situates the event prior to this absolute point in time. The expression as a whole thus constitutes an absolute – relative tense. We do not know, if during speech

time ‘he’ has already finished his tasks or not, we only know that he is supposed to end his tasks by the end of the month.

The term ‘*subjective tense*’ was introduced for Hebrew by Rubinstein (1980). Subjective tense is formed when the speaker adjusts the existing verb forms to his/her own subjective perception, and accordingly divides these forms to tenses (Rubinstein 1980:15-16). Subjective tense is more suitable to describe aspects rather than tense, and it also contains modality to some degree, as it involves the speaker’s perception. Therefore, it is not suitable to describe tense, and it is not part of the linguistic definitions of TMA. Originally, it was used by Rubinstein to describe Biblical Hebrew. This term is a view of time from extra-linguistic considerations. Subjective tense is not referred to in this study, as this study deals with tense from inter-linguistic considerations.

3.3.2. Aspect

Aspect is a linguistic way to describe the internal temporal character of an event, state or action, their structure and the relations between them within a situation (Comrie 1976:3, Dahl 1985:24). These events / states can be either dependent or independent on each other within the situation (Comrie 1976:2, 3, 6, Dahl 1985:24, Crystal 1997:421). Aspect is conceived as a temporal element, but it is different from tense: Tense relates to the **time point** of the event or state, to its **temporal location**, whereas aspect relates to its **internal temporal structure** (for example its duration, repetitions, etc.), without being dependent on time (Dahl 1985:24, Comrie 1985:6, Cohen 1989:7, Bhat 1999:43). There are two main aspectual categories: perfective and imperfective. These can be divided into additional sub-categories. Studies have shown that not all languages have aspects, and those that have aspects do not necessarily have all known aspects (Comrie 1976, Dahl 1985, Bybee 1985, Bybee and Dahl 1989). Also, languages, which have aspects, usually make a distinction between perfective and imperfective aspects, and some languages also make a distinction between sub-aspectual categories (Bhat 1999: 46). The two main aspectual categories are detailed below.

3.3.2.1. Perfective

This aspect describes events, states or actions, which have a beginning, middle and end, a complete unit, without splitting it into details, as if observed from the outside (Comrie 1976:16; for a schematic demonstration see Figure 3-4 below). This aspect is the opposite of the imperfective aspect, which relates to the internal structure of the situation, see 3.3.2.2 below. An example for the perfective aspect in Biblical Hebrew (with a future time reference; Waltke and O'Connor 1990:512) is presented below.

(6) *kullam **niqbes`u ba?u** laX*

'all of them (your sons) **gather** (and) **come** to you' (Isaiah 49:18)

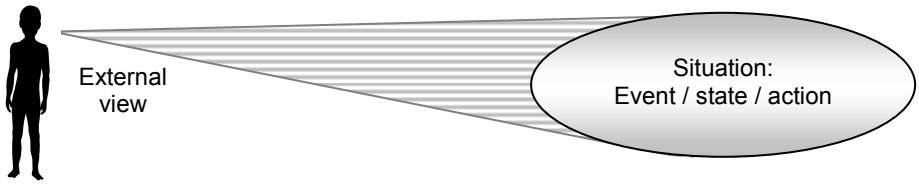


Figure 3-4: Perfective aspect – viewing a state or an action as a complete unit

3.3.2.2. Imperfective

This aspect relates to the internal structure of a situation, as if we observe it from inside (Comrie 1976:24; for a schematic demonstration see Figure 3-5 below). This can only happen when the action / state is not duration-less or punctual. The situation can contain a single event, action or state, which can be durative or repetitive in nature. Each part of the situation can independently describe a secondary state or action, while the latter can be classified as some type of aspects.

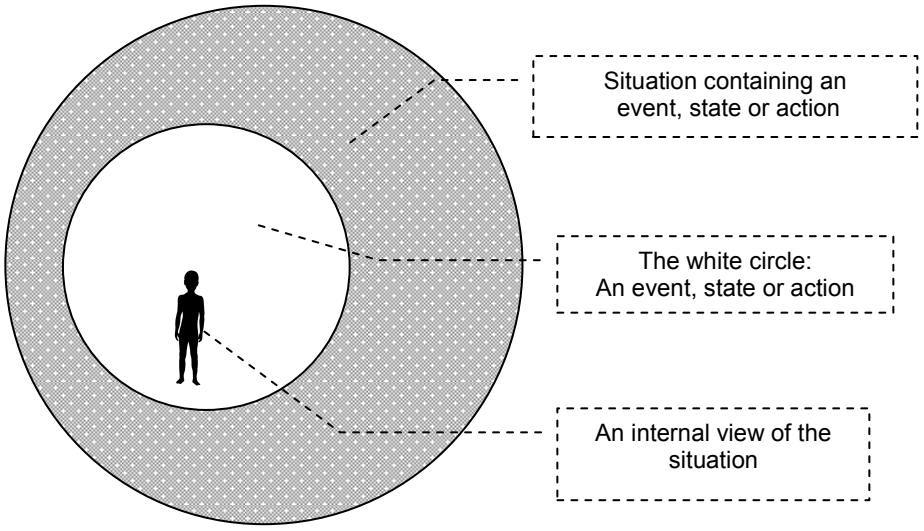


Figure 3-5: Imperfective aspect – relating to the internal structure of the situation

An example for the imperfective aspect in Biblical Hebrew (Waltke and O'Connor 1990:506) is presented below.

(7) *naħamu naħamu ʕami* ***jo:mar*** *ʔelohejXem*

'Comfort comfort my people your God **begins to say**' (Isaiah 40:1)

Thus, the **perfective** aspect represents the viewer's reference to the situation as one whole unit, without parsing it into details and without looking into its internal structure, as if the speaker observes it from an outside view. When parsing a situation into details, we are referring to its internal structure, so it is thus regarded as **imperfective**.

3.3.2.3. Discourse structure

Perfective and imperfective aspects are guided by discourse structure. In ongoing discourse reference is made to a sequence of events, actions and states (see definitions in 3.1.2 above), some of which are central, and constitute the "nucleus" or "skeleton" of this discourse (usually events), others are informative and constitute the background of the central events (usually states and actions). The "skeleton" events are termed foreground events. These events are usually sequential, they have a beginning and an end, and they are located on a time sequence, where the beginning of one event represents the ending of the preceding one. The informative actions and states are termed background events and serve as background of the central events. These add general information to the central events, but there is no need for them to be part of the sequence. They do not have to refer to time – they are always true, regardless of the central events (Hatav 1989:490, Longacre 1981:340-347).

3.3.2.4. Quantification vs. qualification of events

Aspects can be quantitative or qualitative. The quantification of an event describes the frequency of this event, regardless of its internal composition (Dik 1997a:236).

The following are examples for quantifying aspects:

(a) Semelfactive, which denotes a single-time event; this type of quantifying aspect describes a single-time event, which is momentive or punctual, being a subtype of the perfective aspect. Yet, like the aktionsart, this subtype of aspect is more lexical in nature. For example, the verb ***sneeze*** in English or its counterpart ***itateS*** 'sneeze' in Hebrew are semelfactive.

(b) Iterative, which denotes a repetitive, countable action. For example, the verb ***sniffle*** in English is iterative.

(c) Habitual, which denotes a repeating habit. For example, the English phrase ***used to walk*** is habitual.

(d) Durative, which denotes an event ongoing for a measurable period of time. For example, the English phrase ***keep going*** describes a durative action.

The following qualifying aspects were found in this research:

(a) Continuous, which denotes an event which lasts for a long time, but is not habitual, and we cannot count its repetitions. For example, the following phrase in Spanish is used to express the continuous aspect: ***estar haciendo*** 'to be doing'.

(b) Progressive, which is a sub-type of the continuous aspect, and denotes a dynamic action or an action in-progress. For example, the following expression in English is used to express the continuous aspect: *I saw him* ***walking***.

3.3.3. Mood

Mood is a linguistic realization of modality by different morphological means (Hengeveld 2004:1198). Modality is expression of the speaker's attitudes or opinions towards a situation (Jespersen 1924:313, Dahl 1985:26, Palmer 1986:2, 16, Asher and Simpson 1993:2536).

Modality can be parsed into sub-types, according to the modal target in the expression, i.e. the part of the expression that is affected by the modal expression. This part can be the predicate, predication or the whole proposition (Dik 1997a, Hengeveld 2004). The types of modality targets and their affected parts are detailed below (based on Hengeveld 2004 and Boland 2006):

(a) Participant-oriented modality – this type of modality affects the predicate, and describes the relation between a participant in the event and the realization of that event.

(b) Event-oriented modality – this type of modality affects the predication, and expresses the actuality of that event.

(c) Proposition-oriented modality – this type of modality affects the whole proposition, and expresses the personal attitude of the speaker towards that proposition.

Modality can be also parsed into sub-types, according to the modal domain, i.e. the source of evaluation for the event. The types of modality domains are detailed below (based on Palmer 1986:51, 96, Asher and Simpson 1993:2536, Sharbani 2001:3-4, Hengeveld 2004):

(a) Facultative modality – this type of modality is related to acquired capacities, and it does not necessarily entail the involvement of the speaker in the situation. An example in English is: *John can swim*.

(b) Deontic modality – this type of modality is related to a permission given by the speaker, where the speaker is necessarily involved in the situation. An example in English is: *You may leave now*.

(c) Volitive modality – this type of modality is related to the speaker's desire. As in the deontic type the speaker is necessarily involved in the situation. An example in English is: *She would rather not go to the party*.

(d) Epistemic modality – this type of modality is related to known facts about the actual world, i.e. the way in which the speaker expresses his understanding, assumptions or knowledge about a fact. The speaker is not necessarily involved in the situation he judges. An example in English is: *John may be in his office*.

(e) Evidential modality – this type of modality is related to the source of information in the expression. An example in English is: *John will be leaving soon*.

The combination of target and source types of modality yields fifteen options, out of which some are excluded due to their impossibility.

3.3.4. Tense, mood and aspect in the languages of the world

In the literature, TMA categories are usually classified into two groups; tense and aspect are considered to be one system, whereas mood is considered to be another, and linguistic behavior can be different between the two groups. Mood can be expressed by the whole proposition, as opposed to tense and aspect, which are expressed by the predicate only. Therefore, studies in different languages focus in most cases on tense together with aspect (see Comrie 1976, Dahl 1985, Bybee 1985, Bybee and Dahl 1989, Binnick 1991:131-132) or on mood (see Palmer 1986, 2001, Papafragou 2000), although a possible connection between aspectual and modal categories may exist (Fleischman 1995:519 ff). In this study, I will discuss each of the TMA categories separately, without combining two categories together.

Palmer in his books on mood (1986, 2001), defines the various kinds of mood and brings examples, mainly from English but also from other European languages (Danish, Greek) and Tamil. Papafragou (2000) refers to mood as problematic, because modal expressions allow us to talk about situations and states which do not exist, and may never happen. Assigning grammatical structures to hypothetical situations is problematic in her view. She basically adopts Palmer's division of mood into two types, epistemic and deontic, where the former represents conclusions drawn on the basis of existing testimonies, and the latter represents possibilities and needs of actions performed by existing agents (p. 3). Papafragou tries to characterize the mood – pragmatic interface in a language. She claims that mood is context-dependent and that speakers may use the exact same expression to express different types of mood (p. 7, 206). Her examples, like in other books, are mainly taken from English.

Linguistic applications of tense, aspect and mood are different across languages. Yet, there are similarities between them in all languages, regardless of their genetic derivation. Comparative studies in several languages show that the linguistic realization of TMA categories can be widely different in different languages, where such categories exist. For

example, some types of aspect can exist as a linguistic category in one language, whereas in another language they do not exist at all and vice versa. The same is true for tense and mood. Yet, the relevance of these studies in spoken varieties is not studied very much (Bybee 1985, Dahl 1985, Bybee and Dahl 1989).

TMA categories in the above and additional studies (see also Vendler 1967) were carried out on verb systems of languages only, while other linguistic systems were not investigated.

3.4. The interaction between tense, mood and aspect

Tense, mood and aspect may interact in interesting ways that are dependent on the scope of the relationship between them. I will discuss these interactions using the framework of Functional Discourse Grammar, within which scope relations play a prominent role.

3.4.1. Introduction to Functional Discourse Grammar

Functional Discourse Grammar (FDG hereafter; Hengeveld 2006) is an adaptation of Functional Grammar (FG), which was originally established by Dik (1997a, 1997b), and describes the grammatical organization of natural languages (Dik 1997a:2). The theory is based upon semantic and pragmatic functions, since the grammatical organization of languages is determined by its communicative functions. Semantic and pragmatic functions are considered universal in languages, although different functions are used in different languages. The theory is meant to account for the relations between pragmatics, semantics and morphosyntax. Hence, it describes interpersonal communicative functions, semantic representations and expression forms. The relationship between cognitive and communicative factors and linguistic structure has been further developed in FDG. The FDG theory originates in communicative intentions and describes linguistic structure at the level of discourse acts (Boland 2006:25). FDG accounts for grammatical phenomena, such as narratives, discourse particles and discourse units which are smaller than

a clause, which can be explained only in the framework of the whole discourse, and not by using single clauses (Hengeveld and Mackenzie 2008:3-4).

A linguistic expression in FDG denotes what the speaker talks about and the reason why (s)he talks about it. Each expression is analyzed at four different levels: an interpersonal, a representational, a morphosyntactic and a phonological level (Boland 2006:26).

Discourse acts are the basic units of analysis in FDG, which presents discourse structure in a top-down organization, starting with the speaker's intentions and ending with articulation (Hengeveld and Mackenzie 2008:1). FDG is ordered in four layers, each representing a level of discourse organization (Hengeveld and Mackenzie 2008:15-18, Boland 2006:26):

- Interpersonal level: This layer represents the relations between speech act participants and the contents of the conversation, and is ***pragmatic*** in nature. It accounts for the communicative intentions of the speaker.
- Representational level: This layer represents semantic categories of linguistic units, and is ***semantic*** in nature. It accounts for the semantics of the expression contents, which is transferred from speaker to addressee.
- Morphosyntactic level: This layer represents the analysis of a linguistic unit according to its morphosyntactic constituents. It contains the language-specific elements and templates used by the speaker to express the semantics and pragmatics of his/her intentions.
- Phonological level: This layer contains the phonological representation of the discourse contents and constitutes the interface between the formal structure and the actual articulation.

Being semantic, the representational level of the FDG model is the relevant part for TMA. The semantic structure of an expression is subdivided into four hierarchically-ordered layers, serving different

communicative functions (Boland 2006:26, Hengeveld and Mackenzie 2008:138-181):

- When producing speech, the speaker introduces a property or a relation applied to one or more individuals. This layer describes a situational concept, a set of possible events.
- The description of the set of events is related by the speaker to the specific event that he/she has in mind. This layer locates the event in a real or hypothesized world.
- A thematically coherent set of events constitutes an episode. This layer represents thematically coherent sets of events showing continuity of time, location and participants.
- A propositional content is transferred by the speaker to the addressee. This layer presents the content of the speech act (Hengeveld 1989:130). TMA Expressions are considered as operators modifying the different layers.

TMA Expressions are considered as operators modifying the different layers.

TMA categories apply to different layers, they have different scopes, and they contribute to different communicative functions. The different layers at the representational level are described below in more detail (Boland 2006:26).

3.4.1.1. Predicates and arguments

The most basic communicative function of the semantic structure of an expression is to describe the situation properly. This is achieved by the first layer of an expression, which contains two semantic units: predicates and arguments. The predicate specifies a property or relation and the arguments stand for entities involved in the property or relation expressed by the predicate. The description of an event is thus compositional. It is universal that languages have predicate-argument structures, but it is language-specific when and how predicate and argument slots are filled to

describe an event in the real world. The lexical elements involved in the event are contained in the speaker's knowledge of the language. The speaker stores the form of the involved elements, and also information about their meaning, use and communicative function. For each element, its **quantitative valency** is specified, which is the number of involved arguments, i.e., the entities that are obligatory for the property represented by the element. The valency of the elements can vary, as the same element can require a different number of arguments in different contexts. The qualitative valency of the element is also labeled: Each argument is specified with a semantic function, which is the part that the argument plays in the situation. For examples see Boland 2006:27.

In order to describe an event, the speaker would select lexical items from his/her language-specific lexicon. These items would be the predicate, which denotes the central property in the described event, together with a specific number and type of arguments. The speaker would also select lexical items or structures which represent the entities participating in the property. The description of the situation in FDG is presented below. The notions are taken from Boland 2006:28.

$$(f_1: {}^{1} \text{ Lexical item}_{ß}) (x_1: \text{Lexical item}_{ß})_n$$

where f_1 is the main predicate; as the predicate can be a verb, a noun, an adjective or an adverb, ß represents the categorical status of the item, which serves as predicate: verb, noun, adjective or adverb. $(x_1)_n$ represents the number and type of arguments required by the predicate. Arguments can be either concrete individuals or abstract entities. The predicate-argument layer of the semantic structure does not describe a specific event, but rather a set of possible events. The description of the event(s) at this layer is not yet related to an event in the real world.

Speakers use different semantic units to obtain a proper description of a set of events. In addition to the predicate (*f*) and the arguments (*x*), there are also units which denote non-obligatory participants, e.g. a beneficiary or an instrument, as shown in Boland 2006:28.

[1] The colon stands for 'such that'

3.4.1.2. Predication

Not only possible events are included in an expression, but also their relation to an event or a situation that the speaker has in mind. Thus, the second communicative function of an expression is situating an event, and this takes place on a second layer, one containing the predication. The latter (represented by '*e*') denotes an event, which can be located in space, time or actuality. The event containing the predication is represented below:

$$e_1: [(f_1: \text{Lexical item}_ß) (x_1: \text{Lexical item}_ß)_n]$$

For an example see Boland 2006:29.

3.4.1.3. Episodes

Episodes are thematically coherent sets of states-of-affairs (events) at a yet higher layer of semantic organization (Hengeveld and Mackenzie 2008:142). An episode consists of one or more events, showing continuity of time, location and participants (Hengeveld and Mackenzie 2008:157). It contains at least one event, while additional events may be provided with a semantic function. It may also contain modifiers and operators (see 3.4.1.5 below). An episode is represented as follows:

$$ep_1: [(e_1)….(e_{1+n}) [φ]]$$

where e_1 is an event, e_{1+n} is the additional (optional) events, and φ is the semantic function of the additional events. An example of an episode is presented below.

(8)
"The wind was blowing very hard as Pooh neared Piglet's house.
"Happy Windsday, Piglet," Pooh called.
"Well it isn't very happy for me," replied Piglet.
The wind kept blowing back all the leaves that Piglet was trying to sweep away."

(Milne, A.A., *Winnie the Pooh and the Blustery Day*, Hinkler Books, 2004).

This sequence of events has continuity of time, location and participants, and therefore constitutes an episode.

3.4.1.4. Proposition

While speaking, we also transfer mental content to an addressee or addressees. The fourth layer of the representation is meant to express the transferred content of the expression. The semantic unit in this layer is the whole proposition, which represents a potential fact or propositional content. The propositional content is contained only in the speaker's mind, as opposed to an event, which is part of the actual world and exists regardless of the speaker and his/her speech. A propositional content is evaluated in terms of true or false; the speaker may express his/her attitude towards the propositional contents. The proposition is represented below by the variable 'p', which is restricted by a predication:

$$p_1: [ep_1: [e_1: [(f_1: Pred_ß) (x_1)_n]]]$$

The variables *f*, *e*, *ep* and *p* are used in layers 1, 2, 3 and 4 respectively, to describe a property (*x* represents the arguments of that property), an event, an episode and a propositional content, respectively. The four layers together constitute the underlying semantic representation. In fact, these variables represent semantic units, which denote types of entities. The semantic units are hierarchically ordered, with lower layers serving as components of higher layers: the predicate and its arguments are part of the predication; the predication is part of the episode; the episode is part of the proposition. Therefore, entities are

more abstract and semantic units are more complex as one goes to higher levels.

To summarize, the semantic representation of an expression is based on communicative functions, which are accomplished by the expression and by the semantic specification of the latter. The semantic units are universal, i.e., the predicate, predication, episode and proposition can be expressed in all languages. Yet, each language employs different lexical and grammatical elements to express these units (Boland 2006:30).

Figure 3-6 below summarizes the organization of the semantic structure of predicate, predication, episode and proposition. The arrows represent the scope of each layer over the previous layer, which appears on its left. The lower row shows the semantic function that is represented in the frame of the layer.

f (predicate)	**e (predication)**	**ep (episodes)**	**p (proposition)**
Property (+arguments)	event	sets of events	propositional content
←	←	←	
describe a property	situate the property	organize a set of events	express attitudes

Figure 3-6: Layers of discourse organization

3.4.1.5. Modifiers

The four layers of the representational level, then, are the ingredients of semantic structure. They constitute semantic units, which denote the following functions:

- The predicate (*f*) represents a property, and its arguments (*x*) represent the entities that are involved in that property; this is the first layer.
- The predication (*e*) represents the location of the predicate in an event; this is the second layer.

- Episodes (*ep*) represent sets of events, having time – location – participant continuity; this is the third layer.
- The proposition (*p*) represents the content of the expression; this is the fourth layer.

The represented entities in each layer can be modified by lexical or grammatical elements, such as adverbial constructions, periphrases, inflections, particles or auxiliaries. These elements are called 'modifiers'. There is not always a clear boundary between lexical and grammatical elements, and they constitute the two ends of one continuum. Grammatical modifiers have a more general meaning, whereas lexical modifiers have a more specific one. For example, the English past tense marker ***-ed*** indicates that the event is located before speech time, but it does not specify exactly where in time it is located. On the other hand, lexical time expressions representing the past provide specific time location. Such expressions are, for example, yesterday or two weeks ago.

In FDG, grammatical modifiers are termed 'operators', and lexical modifiers are termed 'satellites'. In the semantic representation they are represented by the symbols π and σ, respectively. Since tense, mood and aspect are grammatical, and not lexical expressions, they constitute grammatical modifiers, and are thus operators. Modifiers have targets, which are the semantic elements to which they refer. This semantic element can be the property of the predicate, the event of the predication, the set of events of the episode or the contents of the proposition. Modifiers in FDG are classified according to the scope of their modification. Modifiers are formally represented by the number of the layer to which they apply:

- π^f and σ^f represent the first layer and stand for grammatical and lexical modifiers of the predicate, respectively;
- π^e and σ^e represent the second layer and stand for modifiers of the predication;
- π^{ep} and σ^{ep} represent the third layer and stand for modifiers of the episode.
- π^p and σ^p represent the fourth layer and stand for modifiers of the proposition.

Languages have different sets of rules, which turn deep semantic structures into linguistic expressions. Morphosyntax and phonology play a central role during this process of expression, which is the means to express semantics and pragmatics. Each segment in the morphosyntactic and phonological organization of a language has either a deep semantic or pragmatic explanation, or may express cognitive factors.

As mentioned above, lower layers are components of the higher layers. Hence, operators at higher layers can be determiners of operators in lower layers. Also, several modifications may simultaneously apply to the same semantic unit, so that operators may interact within the same layer. Thus, the location of specific categories in a specific layer is determined by its semantic contribution to the expression.

An operator π^f is a grammatical expression in the first layer that modifies the description of the property related to the argument(s), without modifying the description of the argument(s) itself. It refers to the semantics of the element which represents the property, turning it into a complex property, which is then applied to the arguments. Predication operators (π^e) refer to situating the predication in a real or imaginary world (Boland 2006:32-33, Hengeveld 1989:134). Episode operators (π^{ep}) refer to the set of events; they can be expressed as temporal locations of the events. Proposition operators (π^p) refer to the presentation of the content, by evaluating it. They specify the speaker's personal attitude towards the

proposition, his commitment to its veracity or to the source of evidence (Boland 2006:32-33, Hengeveld and Mackenzie 2008:163).

3.4.1.6. Scope hierarchy

As mentioned above, lower layers in the semantic representation are part of higher layers, so that the layers are hierarchically ordered. The higher the layer in the hierarchy, the more complex is its semantic unit, and the more abstract is the entity it represents. The function of operators at each higher layer is cognitively more complex. TMA expressions are operators applying to different layers and thus have hierarchical relations.

The function of the first level operators (π^f) is the most required and the least redundant as compared to all other layers. In most expressions, the property constitutes important new information, and thus the modification of this property by π^f-operators is important for an appropriate description and understanding of the event. π^f-operators contain very specific information, which cannot be predicted from the context, and hence need to be expressed by linguistic means. Therefore, at higher layers the operators' functions become communicatively less crucial, and also constitute more redundant information.

It is accepted that with the widening of the scope, operators become more complex and more redundant. This means that operators with wider scope have more marked functions than operators with narrower scope. The following illustration is based on Boland 2006:34:

π^f-operator $\subset$[2] π^e-operator $\subset$ π^{ep}-operator $\subset$ π^p-operator

TMA systems of languages are expected to reflect the Scope Hierarchy presented above (Boland 2006:33-34).

Table 3-1 presents the crossover of TMA categories with FDG layers. It shows which TMA category is included in the frame of which FDG layer.

[2] '$\subset$' stands for: 'is less marked than'

Table 3-1: Crossover of TMA categories with FDG layers(*)

TMA category → FDG layer ↴	Aspect	Tense	Mood
π^{p}			Epistemic subjective (3.3.3(d)); Evidentiality (3.3.3(e))
π^{ep}		Absolute tense (3.3.1.1)	
π^{e}	Event quantitation (3.3.2.2, 3.3.2.4)	Relative tense (3.3.1.2)	Event-oriented modality; event perception (3.3.3(b))
$\pi^{'}$	Qualification; continuity (3.3.2.2, 3.3.2.4)		Participant-oriented modality (3.3.3(a))

(*) The numbers in brackets refer to the section number where these categories are defined

3.4.2. TMA interaction

Linguistic units are described in the framework of representational levels according to their semantic categories (Hengeveld and Mackenzie 2008:15). Thus, semantic domains are expressed by various grammatical categories, which appear in different levels of representation and both correlate and interact with each other. The correlation between TMA categories is presented by Cuvalay-Haak 1997:39, based on Hengeveld 1989:132. FG internal temporal constituency is grammatically expressed by predicate operators as a qualitative aspect (perfective or imperfective), without being dependent on outer events. Predication operators can express relative tense as representing (i) the time of occurrence, (ii) quantifying aspect, if it relates to the frequency of the occurrence, and also (iii) mood, when the actuality of the occurrence is expressed. In this case, outer events are referred to, as in the case of relative tense, which thereby must refer to the time point of another event. Episode operators locate the set of events of the episode in time, and thus express absolute tense, as seen in Example (8) above. Evidential and epistemic-subjective moods are expressed by proposition operators, where respectively either the source of the proposition or commitment to it is involved. The

proposition exists only in the speaker's mind and is not necessarily part of the outer world.

3.5. The expression of tense, mood and aspect

Tense and aspect are expressed by the predicate (Comrie 1976, Dahl 1985, Bybee 1985, Bybee and Dahl 1989, Binnick 1991:131-132). Some researchers claim that mood is expressed by the whole proposition (Palmer 1986, 2001, Papafragou 2000), whereas other researchers claim that modality can be parsed into sub-types, according to the modal target in the expression, i.e. the part of the expression that is affected by the modal expression. This part can be the predicate, predication or the whole proposition (Dik 1997a, Hengeveld 2004). Verbs are nuclei of propositions and in most of the cases serve as predicates. Some verb types are discussed below.

3.5.1. Lexical verbs

Lexical verbs represent most of the verbs in a language, and in any of their appearances would represent the same meaning, namely their lexical meaning.

3.5.2. Auxiliary verbs

An auxiliary verb is a verb that accompanies the main verb in a clause and helps to make distinctions in mood, voice, aspect, and tense. In many European languages the verbs 'be' and 'have' serve as auxiliary verbs. Examples from English:

(9) ***The boy eats breakfast*** – 'eat' is a lexical verb, which expresses a habitual action of eating.

(10) ***The boy is eating breakfast*** – 'eat' is the same lexical verb, which is preceded by the auxiliary verb 'be' to express a progressive aspect.

Lexical verbs, which denote a movement, direction or purpose, may turn into auxiliary verbs in some contexts, when having an infinitive complement, which does not refer to a place or a purpose (Olbertz 1996:26). Examples from English are presented below:

(11) ***The boy goes to school*** – 'go' is a lexical verb, which expresses a movement, and its complement (school) is a place.

(12) ***The conference is going to take place*** – 'go' is an auxiliary verb, whose complement (take place) is neither a place nor a purpose.

3.5.3. Verb constructions

Verb constructions are direct concatenations of two or more verbs. Olbertz (1996:27-31) defines three types of verb constructions in Spanish: constructions with auxiliaries, passive constructions and causative constructions. Of these three, SIH has only the first construction, as the Hebrew language is not favorable to and 'dislikes' passives, so that their use in the language is very infrequent, if at all (see section 4.2.2.1 and the results section 5). Also, causative verb constructions are basically not needed in Hebrew, because Hebrew has a verb pattern (***Hifil***) which denotes causative meaning. Integration of a root into this pattern yields the causative meaning.

3.6. TMA in subordinate clauses

Most languages allow various types of complement clauses, i.e. constructions in which a clause functions as a complement of higher lexical predicates (Alexiadou et al 2003:2). The type of complementation depends on a few criteria: the morphology of the predicate, the sort of syntactic relations that the predicate has with its arguments and the syntactic relation of the complement construction as a whole with the rest of the clause (Noonan 2007:54-55). TMA may be conditioned differently when appearing in a subordinate clause or in a main clause. For example,

pure modal structures can be redundant in subordinate clauses with a subordinating particle or word, which bears a modal meaning, such as ***if***. Therefore, in subordinate clauses, structures other than modal ones can be used when the subordinating particle/word has a modal nature. SIH, as observed in the tested corpus, presents the following main types of complementation:

3.6.1. Infinitive complements

These are cases where a verb construction contains an infinitive, which does not bear any inflection for person, number or tense (Noonan 2007:67). This type of complementation is quite widespread in Israeli Hebrew. An example is presented below. Infinitives in Israeli Hebrew can also stand alone. In such cases they usually fulfill nominal functions. Examples are found in this study too, but they are negligible in number.

An infinitive as a complement in Hebrew would usually be the second component in a verb phrase where the first component can be a verb, a modal verb or an adjective. This type of complementation is quite widespread in Israeli Hebrew. An example from the corpus is presented below:

(13)

eX i lo ***matsliXa leipateR*** *mimeni* | (N-1314a:134)
how she not succeed (***tslħ****-Hifil*-PTCP-F-SG) get rid (***pṭr****-Nifal*-INF) of me
'look how she does not succeed to get rid of me'

3.6.2. Complements with subordinating particles

These are cases where a verbal construction contains a subordinating particle and appears as an independent sentence or clause (sentence-like or s-like, see Noonan 2007:59). In Spoken Israeli Hebrew the most widespread subordinating particle is ***Se-*** 'that'. Additional subordinating particles, such as ***im*** 'if', ***ki*** 'because' and interrogative words, are also possible. This kind of complementation is also observed in this study. An

example is presented below. The subordinate particle ***Se-*** 'that' in Hebrew appears also in non-subordinate expressions with modal meaning, when followed by a prefixed form.

(14)

XaSavti <u>Se</u>iStaneti *letova* | (N-1314a:32)
Think (***ħšb***-*Qal*-SUF-1-SG) that change (***šnj***-*Hitpael*-SUF-1-SG) to good
'I thought **that** I have positively changed'

3.6.3. Concatenated complements

These are cases where a verb construction contains a series of verb phrases. Each of the verb phrases in such a series contains an inflected verb. No coordination or subordination marker links the series of verb phrases, and no special verb forms are used (Noonan 2007:65). This kind of complementation is found in Hebrew as well, although not as prevalent. An example is presented below.

(15)

aiti jaXol lilmod — (N-4-2a:101)
be (***hjj***-*Qal*-PRE-1-SG) can (***jkl***-*Qal*-PTCP-M-SG) study (***lmd***-INF)
'I could have studied'

3.6.4. Participle complements

Participles are adjectival or adverbial forms of verbs. As such, they cannot be the head of a construction, but rather serve as attributive adjectives (Noonan 2007:72). The term 'participle' was adopted in Hebrew, but it has undergone a change in meaning, and represents a slightly different notion, than its common traditional definition. Since participles in Hebrew present multi-functional forms, they can serve as adverbials and attributive adjectives, but also as verbs and nominals, and thus can be regarded as both heads of verbal complements and heads of nominal complements.

Complementation of participles, as they are defined in Hebrew, is presented below.

(16)

*ma at ma at **XoSevet*** / (N-3-22:25-26)
what you what you think (***ħšb***-*Piel*-PTCP-F-SG)
'what do you what do you think ?'

*Seani os- **mejatseR** dvaRim lo besedeR* /
that I d- produce (***jtsr***-*Piel*-PTCP-M-SG) things no ok
'that I produce wrong things ?'

3.6.5. Nominalized complements

These are cases where predicates become nominalized, and thus the corresponding complements have the internal structure of noun phrases (Noonan 2007:70). Hebrew basically allows verbless constructions, but these constructions are not necessarily nominalized verbs. Constructions with nominalized verbs in Hebrew can contain, for example, gerunds. Such constructions were not found in the corpus, and are therefore irrelevant to this research.

3.6.6. Relative clauses

Relative clauses are subordinate clauses which modify nouns or are embedded inside a nominal expression (Alexiadou et al 2003:2). This kind of complementation in Israeli Hebrew is usually preceded by the subordinating particle ***Se-*** 'that', the most common subordinating particle in Israeli Hebrew, rather than by a relative pronoun, found other languages. In fact, the subordinating particle ***Se-*** 'that' in Israeli Hebrew is parallel to all subordinating relative pronouns in other languages. An example is presented below. In rare cases, Israeli Hebrew (as well as other Hebrew layers) allows relative clauses with no subordinating particle. This kind of relative clause would usually appear in written literary variations of the language. No such constructions were found in this study.

(17)

*ani **ikaRti** miSei beaRtsot habRit* | (N-4-2:103-104)
I know (***nkr**-Hifil*-SUF-1-SG) somebody (F) in the United States
'I knew somebody in the US'

***Selamda** et ze* ||
who study (***lmd**-Qal*-SUF-3-F-SG) that
'who was studying this (subject)'

3.6.7. Adverbial clauses

Adverbial clauses are subordinate clauses which modify verbs or larger non-nominal units and serve the same function as adverbs (Givón 2001:330). This kind of complementation is preceded by a variety of subordinating particles, denoting various meanings, such as conditionals, purposes, reasons and the like. Examples of such particles are ***im*** 'if', ***ki*** 'because' as well as interrogative words. An example is presented below.

(18)

*az **im** **aita** **kotev** beet mijamin lesmol* | (N-3-22-d:243-247)
so if be (***hjj**-Qal*-SUF-3-F-SG) katav (***ktb**-Qal*-PTCP-M-SG)
in pen from right to left
'so if you used to write with a pen from right to left'

kol adjo |
all the ink
'all the ink'

*ze **aja** keset im djo* |
it be (***hjj**-Qal*-SUF-3-M-SG) inkstand (SG) with ink
'it was an inkstand with ink'

ajta** **nimRaXat |
be (***hjj**-Qal*-SUF-3-F-SG) smear (***mrħ**-Nifal*-PTCP-F-SG)
'used to be smeared'

az laXen ***itXilu*** *et ze mitsad smol* ||
so therefore start (***tħl****-Hifil*-SUF-3-PL) [direct object marker] this from side left
‘so this is why they started it from left’

4. Hebrew, Spoken Israeli Hebrew and the Hebrew verb system

4.1. Hebrew and Spoken Israeli Hebrew

'Hebrew language' is a broad term, which includes Hebrew as it was spoken and written in different periods of time and as it is spoken and written today. From a diachronic perspective, the Hebrew language can be divided into several historical periods, as will be described below:

- Biblical Hebrew: Biblical Hebrew represents mainly written texts from a limited period of time (approximately 12 to 6 century BC), but there is evidence according to which Biblical Hebrew also had spoken varieties (Saenz-Badillos 1993:52).
- Mishnaic Hebrew: Mishnaic Hebrew is dated between the first and fourth centuries. Like Biblical Hebrew, it had a written variety, originally based on Biblical Hebrew, but with adjustments to Aramaic, spoken at that time. It is also claimed to have had some spoken varieties (Saenz-Badillos 1993:164).
- Medieval Hebrew: Medieval Hebrew is dated between the 7th and the 15th century. It was not an independent entity, but rather a mixture based on forms both from Biblical and from Mishnaic Hebrew (Saenz-Badillos 1993:51-52, 204). These varieties were developed by Jewish writers, and have linguistic characteristics that are dependent on the writer's social and cultural background, and on the author's literary needs (Saenz-Badillos 1993:204, Kuzar 2001:129).
- Modern Hebrew: Modern Hebrew is defined differently by different scholars. Saenz-Badillos (1993:269) uses the term 'Modern Hebrew' and mentions that Modern Hebrew is also divided into periods, of which the latest one is called Israeli Hebrew. He calls the first sub-period of Modern Hebrew 'the period of transition', and mentions that

some scholars (without mentioning names) consider this period as beginning in the sixteenth century, when Hebrew started to be used as a language for plays and written documents with some adjustments to modern needs. The next sub-period of Modern Hebrew begins in the nineteenth century, and Saenz-Badillos prefers to refer to it as Modern Hebrew. Modern Hebrew is the term used also by Coffin-Amir and Bolozky (2005), Berman (1978), and Schwarzwald (2009:61) when addressing the latest Hebrew version spoken in Israel. As mentioned above, Saenz-Badillos considers Modern Hebrew as beginning at the end of the nineteenth century, simultaneously with Jewish settlement in Palestine. Since the Jewish settlers in Palestine had different backgrounds and they spoke a variety of languages, the only communication system they could use was Hebrew, in which they were all to some extent knowledgeable. Many changes and innovations were needed in order to turn Hebrew into a language for daily communication. The most remarkable change was in the creation of new words, which aimed at adapting the language to everyday needs (Saenz-Badillos 1993:270). Hebrew was officially recognized in 1922 as one of Palestine's official languages. With the establishment of the State of Israel, Hebrew was announced as the country's official language, together with Arabic. Since Hebrew was the teaching language in schools, children started speaking Hebrew as their main language, and it slowly acquired native speakers, turning it into a mother tongue. Consequently, the number of Hebrew native speakers grew quickly, and a new variety of the language was developed. This process was associated with debates regarding the characteristics of the language. Some scholars supported the direction of the language by normative approaches. It was finally decided to use the grammar of Biblical Hebrew as the basis of the new Hebrew variety, with some components based on Mishnaic Hebrew, such as syntactic structures and the verbal tense system, although the latter also included Biblical Hebrew structures. The instruction of Hebrew in schools was strict and followed the normative approach (Saenz-Badillos 1993:272-273). Rosen (1977:17), as opposed to Berman, Coffin-Amir and Bolozky,

and Saenz-Badillos, rejected the term Modern Hebrew, since linguistically, he claimed that 'modern' should represent a linguistic entity, which should command autonomy towards everything which preceded it, while this is not the case in Hebrew.

- Other proposed names: Rosen (1977) reviews the identity of Hebrew from the nineteenth century (p. 15-29). He details the names, which were proposed for Hebrew, and explains why they were accepted or rejected. He rejects the term Neo-Hebrew, because the prefix 'neo' was used previously for Mishnaic and Medieval Hebrew (p. 15-16). He also rejects the term Modern Hebrew, as mentioned in the previous paragraph. Rosen also advocated Spoken Hebrew as one of the possible proposals. This term emphasizes the fact that Hebrew became spoken as opposed to its previous varieties, even though its writing system resembles that of the classical language. But he insists that many structural and functional characteristics of written Hebrew are similar to their parallel spoken varieties, and rejects this term as well (p. 18). Israeli Hebrew, according to Rosen, is the most common and widely accepted term, because it represents the non-chronological nature of Hebrew, as well as its territorial independence (p. 18). Rosen adopts the term Contemporary Hebrew from Tene (1968) for its neutrality, and suggests the broadening of this term to Contemporary Israeli Hebrew (p. 19). After the Second World War speaking Hebrew turned into the standard. This is also the standard that is taught in Hebrew schools today in Israel and outside the country as well.

In this study I use the term Israeli Hebrew, which refers to the language spoken in Israel. It is further sub-classified as Spoken Israeli Hebrew, for the reasons detailed below.

Israeli Hebrew has become a spoken language at the beginning of the twentieth century. It is mostly agreed that until that time Hebrew was not a dead language, since it was used in prayers, as well as in secular literature and formal correspondence, although it did not have native speakers, and it was not used for everyday communication. Therefore, the

term ‘emergence’ is preferred over ‘revival’ to describe the process of Hebrew becoming a spoken language and having native speakers (Izre’el 2002b:217-218). Yet, there is no consensus on this issue.

The genetic connection between Israeli Hebrew and previous layers of Hebrew has been controversial among researchers. Wexler questions the classification of Israeli Hebrew as a Semitic language (1990). He opposes Hebrew ‘revival’ theories and claims that Hebrew from the nineteenth century onwards is a newly created language, based on Slavic languages, mainly Yiddish[1], with some additional impact from German, English, Spanish and French. This is because it leans to a more Indo-European semantics, some syntactic relations, as well as vocabulary. Horvath and Wexler (1994) claim that the verb system of Israeli Hebrew is heavily affected by Yiddish, and that it is mostly European rather than Semitic in the semantic roles of its patterns (p. 250-257). According to these views, Israeli Hebrew is a new language rather than a revived one. Zuckermann (2006) argues that Israeli Hebrew, which he refers to as ‘Israeli’, is a result of a hybridization process. According to his theory, Israeli (Hebrew) is a hybrid language that contains elements both from Semitic and from Indo-European languages. He claims that there were two main contributors to the establishment of Israeli (Hebrew), which were Yiddish and Hebrew in its earlier forms. He suggests that secondary contributors were also involved in the process, and these were European languages and Arabic (Zuckermann 2006:58-59). Zuckermann claims that most morphological forms of Israeli are Hebrew, and thus Semitic, whereas its phonology, including syllable structure and intonation, is European (2006:60-61). He also refers to Israeli (Hebrew) as a new language. Izre’el considers Israeli Hebrew Semitic, but one which emerged by creolization-like processes, and that is characterized by a large European impact (1986, 2002b:228, 232, 2003:88-89). He also calls it a new language, as opposed to a ‘revived’ one, and classifies it as Semitic. Other scholars also compare the emergence of Israeli Hebrew to the process of creolization (Bar-Adon 1965:84, 1975:42, Ben-David 1985:165). Kuzar (2001:135-136) conceives

[1] Wexler claims that Yiddish is also a Slavic language.

Israeli Hebrew as a mixture of components originating in different sources, some of which resemble creolization processes. The morphological component of Israeli Hebrew, as well as the mechanism of lexical innovations, is based on Biblical and Mishnaic Hebrew. Israeli Hebrew phonology, he claims, comes from Yiddish. Other components, mainly vocabulary and syntax, represent European languages, in particular Yiddish, but also Russian, French, German and English. Kuzar also prefers the term 'emergence' to 'revival', thereby agreeing that Israeli Hebrew is a new language.

Rosen (1977:24) considers Israeli Hebrew a Semitic language, having inherited Semitic means of expression in categorical systems, where the latter resemble European languages. By that, he agrees to the term 'revival', arguing that the incorporation of inherited Semitic means of expression into Israeli Hebrew constitutes its revival process. Saenz-Badillos (1993:277) states that Israeli Hebrew morphological structure and basic syntax are pure Semitic, and on that basis agrees that Israeli Hebrew is a Semitic language.

Israeli Hebrew, like other languages, also has subtypes characterized by different registers and ways of communication. Subtypes are influenced by ideas about norms and standards. Examples of such subtypes are:

- Normative Hebrew: Normative Hebrew is a form of looking at the language as based on strict rules of grammar, which are defined by the historical layers of the language. Normative Hebrew nowadays is governed and directed by the Academy of the Hebrew Language (see http://hebrew-academy.huji.ac.il/) and it has been used as a basis to teach the language in schools, and its use in newspapers (a trend that has been abandoned in the last decade or two) and on radio and television. Some of the language varieties that are mentioned below rely on the normative rules and try to follow them. These are mainly Literary Hebrew and school teachers' Hebrew and sometimes courtroom Hebrew and Hebrew of the media, excluding the newspapers. The Academy of the Hebrew Language produces new

words in Hebrew, either for existing terms, as substitutes for loan words, or for new terms. The Academy of the Hebrew Language also publishes its decisions regarding Hebrew language patterns and structures in its quarterly journal *leshonenu laam*[2]. The decisions are based on historical rules of Hebrew, as well as on some spoken standards[3]. In many cases, the decisions of the Academy of the Hebrew Language are only written norms, which are not in use in the spoken variety. In other cases, the decisions are well accepted among Israeli Hebrew speakers, and are integrated into the language. There is no detectable pattern as regards the question which words are well accepted and which are not, and it is hard to predict which word will eventually integrate into the language and which will not. Rosenthal (2001:10-12) claims that the normative approaches did not manage to dictate daily speech, because they started inhibiting the development of the language. This was in particular salient as compared with the development rate of technology, which entailed the need for new technological notions in the language. The spoken standards came to the fore in the last three decades of the twentieth century, and started taking control over the dictated norms. Israeli authors initiated the use of spoken standards in their writings. Slang dictionaries began to appear. The spoken language had acquired a more respected status. The media and journalists commenced using spoken norms as well, which had a great impact on the language. New words were still produced by the normative bodies, but they were less and less accepted by the public. The speakers themselves produced the words and terms they were using. In the last thirty years, out of the many words, which were absorbed in the language, only a few were invented by official language bodies. In order to be accepted into the language, these usually need to answer a widespread and important need, and their foreign counterparts have to be inconvenient for use in Israeli Hebrew. This happened, for example, in computer technology,

[2] *Leshonenu laam* is a popular periodical for the Hebrew Language, issued by the Academy of the Hebrew Language

[3] Spoken standards are language forms that are very common in speech, but are not necessarily normative

when the Hebrew words ***XomRa*** and ***toXna*** replaced their English counterparts 'hardware' and 'software', respectively. In other cases, words, which were invented by official language bodies, were rejected by the speakers. For example, the word ***matsle*** 'barbecue' was announced by the Academy of the Hebrew Language a few years ago as the Hebrew term for ***mangal***, which originally comes from Arabic ***manqal***, having the same meaning. The suggested Hebrew word is based on a combination of a root (***tslj*** 'roast') and a pattern, like many other Hebrew words. The most dominant meaning of the suggested pattern is an instrument, which perfectly fits its meaning. Yet, this word was not accepted among Israeli Hebrew native speakers, and was not accommodated in the language; the word ***mangal*** is still the only word used in the spoken language for 'barbecue'. Furthermore, this word is so rooted in the language, that it was developed further into a verb ***mingel*** 'to barbecue', combining its consonantal skeleton and integrating it with a verb pattern. An example for the opposite process is the word ***kaletet***, which was suggested by the Academy of the Hebrew Language for the commonly used loan word ***kaseta*** 'cassette' in the tape-recorder and video-player era. This word was also based on a combination of a root (***klṭ*** 'absorb, comprehend') and a pattern, whose most dominant meaning is names of illnesses, which appeared to be a quite strange choice. For an unexplained reason, this word was well accommodated and commonly accepted, and the word ***kaseta*** disappeared from the spoken language completely. Appendix 3 shows the distance between the Academy of the Hebrew Language and the spoken language. Although it presents vocabulary, and not grammatical structures, the gap between the authorities and the native speakers is very clear. This gap is also preserved when grammatical structures are involved. The appendix is meant to serve as an indicator exhibiting this gap.

- Literary Hebrew: the Hebrew of literature, written until the late eighties to the early nineties of the twentieth century. This is a written form of Hebrew, usually perceived as a high language, which is different from the spoken variety, as well as from more recent literary works.

- Literary Israeli Hebrew: the Hebrew of literature, written from the mid nineties of the twentieth century onwards. This type of Hebrew includes newer structures and vocabulary, and differs from one author to another. It always appears in a written form.
- School teachers' Hebrew: This type of Israeli Hebrew is used by school teachers in Israel. It is characterized by a tendency to normativity, a higher register of speech and a different intonation than the standard speech. It is produced mostly via the spoken channel.
- The Hebrew used in the media: This type of Hebrew is written in journals and newspapers and is also spoken on radio and television. This type can have both written and spoken forms; the former, as mentioned above, would appear in journals and newspapers, while the latter would be used on radio and television programs, sometimes as speech read out from paper, sometimes as pre-planned, semi-spontaneous speech.
- Courtroom Hebrew: This type of Hebrew is characterized by juridical contents, and can appear both in spoken and in written forms. Trials are held using the spoken variety of this type of Hebrew, whereas in court protocols and verdicts the written variety is used.

Most of the available literature on Israeli Hebrew refers either to written forms of Hebrew or to normative forms of the language, and hardly deals with spoken forms which is the more natural and spontaneous language form used for ordinary communication.

This research deals with Israeli Hebrew in its spontaneously spoken form, which is naturally produced by Israeli Hebrew native speakers to communicate with each other in everyday life during informal events. It will be referred to as Spoken Israeli Hebrew (SIH hereafter). This is a natural variety of the language, and it is not governed by a specific context, as opposed to other varieties of Hebrew, in particular written varieties, and also some other spoken varieties, which basically have specific contexts of use and are not completely natural. Such contexts can be juridical contexts, television interviews, etc. SIH is used in a variety of occasions

and subjects, formal and informal. Being natural and spontaneous, SIH often does not follow the Normative Hebrew rules, and it contains a mixture of slang expressions and street language, together with higher register phrases and spoken standards, depending on the context. All these varieties constitute SIH daily speech, and are treated in this research as one complex. Since native speakers know their language best, their speech is analyzed without being corrected according to any normative approach, so as to gain an understanding of what the spoken language system is all about, and how it is different from the norm.

4.2. The Hebrew verb system

4.2.1. General

A wide range of literature has dealt with the verb system of Hebrew over the years. Most of it presents diachronic descriptions. A more traditional view of the language is found in textbooks (Gesenius 1909, Blau 1967, 1975, Glinert 1994, Schwarzwald 2001). The descriptions in the literature refer to all Hebrew periods (Biblical, Mishnaic, Modern-literary). I found only one research study, which points at 'inconsistencies in the verb tenses' of spoken Hebrew (Borochovsky Bar-Aba 2008:267-269), but does not provide a detailed analysis or an explanation for the 'inconsistencies'. Also, the examples in this research, although taken from spoken Hebrew, are presented in traditional pronunciation (***'ani 'eša'er*** 'I will stay' as opposed to the spoken form: ***ani iSaeR***). None of the mentioned literature deals with the verb system of Spoken Israeli Hebrew, which seems to be thoroughly different from what is described in the literature, thoroughly. There is only one book that is concerned explicitly with the spoken variety of Israeli (Hebrew) at all (Zuckermann 2008).

Hebrew is considered a derivational morphology language, characterized by synthetic structures. Words in the language are constructed by a combination of a root and a pattern (see definitions below). The root is consonantal, whereas the pattern contains vowels, and sometimes can also contain consonants in addition to the vowels. No

pattern contains only consonants, and all patterns must contain vowel(s). Consonants in a pattern are optional and will always constitute an addition to the vowels. The pattern has reserved locations in-between the vowels (and consonants, if present), where the consonants of the root should be integrated. Roots are the main building blocks of Hebrew morphology, and most of the words in Hebrew are based on the combination of a root and a pattern. Combinations of roots and patterns in Hebrew are presented in Examples 1-4 below.

(1) Combination of roots and patterns in the verbal and nominal systems of Hebrew

ktb is a consonantal root. It consists of three radicals, ***k***, ***t*** and ***b***, bearing the general meaning of 'write'.

Table 4-1 below presents four Hebrew verbal patterns; the dominant meaning of each pattern is given next to it; $\boldsymbol{C_i}$ represents a root consonant, and stands for the first, second and third radicals.

Table 4-1: Patterns of the Hebrew verb system

Pattern	Meaning	comments
$C_1aC_2aC_3$	Neutral	
$hiC_1C_2iC_3$	Causative	
$hitC_1aC_{2a}(C_{2b})eC_3$	Reciprocal / reflexive	The pattern also requires a duplication of the second radical of the root in the orthography, as well as an insertion of the consonant *t* at the beginning.
$C_1iC_{2a}(C_{2b})eC_3$	Agentive	The pattern also requires a duplication of the second radical of the root in the orthography.

The above ***ktb*** root in these four patterns in the spoken language looks as follows. For simplicity reasons, all forms represent suffixed forms, third person, masculine, singular. Phonological variants are

mentioned, but are not discussed, as they are outside the scope of this study.

katav 'write'; ***b*** is realized as ***v***

iXtiv / eXtiv 'dictate' (literally: make someone write something); ***k***, ***b*** are realized as ***X***, ***v***, respectively. ***h*** is not pronounced in Israeli Hebrew speech. Usually, there is a vowel lowering of ***i*** to ***e*** in the first syllable.

itkatev 'correspond' (literally: wrote to one another); the second ***t*** should have been doubled according to the traditional approach, but double (geminated) consonants in Israeli Hebrew speech are pronounced as single consonants. ***h*** is not pronounced in Israeli Hebrew speech.

kitev / Xitev 'cc, copy' (literally: send someone a copy) or 'subtitle'; the second ***t*** should have been doubled according to the traditional approach, but double (geminated) consonants in Israeli Hebrew speech are pronounced as single consonants; ***b*** is realized as ***v***; ***k*** is realized as either ***k*** or ***X***.

Table 4-2 below presents some nominal patterns; the dominant meaning of each pattern is given next to it.

Table 4-2: Patterns of the Hebrew nominal system

Pattern	Dominant Meaning	Abbreviated form / comments
mi$C_1C_2aC_3$	Locative	LOC
ha$C_1C_2aC_3a$	Nominal action	ACT
C_1C_2óC_3et	Penultimate stressed syllable family	GEN – general. This is a collection of nouns, having the stress on the penultimate syllable, as opposed to Israeli Hebrew default stress on the last syllable. These nouns have the same morphological behavior, but they do not share any common meaning.
$C_1aC_2C_3$an	Profession	AGN
me$C_1uC_{2a}(C_{2b})aC_3$	Beneficiary	BEN – a passive participle pattern

The above ***ktb*** root in these five nominal patterns in the spoken language looks as follows:

miXtav	'a letter'; ***k***, ***b*** are realized as ***X***, ***v***, respectively.
aXtava	'a dictation'; ***k***, ***b*** are realized as ***X***, ***v***, respectively; ***h*** is not pronounced.
któvet	'an address'; ***b*** is realized as ***v***; the penultimate syllable is stressed
katvan	'a typist'; ***b*** is realized as ***v***.
meXutav	'an addressee'; ***k***, ***b*** are realized as ***X***, ***v***, respectively; geminated consonants, representing double pronunciation, are pronounced as single consonants.

Examples 2-4 show verb formation from foreign words in Israeli Hebrew.

(2) Extraction of roots – (i)

The process of extracting roots from foreign words is very common in Israeli Hebrew, and works in all fields, but is most dominant in professional jargons. For example, the debugging process, which is used in computer programming, underwent the same process, as follows:

d / ***b*** *U* ***g*** 'debug' (English)

→ take out the consonantal skeleton ***dbg***, form a root

→ take the new root ***dbg*** and put it into the *Piel* pattern $C_1iC_{2a}(C_{2b})eC_3$

→ form a new verb ***dibeg*** 'debug' (gemination of the second consonant is eliminated in speech)

The consonantal skeleton of this word fits perfectly into Hebrew, as it has exactly three radicals. Thus, the construction of the verb ***dibeg***

'debug' in Hebrew was a relatively simple task. Yet, other new verbs may be more difficult to cope with.

(3) Extraction of roots – (ii)

Hebrew has the abstract noun ***dijun*** 'discussion' and the verb ***dan*** 'to discuss' (root ***djn***, the second radical is a weak consonant and is thus covert). But the more widespread word for 'discuss' in everyday speech is not ***dan*** but rather ***diskes***, which was formed by taking out the four dominant consonants from the English word ***discuss*** (***d***, ***s***, ***k***, ***s***) and putting them into a verb pattern in the following way:

d*I*sk*V*s 'discuss' (English)

→ take out the consonantal skeleton ***dsks***, form a root

→ take the new root ***dsks*** and put it into the *Piel* pattern $C_1iC_{2a}(C_{2b})eC_3$ → $C_1iC_2C_3eC_4$

→ form a new verb ***diskes*** 'discuss'

The ***Piel*** pattern actually enables four radicals in its deep morphological structure, which fits perfectly to this case. Thus, two different radicals were located in this pattern instead of duplicating the second radical.

As a result, Hebrew presents two co-existing verbs with apparently the same meaning. In fact, double verbs are not needed, unless there is some difference between them. Over the years, the original verb ***dan*** 'discuss' has turned into a higher-register verb, and is mostly used in courtrooms and in the media, or in teacher – student interactions. The verb ***diskes*** 'discuss' is the most commonly used in everyday language.

(4) Extraction of roots – (iii)

The word *fax* was introduced into Israeli Hebrew with the introduction of fax machines. The noun was borrowed as is from English, and is pronounced in Israeli Hebrew ***faks***. It was needed to form a verb, which would mean 'to fax'. The following steps would be expected:

f{ks ‘fax’ (English)

→ take out the consonantal skeleton ***fks***, form a root

→ take the new root ***fks*** and put it into the *Piel* pattern $C_1iC_{2a}(C_{2b})eC_3$

→ form a new verb **** fikes*** ‘to fax’

Apparently, this would be a classical process of creating a new verb, since the word ‘*fax*’ contains exactly three consonants. But there was a problem, as the word ***fikes*** already existed in Israeli Hebrew with the meaning of ‘to focus (a camera)’, which was constructed the same way from the English word ***focus***. The solution was to duplicate the last consonant of the triple skeleton and obtain the form below. This is one of the many strategies that Israeli Hebrew speakers use to integrate verbs into patterns.

→ duplicate the last radical of the root ***fks*** to receive the root ***fkss***

→ put the new root ***fkss*** into the pattern $C_1iC_{2a}(C_{2b})eC_3$ → $C_1iC_2C_{3a}eC_{3b}$

→ form a new verb ***fikses*** ‘to fax’

Like most of the new verbs in Israeli Hebrew, all the verbal examples present verbs in the *Piel* pattern. Yet, there are new verbs, which are integrated into the language via the *Hitpael* pattern, which also enables four radicals in its morphological deep structure. For example, the word ***istalbet*** ‘relax, have a good time’ in its combination with a particle as in ***istalbet al*** ‘make fun of’ was found in this research. This word was formed in the *Hitpael* pattern from the root ***slbt***, which was extracted from the word ***stalbet*** ‘relaxation’, originated in Arabic. This word has no counterpart in the *Piel* pattern. Its integration into the *Hitpael* pattern is probably due to the similarity between this pattern and the original word ***stalbet***, and similarly to the form ***iklik*** ‘to click’ which was discussed above.

Hebrew also displays analytical structures. This means that in some cases, words are constructed by an agglutination of a stem and an affix or an agglutination of two words. In many cases, the basic

stem or the agglutinated words can themselves be a combination of a root and a pattern, although in some cases the stems or words can be basic. The latter situation occurs in the nominal system, whereas the former situation occurs also in the verb system, where all verb stems are an earlier combination of a root and a pattern, see explanation below. For the manner of constructing words in Hebrew, see examples 5-7 below.

(5) Concatenated combinations of root + pattern and stem + affix in nouns:

ħšb is a consonantal root with the general meanings of 'think' and 'calculate'. ***maC$_1$C$_2$eC$_3$*** is a nominal pattern, which usually denotes instruments in Hebrew. The pattern contains the vowels ***a*** and ***e***, and the consonant ***m***. ***C$_1$***, ***C$_2$*** and ***C$_3$*** are the locations in the pattern, which are reserved for the consonantal root. Integration of the root into the pattern produces the noun ***maXSev*** 'computer' (***b*** is realized as ***v***), as shown in Figure 4-1 below:

Root:			X	S		b	
+			⇩	⇩		⇩	
Pattern:	m	a	C_1	C_2	e	C_3	
=	⇩	⇩	⇩	⇩	⇩	⇩	
Word:	m	a	X	S	e	v	'computer'

Figure 4-1: Integration of roots into patterns in Hebrew

This word is further used as a stem to formulate another Israeli Hebrew word by adding a suffix of diminution [stem]-***on*** as shown in Figure 4-2 below:

Stem:	+	Suffix:	=	Word:
maXSev 'computer'	+	**on**	⇨	***maXSevon*** 'calculator'

Figure 4-2: Inflectional word formation in Hebrew based on a derivational stem

(6) Combination of a stem and a suffix:

milon 'dictionary' is an Israeli Hebrew word, which was constructed from the word ***mila*** 'word' (the stem) and a suffix [stem]-***on***, which means either diminution or a group of items[4]. The resulting word served again as a stem in the construction of the new word ***milonit*** 'a digital handy dictionary', by the addition of another suffix [stem]-***it***, which denotes also diminution. The process progressed as shown in Figure 4-3 below:

Stem:	+	Suffix:	=	Word:	
mila 'word'	+	**on**	⇨	***milon*** 'dictionary'	⇨
⇨ ***milon*** 'dictionary'	+	**it**	⇨	***milonit*** 'a digital handy dictionary'	

Figure 4-3: Inflectional word formation in Hebrew

(7) Combination of two words:

Israeli Hebrew has the word ***RamzoR*** 'traffic light', which was constructed from the two words ***Remez*** 'hint, signal' and ***oR*** 'light' as shown below. The word ***Remez*** 'hint, signal' was originally a combination of the root ***rmz***, carrying the basic meaning of 'hint, signal', with one of the patterns belonging to the penultimate stressed syllable family. The word ***oR*** 'light' is basic, and cannot be further parsed into components.

Remez 'hint, signal' + ***oR*** 'light' ⇨ ***RamzoR*** 'traffic light'

[4] The word ***mila*** was originally formed out of the root ***mll*** which carries the meaning of 'wording' integrated into a pattern.

The vowel change ***e*** → ***a***, and the omission of the second ***e*** vowel in the obtained word are phonologically governed, and are thus not discussed here.

The basic forms in the verb system of Hebrew are purely synthetic, i.e. verbs are always constructed by a combination of a consonantal root (see below) and a pattern (Blau 1967, 1975). The forms obtained constitute a stem, to which affixes are attached to obtain more specific details, such as gender, number and person, as well as aspect and mood[5]. The agglutination of these affixes can sometimes cause phonological changes in the stem, but these are out of the scope of this study, and hence will not be discussed here.

In order to form a Hebrew verb, two components are needed: A consonantal root and a pattern. The consonantal root is a building block of the verb and noun systems in Hebrew. It usually consists of three radicals, but in some cases can also consist of four, five or even six radicals. Five or six radicals in a root are relatively rare, and are mainly limited in use to professional jargons. But four-radical roots are quite widespread in Israeli Hebrew. Some roots may seem to have only two radicals, but this primarily happens when one of the three radicals is a weak consonant, such as a semi-vowel, a duplicated root consonant or a glottal consonant, which tends to be dropped in most of the locations where it appears (Aronoff 1994:190). Radicals usually represent a general meaning, and radicals by themselves are not independent. They cannot be pronounced, and they do not stand alone without being integrated into a pattern, which assigns their specific meaning. A pattern in the Hebrew verb system is called ***Binyan*** (plural: ***Binyanim***); a pattern in the Hebrew nominal system is called ***Mishqal*** (plural: ***Mishqalim***). Patterns are claimed to have constant meanings, but studies have shown that there are many exceptions to this claim, and that patterns can carry a dominant

[5] Nouns, on the other hand, can be both derivational and inflectional. They can be constructed by a combination of a root and a pattern, a combination of a stem and a prefix / suffix, or they can be basic (Aronoff 1994:131, Hetzron 1997:323).

meaning, and also recessive ones (Blau 1967, 1975, Horvath and Wexler 1994:254-255). A pattern in normative Hebrew can also entail a duplication of one of the radicals, namely the second, and/or the insertion of a consonant in addition to the vowels mentioned above. Gemination of any consonant in Israeli Hebrew, representing double pronunciation of this consonant, is always pronounced as a single consonant in speech[6], but since Israeli Hebrew makes use of Hebrew orthography, the gemination is represented in the Hebrew vocalized orthography. Yet, the patterns, which contain the duplication, are the ones which are usually used for inserting new verbs into the language. Examples for the construction of Israeli Hebrew verbs and nouns with roots and patterns are presented in 4.2.1 above. Most of the roots cannot combine with all patterns, i.e. most of the roots can appear in only some of the patterns, but not in others. Roots that combine with all patterns constitute a small minority of the lexicon.

As opposed to nouns, and as mentioned above, verbs can only be formed by using a root and a pattern. When a new verb is created, a consonantal root must be retrieved, no matter if the original word, for which a verb is needed, has a root or not. This is accomplished by simply taking out the consonantal skeleton of a word and obtaining an artificial root, which can be combined with a pattern. In many cases, such words are foreign, and do not consist of three consonants. In other cases, the obtained artificial root is parallel to an existing Israeli Hebrew root. Having inherited morphological abilities to naturally combine roots and patterns to yield new verb constructions, Israeli Hebrew speakers seem to have been using strategies, which enable them to overcome these problems and to still form new verbs without difficulty. They include some of the following methods: duplication of the last radical of the root, duplication of two radicals of the root, secondary root formation using a consonant of a word affix and omission of a consonant if there are too many consonants in the

[6] The gemination is represented by an intra-letter point in the vocalized orthography; in Hebrew non-vocalized orthography and in speech, there is no representation of the germinated consonant.

source word. The most common verb pattern in Hebrew for creating new verbs is ***$C_1iC_{2a}(C_{2b})eC_3$*** (*Piel*)[7], which due to the duplication of the middle radical, actually enables more than three radicals. Verbs which are not formed in the *Piel* pattern are usually integrated into the ***$hitC_1aC_{2a}(C_{2b})eC_3$*** (*Hitpael*) pattern. Some examples for such new verbs are presented in 4.2.1 above. Very few verbs are integrated into the language via other patterns. For example, ***ivRiz*** 'shirk' (*Hifil* pattern), ***nignav*** 'was amazed' (*Nifal* pattern) – both are slang expressions – and ***iklik*** 'click' (*Hifil* pattern). Integration of the latter via the ***Hifil*** pattern is probably meant to preserve as much as possible the original sound of the word ***click***, which is best preserved in this pattern.

The basic stems in the IH verb system that are formed by a combination of a root and a pattern may take three different forms, depending on the affixation they undergo: two basic stems which inflect with suffixes, and a basic stem which inflects with prefixes. The first two stems are referred to by traditional scholars as 'past' and 'present' stems, but are referred to here as 'suffixed' and 'participle' forms, respectively. The third stem is referred to in the traditional literature as the 'future' stem, but is referred to here as the 'prefixed' form. In traditional literature, there is an additional stem for the imperative forms, but these are not referred to here for reasons which will be provided later.

When suffixes and prefixes are added to the stem, a further specification of person (only with suffixed and prefixed stems, but not with participles), gender and number is obtained. According to the traditional approach, these inflections denote tense too. But I would like to withdraw from this approach, and mention that they denote aspect and mood rather than tense, for reasons which are detailed in

[7] Since geminated consonants are represented in the vocalized orthography, they are noted in the patterns. This is only for formal purposes; in speech these consonants are pronounced as single consonants. In the case of a quadri-consonantal root, the third root radical would always take the place of C_{2b}, both in the orthography and in speech.

Section 5 below. For verb formation with stems and affixes, see Examples 8-10 below.

The examples below show the formation of verbal forms in IH from a stem and an inflection. The stems must be an earlier combination of a root and a pattern. The third person male singular in the suffixed forms is inflected with a null or zero (**ø**) morpheme, as well as the male singular in the participle forms.

The presented examples are in the ***Piel*** pattern, but the other patterns inflect in an identical way.

(8) Formation of verbal forms in IH – suffixed forms

Verb stem (suffixed form):	+	Suffix:	=	Inflected verb:
fikses 'fax'	+	***ø***	⇨	***fikses*** 'fax' (3-M-SG)
fikses 'fax'	+	***a***	⇨	***fiksesa*** 'fax' (3-F-SG)
fikses 'fax'	+	***u***	⇨	***fiksesu*** 'fax' *(3-PL)*
fikses 'fax'	+	***ti***[8]	⇨	***fiksasti*** 'fax' *(1-SG)*
fikses 'fax'	+	***ta***	⇨	***fiksasta*** 'fax' *(2-M-SG)*

(9) Formation of verbal forms in IH – participles

Verb stem (participle):	+	Suffix:	=	Inflected verb:
mefakses 'fax'	+	***ø***	⇨	***mefakses*** 'fax' (M-SG)
mefakses 'fax'	+	***et***	⇨	***mefakseset*** 'fax' (F-SG)
mefakses 'fax'	+	***im***	⇨	***mefaksesim*** 'fax' *(M-PL)*
mefakses 'fax'	+	***ot***	⇨	***mefaksesot*** 'fax' *(F-PL)*

[8] The suffixes ***ti*** and ***ta***, when attached to the stem, change the preceding vowel from ***e*** to ***a***. These are phonological changes, and they are not discussed here.

(10) Formation of verbal forms in IH – prefixed forms

Verb stem (prefixed form):	+	Prefix:	=	Inflected verb[9]:
fakses 'fax'	+	***je***	⇨	***jefakses*** 'fax' (3-M-SG; 1-SG[10])
fakses 'fax'	+	***te***	⇨	***tefakses*** 'fax' (3-F-SG; 2-M-SG)
fakses 'fax'	+	***ne***	⇨	***nefakses*** 'fax' (1-PL)

4.2.2. Hebrew verb patterns

4.2.2.1. The traditional approach

Most of the traditional scholars claim that Hebrew has seven verb patterns or ***Binyanim*** (Blau 1967, 1975, Tsarfaty 2004:101, Coffin-Amir and Bolozky 2005). A few point out additional, minor verbal patterns, such as ***šifʕel*** (Junger 1987, Coffin-Amir and Bolozky 2005:6-7). This tradition is applied to Israeli Hebrew as well, although no statistics of verbal pattern occurrences has ever been collected to show the use of these patterns in the spoken language. The seven traditional verb patterns in Hebrew are presented in Table 4-3 below. Their prefixed and suffixed stems are presented, together with their most dominant meaning. Additional comments are attached as well.

[9] In three forms (second person female singular and second and third person plural) a suffix is used in addition to the prefix. The suffix ***–u*** is attached to the second and third person singular to obtain the plural form, and the suffix ***–i*** is attached to the second person singular to obtain gender (female). Yet, since this happens only in part of the forms, this stem is referred to as a 'prefixed' form.

[10] In IH only, but not in traditional Hebrew.

Table 4-3: Hebrew traditional verb patterns

Pattern name	Dominant meaning	Suffixed form	Prefixed form	Comments
Paal / Qal	Neutral	$C_1aC_2aC_3$ + [suffix]	[prefix] + $C_1C_2oC_3$	Can also appear as [prefix] + $C_1C_2aC_3$
Nifal	Middle voice & incohative	$niC_1C_2aC_3$ + [suffix]	[prefix] + $C_{1a}(C_{1b})aC_2eC_3$	Sometimes passive of *Qal*;
Hifil	Causative	$hiC_1C_2iC_3$ + [suffix]	[prefix] + $C_1C_2iC_3$	
Hufal	Passive	$huC_1C_2aC_3$ + [suffix]	[prefix] + $uC_1C_2aC_3$	Passive of *Hifil*
Piel	Agentive	$C_1iC_{2a}(C_{2b})eC_3$ + [suffix]	[prefix] + $C_1aC_{2a}(C_{2b})eC_3$	
Pual	Passive	$C_1uC_{2a}(C_{2b})aC_3$ + [suffix]	[prefix] + $C_1uC_{2a}(C_{2b})aC_3$	Passive of *Piel*
Hitpael	Reciprocal & reflexive	$hitC_1aC_{2a}(C_{2b})eC_3$ + [suffix]	[prefix] + $tC_1aC_{2a}(C_{2b})eC_3$	

The two passive patterns, ***hufal*** and ***pual*** are characterized by the vowel ***u***, which appears in their first syllable. This phenomenon of a first-syllable ***u*** representing the passive is also typical in Arabic (Abu-Shaqra 2007:128), except that in Arabic, passive forms are pattern-internal, which means that the formation of passive forms is not achieved by a separate pattern, but by a conversion of a vowel in each of the existing patterns into the vowel ***u*** (Abu-Shaqra 2007:128).

The two passive patterns and the passive-oriented forms of the ***Nifal*** pattern were observed in this study in negligible numbers. Although a large variety of literature on the Hebrew verb system refers to the passive patterns as part of the system, this study suggests that these patterns can be excluded from the Spoken Israeli Hebrew verb system. Out of thousands of verbs and verb phrases, which were collected in this study, only a few (~0.27%) were passive forms, and these were observed in more formal conversations rather than in spontaneous speech. This may hint at a degeneration process for these two patterns in Israeli Hebrew, as they are not productive, and thus cannot be considered as valid verbal patterns of the language. They can be used, though, to form nouns and adjectives, by using their participle patterns, for example: ***metuman***

'octagon', ***mesukan*** 'dangerous' (both are *Pual*-PTCP-M-SG; the first one is a noun, root ***tmn***, the second is an adjective, root ***skn***) or ***munaX***, ***musag*** 'term', ***muSlam*** 'perfect' (*Hufal*-PTCP-M-SG; the first two are nouns, roots ***nwħ***, ***sjg***, respectively, the second is an adjective, root ***šlm***). These formations can be regarded as noun patterns rather than verb patterns, similarly to the other nominal patterns in the language.

No additional productive patterns were found in the research besides the five classical ones. The ***šifʕel*** pattern, which is claimed to be a separate (yet, minor) verb pattern in Modern Hebrew by some researchers (Junger 1987, Coffin-Amir and Bolozky 2005:6-7) has proved to be unproductive in a preliminary field research (Dekel 2009b:13), and was not observed in this study either. One new, non-standard verb form was found in a pilot study held prior to this research (Dekel 2009a). This form was an agglutination of a noun with a verb suffix. Such forms may hint at a trend towards a more analytic verb formation in SIH, but it appeared only once, and hence, could not be treated as a global phenomenon or a separate, independent pattern.

4.2.2.2. Current system

The results of this study thus suggest that the verb system of SIH is a complex of only **five**, and not seven patterns. It seems that the two passive patterns should be excluded from the grammar of the verb system of SIH, as they are completely unproductive, and although some of their participle forms do occur, their occurrences represent nominal entities only. The main semantic functions of the verbal patterns correspond to other layers of Hebrew and to other Semitic languages, but in some cases different or additional functions to those of traditional grammars are observed. The *Nifal* pattern, for example, does not express any passive forms of the *Qal* pattern in SIH, but it does in traditional Hebrew. Phonological changes of patterns, compared with their traditional counterparts, are also found to a great extent. Similarly to traditional Hebrew, geminated consonants are always pronounced as single consonants in speech. Traditional scholars agree that both pharyngeal

fricatives ***X*** and ***?`*** are not present in modern speech. Also the glottal consonants, which exist in writing, and are considered to exist in Modern Hebrew, are not present in SIH speech. The vocalic distribution of the causative pattern *hifil* shows a vowel lowering of the first vowel from ***i*** to ***e***. The traditional ***dagesh lene***[11] rule, the absence of which under certain conditions turns the stops ***p***, ***b***, ***k*** (historically also ***t***, ***d***, ***g***) into the fricatives ***f***, ***v***, ***X***, respectively, is ineffective, and very frequently occurrences of ***p***, ***b***, ***k***, are mixed up with ***f***, ***v***, ***X***, their corresponding fricatives. Table 4-4 below presents a suggested new verb system for SIH, based on real data. The table reflects phonological and morphological changes. The suggested 'tense' system will be discussed later in this thesis.

Table 4-4: SIH verb patterns

Pattern name	Dominant meaning	Suffixed form (phonetic)	Prefixed form (phonetic)[12]	Comments
Paal / Qal	Neutral / basic	$C_1aC_2aC_3$ + [suffix]	[prefix] + $C_1C_2oC_3$	Can also appear as [prefix] + $C_1C_2aC_3$
Nifal	Middle voice & incohative	$niC_1C_2aC_3$ + [suffix]	[prefix] + $C_{1a}(C_{1b})aC_2eC_3$	No passive forms of *Qal* were found in this pattern
Hifil	Causative	$iC_1C_2iC_3$ ~ $eC_1C_2iC_3$ + [suffix]	[prefix] + $C_1C_2iC_3$	Also agentive meaning, e.g. *iklik* 'to click'
Piel	Agentive	$C_1iC_{2a}(C_{2b})eC_3$ + [suffix]	[prefix] + $C_1aC_{2a}(C_{2b})eC_3$	
Hitpael	Reciprocal & reflexive	$itC_1aC_{2a}C_{2b}eC_3$ + [suffix]	[prefix] + $tC_1aC_{2a}(C_{2b})eC_3$	Also change of state, e.g. *itpantSeR* 'be spoiled, fail'

When any of the consonants in the verb pattern is a glottal consonant – as mentioned above it is not pronounced. See examples 11-13 below.

[11] ***Dagesh lene*** is a dot inserted in six Hebrew letters denoting their occlusive pronunciation; without the ***dagesh lene***, three of these letters are pronounced as fricatives, whereas the other three remain plosives. In Israeli Hebrew speech, the original ***dagesh lene*** rule is ineffective; therefore the plosives and their fricative counterparts are mixed up.

[12] Some of the prefixed forms can also get a single suffix, in addition to their prefix. As these are the minority of forms, prefixed forms are still referred to by that name, but they include also the prefixed forms with the suffixes.

The examples below show the absence of glottal consonants in SIH, which according to the traditional approach are present in speech. The absence of double consonants is also presented.

(11)

(ʔ)amaRti *leXa* || (G-12-4-1:138)
say (***ʔmr***-*Qal*-SUF-1-SG) to+you
'I told you'

The glottal stop, which appears in brackets, is present according to the traditional approach, but is omitted in SIH speech. The absence of the glottal consonants happens in all locations in the word, i.e. in word-initial, word-middle or word-final.

(12)

(ʔ)eX (h)em (m)itla(h)avim | (G-8-1-3:299)
how they enthusiastic (V-***lhb***-*hitpael*-PTCP-M-PL)
'they are so enthusiastic'

None of the glottal consonants in the words of this expression is pronounced in SIH speech. Also the first ***m*** of the last word is not pronounced, since the preceding word has a final ***m***. This yields two consequent ***m***'s, which is not possible in SIH.

(13)

(h)u *lo* ***(h)itXil (l)iS(ʔ)ol*** | (G-4-2-3:859)
he not start (***tħl***-*hifil*-SUF-3-M-SG) ask (***šʔl***-*Qal*-INF)
'he did not start asking'

Also in this expression, none of the glottal consonants in the words is pronounced in SIH speech. Similarly to the previous example, the first ***l*** of the last word is not pronounced, since the preceding word has a final ***l***. This would yield two consequent ***l***'s, which is not possible in SIH.

The distribution of patterns in the study is presented in Table 4-5 below:

Table 4-5: Distribution of verb patterns in SIH

Pattern Name	Research group	Control group	Total number	Total percentage
Paal / Qal	1949	1998	3947	59.74%
Nifal	168	113	281	4.25%
Hifil	523	368	891	13.49%
Piel	290	262	552	8.35%
Hitpael	142	113	255	3.86%
Verb phrases	362	301	663	10.03%
Passives	7	11	18	0.27%
Total:	3441	3166	6607	100.00%

The distribution shows that *Qal* forms are significantly more widespread than any other verb pattern in the language. These *Qal* forms include auxiliary forms with the root ***hjj*** 'be'. Even if we ignore these forms, the number still remains significantly high. Surprisingly, *Hifil* forms are more widespread than *Piel* forms. *Piel* is the main pattern via which new forms are integrated into the language, and thus one would expect that it would be more widespread. Over 10% of common verbal usage contain constructions of two, sometimes three, verbal forms in a sequence, which denote one meaning. This may hint at a trend towards more analytical constructions in SIH.

In addition, not all traditional person inflections exist in SIH. The following table shows the distribution of person and gender inflections in the SIH verb system. The traditional division of person and gender is presented in the table, but only the SIH inflections are noted. It is apparent that some person inflections, as well as gender inflections have merged in SIH. The inflections that exist both in SIH and in traditional theories, are marked with ✓. Participle forms inflect only for gender, but not for person, both in traditional Hebrew and in SIH. These are noted as 'Same as <person>-<number>-<gender>'. Inflections that in SIH have merged with other inflections, are noted 'Merged with <person>-<number>-<gender>'.

Table 4-6: Distribution of person and gender inflections in SIH verb system

Person	Gender	Suffixed forms	Participles	Prefixed forms	Imperatives
1-SG	M	✓	✓	Merged with 3-SG-M	
	F		✓		
1-PL	M	✓	✓	✓	
	F		✓		
2-SG	M	✓	Same as 1-SG-M	✓	Merged with Prefixed forms
	F	✓	Same as 1-SG-F	✓	
2-PL	M	✓	Same as 1-PL-M	✓	
	F	✓	Same as 1-PL-F	Merged with 2-PL-M	
3-SG	M	✓	Same as 1-SG-M	✓	
	F	✓	Same as 1-SG-F	✓	
3-PL	M	✓	Same as 1-PL-M	✓	
	F	Same as 2-PL-F	Same as 1-PL-F	Merged with 3-PL-M	

5. Results

5.1. Introduction

5.1.1. Preface

The results presented in this section are taken from a corpus of spontaneous conversations. The verbs used in this study were collected and analyzed in the form that they appeared in the original conversations. Whether these verbal forms are normatively adequate or not was not addressed. Also, the forms were not converted to normative forms in their listing or analysis. They were analyzed in the way they were uttered. Since this research investigates the spoken language, the verbal forms were taken as representative of the verb system of SIH, with the starting point that native speakers of a language have their own language rule system in mind and they know best what their language is like and how to get their ideas across to other people. The verbs were analyzed with the observation that the forms are not picked up randomly by the speakers while speaking, and that these forms, even if judged to be ill-formed by normative language purists, do follow some regularity. This regularity is discussed in this research.

5.1.2. Exposition: Israeli Hebrew is conceived as a tense-based language

Figure 5-1 below shows the common, normative approach to the Israeli Hebrew (IH) verbal tense system. IH is also referred to by Hebrew language purists as Modern Hebrew (MH). Note that Hebrew language purists do not explain why they refer to the verb system as tense-based. This issue has been commonly accepted as an axiom and no doubts have been raised during the years as to the nature of this system. There is only

one study which raises the possibility that Israeli Hebrew presents aspect in its verbal system (Tsarfaty 2004:2-3). Still, aspect in this research is not presented as the verbal system's main characteristics, but rather as an addition to tense. Also, this research was performed on narrative texts of children and thus cannot be compared with a corpus research on adults.

Past tense	➔	**Suffixed verbs (V-SUF)**
Present tense	➔	**Participles**
Future tense	➔	**Prefixed verbs (V-PRE)**
Imperative	➔	**Imperative forms**

Figure 5-1: IH / MH traditional 'tense' system

Bhat (1999) divides the languages of the world into three categories: tense-prominent languages, aspect-prominent languages and mood-prominent languages. Each language can be prominent in only one of these categories, whereas the other two categories would be expressed to a lesser degree. This means that TMA categories are inter-related. Otherwise, it would be possible for a language to be prominent in two TMA categories. The prominence of a language to tense, aspect or mood is reflected by the means, which are used to express this category. The prominent category is usually expressed in great detail by a variety of morphological means, whereas the other TMA categories are expressed to a lesser degree and by peripheral means. The latter can be auxiliary verbs, lexical means and the like.

Apparently, if we refer to the traditional approach towards Israeli Hebrew as presented in Figure 5-1 above, then verb affixes in Israeli Hebrew can indeed be claimed to represent tense, since each verb tense is expressed by a different morphological inflection. But in the frame of this system, there is no explanation in a large number of verbal structures and patterns which are commonly used by Israelis in their ordinary speech. The normative approach would regard them as 'mistakes'. This is

problematic, since a significantly large amount of verbs used by Israelis in speech can be regarded as 'mistakes' according to this approach. It is impossible and illogical that native speakers would use mostly mistakes in their speech. It is thus assumed that these 'mistakes' must be systematic, and must present regularity. This regularity is exactly what makes the normative system irrelevant to the spoken language.

The structure of the Israeli Hebrew verb system will be discussed here in the frame of Bhat's division. I claim that the affixes in the IH verb system represent aspect and not tense. I will bring authentic examples from the data, which suggest that the approach of IH as a tense language is not applicable, and that IH is an aspect-prominent language. Below, I will present data, showing that suffixed forms can indeed denote actions in the past, but not past tense, that participles do not denote present tense in most of the cases, and that prefixed forms are modal in nature, and are used to express several types of mood, but not future tense. I will show that imperative forms are not productive in IH, and are used only under specific phonological constraints. I will also show that all the forms in Figure 5-1 above, which are presented as a tense system in IH/MH, are inflected for other properties rather than tense, and that one cannot guess the time of occurrence by the verb only, when disconnected from its context. I will show that a wide range of lexical tense expressions are used in the corpus to express tense, and that these tense expressions are needed in conversation in order to clarify to the listeners the time of occurrence, because this detail is not represented by the verb. I will show that there is a serious shift in roles of the above forms in IH as opposed to what is conceived and referred to by most traditional researchers as MH. Furthermore, I will present additional, usually syntactic verbal structures, which are used as part of the IH verb system, and which are not treated by traditional theories, and are sometimes referred to as 'mistakes' by traditional language purists.

5.1.3. The traditional, normative approach

There are two official authorities in Israel who deal with the Hebrew language. The first one is the Academy of the Hebrew Language (http://hebrew-academy.huji.ac.il/). This authority is responsible for the approval or disapproval of new rules in Hebrew and for assigning new words and terms. The Academy of the Hebrew Language is a normative body, which supports the direction of the speakers towards a 'correct' language. It does not refer to the spoken variety as a correct one. The second authority is the Israeli Ministry of Education. This authority is responsible for the development of school curricula in the subject of Hebrew Language, as well as in other subjects. This authority also holds a normative view. Both authorities believe that Israelis speak their own language with grammar mistakes. They dedicate their resources to the direction and correction of the language which is spoken by Israelis in their everyday life, where the verb system is one of the directed linguistic systems.

The number of people who are responsible for these views is negligible, compared with the number of native speakers of IH located in Israel, which is greater than 3.8 millions (ICBS 2009). It is unacceptable that such a small group of people would determine and dictate the rules for all the others. Furthermore, there is complete chaos in the Hebrew Language policy in Israel; the two official bodies, dealing with assigning rules to the language and with educational issues, are not synchronized on what is 'legal' in the language and what is not. Some of the materials which are taught in Israeli schools as 'mistakes' have already been approved as 'legal' by the Academy of the Hebrew Language. This chaos has implications for the native speakers themselves, who show very low self-confidence in their own language, since they are brainwashed from childhood onwards on this issue.

Native speakers of Israeli Hebrew have their own rules. These rules do not correspond to Hebrew, as it is defined by the normative language purists of the Hebrew Language Academy and the Israeli Ministry of

Education. The opposite is true: they are very much different from each other. The verb system of IH reflects this situation. While the spoken language has its own characteristics, the verb system (as well as other systems in the language) that is forced upon Israelis does not go hand in hand with the language they speak. It is of great importance to objectively document and analyze the current spoken language distanced from traditional theories. The verb system is an excellent example for a phenomenon of forcing normative rules on a new entity, where the latter is a completely different system than the tense system that Hebrew language purists try to present.

It is unclear why Hebrew language purists adopted this approach. All the people, responsible for the emergence of Israeli Hebrew, were speakers of aspect-oriented verb systems (see 5.2.2.1 below). This origin is very clearly reflected in the verb system of the resulting language that Israelis use today. Hebrew language purists would claim that Israelis do not know how to use the verb system correctly, and that their speech is full of mistakes. But these 'mistakes' have regularity. And this regularity reflects an aspectual system, which functions perfectly among Israelis, with almost no exceptions. A comparison of this system to the normative one, which supports tense as the main characteristics of the verb system, shows that the regularity of the aspectual system is much more consistent. The normative, tense-based system shows many irregularities and exceptions, whereas the aspectual analysis shows almost none.

For 120 years of SIH existence, no one doubted the tense-based verb system theory. People have commonly accepted it as an axiom, without asking questions, without looking into it, without trying to search for the origin of their 'mistakes'. This in itself is surprising. Resources have always been targeted to normative approaches, rather than to real research of the spoken variety. For example, an annual examination held by the Israeli Ministry of Education in Israeli high schools, which checks high school students' skills in Hebrew language, consistently results in relatively low grades. The examination claims to check the students' skills in their 'mother tongue'. It consists of Hebrew grammar questions and

reading comprehension chunks. In the latest two examinations of 2008 and 2009 which did show an improvement in results compared with previous years, only about two thirds (~67-68%) of the students passed (!) (NRG 2008, 2009). This is a lower success rate than found in English examinations (~74%), which is taught as a foreign language. Unfortunately, no one draws the conclusion that something is wrong with the teaching system and that the material being taught is not the students' native language, but rather a foreign one. The spoken language has never been equally respected like the normative system. It has been referred to as 'street language'. Over 3.8 million native speakers of IH do not speak street language, and cannot be directed by several dozens of normative language purists to speak something which does not exist. Israelis speak a rich, living and developing language, which has its own dimensions and characteristics. It may have developed differently than what the normative language purists expected, but it is not inferior to any normative system and should not be regarded as such. Understanding the spoken system is of great importance and may have implications for educational and methodological processes in the future, as well as an important cultural benefit.

5.1.4. General information on the research data

A distribution of the research items in this study is presented in Table 2-1 above. The data in this study contain verbs and verb constructions in Spoken Israeli Hebrew, as employed in spontaneous conversations. A distribution of the data which are treated in this study is presented in Table 5-1 below.

Table 5-1: Distribution of data in the study

Item:	Quantitative data:	Percentage:
Total number of verb constructions treated:	6607	100%
Total verb constructions, informants:	3441	52.1%
Total verb constructions, non-informants:	3166	47.9%

These data constitute the investigated linguistic items of this study, and are the basis for all the analyses. The corpus is further sub-divided into speech units (see 2.2 above), where verb constructions, which spread over more than one speech unit, are treated separately, as well as verb constructions, which appear in subordinate units. It is important to note that the behavior of verbs and verb constructions in subordinate and non-subordinate speech units is identical. The number of verb constructions in subordinate and non-subordinate speech units in this research is presented in Table 5-2 below.

Table 5-2: Types of speech units in the study

Group of subjects	Major speech units	Subordinate speech units	Total speech units
Total speech units in the study	5562	1045	6607
Informants	2907	534	3441
Non-informants	2655	511	3166

Therefore, subordinate speech units are not discussed separately in this thesis, unless a special phenomenon is observed, which is typical to this type of speech units. The discussion below refers to all speech units in the study.

Verb constructions in 'broken' speech units are too few (~1% from the total number of speech units) to reach any linguistic conclusion regarding their behavior. Apparently, 'broken' speech units behave the same way as non-broken speech units in terms of TMA expression. Due to their low number these units are not discussed separately either. 'Broken' speech units are characterized by having a verb construction with one coherent

meaning being split into at least two speech units, where the first part of the verb construction appears in one unit, and its complement(s) appear(s) in the next unit(s). The distribution of such speech units in this research is presented in Table 5-3 below.

Table 5-3: Distribution of 'broken' speech units in the study

Group of subjects	Non-broken speech units	'Broken' speech units	Total speech units
Informants	3406	35	3441
Non-informants	3132	34	3166
Total speech units in the study	6547	69	6607

5.2. Argumentation

5.2.1. Why is SIH not tense-based?

As mentioned above, traditional scholars refer to the verb system of SIH or Modern Hebrew as a tense-based system. This analysis has been commonly accepted as an axiom, and almost no doubts have been raised during the years about its accuracy or correctness.

No quantitative studies are known to have been performed in order to check if this theory is applicable to IH or not. This theory has never been proved to be true, neither has it been negated. The aim of this study is the verification or negation of this theory.

5.2.1.1. Overview

The main forms in the SIH verb system are constructed from verbal patterns and consonantal roots, which are integrated into patterns to form the meanings. Complex verbal structures are also present, but they are fewer than pure verbal pattern-root constructions; yet, their number is not negligible.

Since the corpus was first analyzed by form, all similar forms were collected in their listings into the same group and were then analyzed

separately as explained in Section 2 above. For example, all suffixed forms were treated as one group, where each verb was analyzed separately according to its context.

The process of analysis of forms is described below. An explanation is provided as to why the SIH verb system is concluded to be mostly aspectual, with the addition of some grammatical modal forms, and not tense-oriented. This claim is based on the results and on a comparison with traditional theories.

The SIH verb system is not tense-based, simply because SIH verbal forms do not express tense in more than 90% of the cases. Refer to Figure 5-1 above, showing the traditional MH tense system, and to the arguments below.

5.2.1.2. The use of suffixed forms: suffixed forms do not express past tense

Suffixed forms in IH are referred to by traditional scholars as expressing past tense. The following examples show that the verb suffixes do not point to the time of occurrence, but rather to its aspectual character. Thus, it is assumed that the notion of tense is irrelevant in SIH, and that suffixed forms do not express past tense, but rather the perfective aspect. Each example is presented within its immediate context. The verbs are bold and italicized. Only the analyses of verbs are presented in the glosses. The examples are numbered ***E-n***, where ***n*** is the example number. Transcription is given in Sampa and is phonetic.

The first example is taken from the corpus. In this example, the speaker is calling a friend to say goodbye before leaving for NY for studying purposes. She shares with her friend some thoughts about what she is going to do after she graduates. Note that the events described in the conversation have not yet happened:

(.) ***jaXol lijot*** *Se-* ***C-4-1-3:194-208*** (E-1)
It is possible that-
Form: ***jkl****-Qal*-PTCP-M-SG + ***hjj***-INF
Meaning: speculative mood

(.) keilu|
maybe {=a colloquial discourse marker}

ani ***imtsa*** *et atsmi itonait*|
I will find myself being a journalist
Form: ***mtsʔ****-Qal*-PRE-1-SG
Meaning: speculative mood

o maSu kaze|
or something like that

o ***liXtov*** *dvaRim*|
or to write things
Form: ***ktb****-Qal*-INF

ani meod ***esmaX*** *gam letasRit kaze*|
I will be very happy in such a case too
Form: ***smħ****-Qal*-PRE-1-SG
Meaning: assumptive mood

lo ***jodaat***|
I don't know
Form: ***jdʕ****-Qal*-PTCP-F-SG
Meaning: progressive aspect

keilu|
maybe {=a colloquial discourse marker}

(.) an- ani ***XoSevet*** *Se****lamadti*** *amon kvaR be-*
I think I have already learned a lot in-
Form: (a) ***ħšb****-Qal*-PTCP-F-SG (b) ***lmd****-Qal*-SUF-1-F-SG
Meaning: (a) progressive aspect (b) perfective aspect

benu joRk|
in New York

im aXavaja azot ***tigameR*** *aXSav*|
If this experience will end now
Form: ***gmr****-Nifal*-PRE-3-F-SG
Meaning: speculative mood

besedeR|
okay

jatsati *mize*|
I will have come out of it
Form: ***jts?****-Qal*-SUF-1-SG
Meaning: perfective aspect

im aRb-
with a l-

im aRbe dvaRim|
with a lot of things

As mentioned above, the event that is discussed in this text has not yet happened at the time of the conversation. Still, two suffixed forms are used by the speaker, which according to traditional approaches would have been analyzed as expressing past tense. The suffixed forms are: ***lamadti*** (***lmd****-Qal*-SUF-1-F-SG) and ***jatsati*** (***jts?****-Qal*-SUF-1-SG). These forms, within the context of this example, do not express past tense. Past tense is defined as preceding the speech time, while at the time of speech the described events have not yet occurred.

The next example is not taken from the corpus, but was recently recorded by coincidence, when uttered by a native speaker. The speaker was calling the service center of a toll road in Israel, in which she meant to travel on later that day. She wanted to know if going off the road for an hour and then continuing on her way from the same point where she left

off, would be considered one toll payment or two. The speaker is trying to explain the situation to the service representative.

***tni** li **leazbiR**||* **Non-corpus example** (E-2)
let me explain
Form: ***ntn**-Qal*-IMP-2-F-SG + ***sbr***-INF
Meaning: imperative mood

*ani **nosaat** aXSav bekviS SeS*|
(assume that) I am driving on road #6
Form: ***nsʕ**-Qal*-PTCP-F-SG
Meaning: progressive aspect

okej/
okay?

*ve**atsaRti** batsad*|
and I stop at the road shoulder
Form: ***ʕtsr**-Qal*-SUF-1-SG
Meaning: perfective aspect

biglal pantSeR o maSu|
because of a puncture (in my car tire) or something

***amadti** ejze Saa*|
I stay (there) for an hour or so
Form: ***ʕmd**-Qal*-SUF-1-SG
Meaning: perfective aspect

*veaXRej ze **imSaXti***|
and then I continue (driving)
Form: ***mšk**-Hifil*-SUF-1-SG
Meaning: perfective aspect

*ani **meSalemet** al nesia aXat/*
am I paying for one travel?
Form: ***šlm**-Piel*-PTCP-F-SG
Meaning: progressive aspect

o Stajm|
or two?

Note that this conversation describes a hypothetical situation, one which has not yet happened. Three of the six verbal forms (50%) in this conversation are suffixed forms. In traditional Hebrew grammar, these forms would have been analyzed as expressing past tense, which is clearly not the case, as the events have not yet happened at the time of the conversation. Furthermore, using these forms for a future event might have been considered incorrect or ungrammatical by traditional language purists. Since Israelis speak this way most of the time, this approach would mean that Israelis speak their own language incorrectly. This is not acceptable according to linguistic theories, which agree that native speakers know their language best. The speaker in this conversation, while speaking, referred to these events as complete events, describing them from the point of view of an outsider. These are examples of the perfective aspect. Also, two of the three remaining forms in this example are participle forms, which clearly do not express present tense, as traditional language purists would have analyzed them. These forms are discussed in 5.2.1.5 below. Furthermore, although this is an event which is planned to happen in the future, no prefixed forms are used during the whole conversation. Prefixed forms are referred to by traditional scholars as expressing future tense. This chunk describes a future event; still, not even one prefixed form is used to express it.

The next example is taken from the corpus. It describes a suggestion made by the speaker to his friend. Note that the described events have not yet happened at the speech time.

*(..) Se**tikne** bad*| ***C-2-1-2-B:109-112*** (E-3)
let her buy some fabric
Form: ***qnj***-*Qal*-PRE-3-F-SG
Meaning: optative mood

*ve**titfoR** lo*|
and sew (it) for him
Form: ***tpr**-Qal*-PRE-3-F-SG
Meaning: optative mood

im gumi kaze|
with elastic band

*ve**gamaRnu***|
and that's that
Form: ***gmr**-Qal*-SUF-1-PL
Meaning: perfective aspect

There are three verbal forms in this chunk. One of these forms is a suffixed form. This suffixed form cannot describe a past tense action, because this event has not yet happened at the time of the conversation. Here too, the suffixed form expresses the perfective aspect.

5.2.1.3. The use of time expressions with suffixed forms

In many cases, where suffixed forms are present in speech, additional time expressions are needed in order to clarify that the content expressed describes something which has already happened. This means that the time point of the event is not obvious from the verb, but rather additional information is required in order to understand that the transferred content happened in the past. The following examples illustrate this need for an additional lexical item to express the time of occurrence. Time expressions are given with bold underlining.

*Rak etmol **itXilu ledabeR** al ze*| ***N-3-23:100-106*** (E-4)
only yesterday they started talking about it
Form: ***tħl**-Hifil*-SUF-3-PL + ***dbr**-Piel*-INF
Meaning: perfective aspect

veajom|
and today

*paSut Se**bati** babokeR baXuRa aXat*|
simply when I came this morning, a young lady,
Form: ***bwʔ**-Qal*-SUF-1-SG
Meaning: perfective aspect

*Se**avda** bebitidZi*|
Who used to work at BTG,
Form: ***ʕbd**-Qal*-SUF-3-F-SG
Meaning: perfective aspect

***avda** po SaloS Sanim*|
(and) worked here for three years,
Form: ***ʕbd**-Qal*-SUF-3-F-SG
Meaning: perfective aspect

*velo **pagaSti** ota meaz*|
and I have not met her since (then),
Form: ***pgš**-Qal*-SUF-1-SG
Meaning: perfective aspect

***amRa** li **pitRu** oti ajom*||
told me that she was fired today (literally: 'they fired me')
Form: ***ʔmr-**Qal*-SUF-3-F-SG + ***pṭr**-Piel*-SUF-3-M-PL
Meaning: perfective aspect

There are seven speech units in this chunk, containing six suffixed verbs and a suffixed verb phrase. The speaker is telling about a colleague, whom she met earlier that morning, and who told her that she had been fired. The seven suffixed forms themselves were not sufficient to understand that the event belongs to the past. Four time expressions and two duration expressions were needed for the speaker in order to explain the flow of events. If the speaker had used the same text without the time expressions, some important information would have been missing from the context, and the context as a whole could have been interpreted differently. Yet, it can be claimed that the time expressions only give a more specific time point to the past reference that is previously known

from the context, and that their function is not to assign the past reference to the perfective forms. Therefore, I sought cases where perfective forms describe past events, but are not accompanied by lexical time expressions. I found such forms only under the following condition: there must be another time reference in the context, which is not a time expression. Such time references are occurrences of the auxiliary ***hjj*** 'be', which gives the time reference to the context, instead of the time expression. No perfective forms were found which expressed past tense without having a periphrastic past tense reference in their near environment. This means that perfective forms have past tense reference only when they are accompanied by either a time expression or some inflection of the auxiliary verb ***hjj*** 'be'. Perfective forms with no such reference, do not express past tense. Refer to the example below. The informant's daughter is living in Jerusalem, where a suicide bomber carried out an attack earlier in the day prior to the conversation.

Informant:

ma ***amRu*** *al apigua/* ***N-4-212223:6-14*** (E-5)
what (did) they say about the terrorist attack?
Form: ***ʔmr****-Qal*-SUF-3-PL
Meaning: perfective aspect

Friend 1:

Rak ***Samati*** *Se<u>aja</u> pigua*|
I only hear(d) that there <u>was</u> a terrorist attack
Form: ***šmʕ****-Qal*-SUF-1-SG + ***hjj****-Qal*-SUF-3-M-SG
Meaning: perfective aspect + past tense

Friend 2:

ani ***Samati***|
I hear(d)
Form: ***šmʕ****-Qal*-SUF-1-SG
Meaning: perfective aspect

lefaXot asaRa aRugim||
at least ten killed

Friend 3:

ken/
yes?

Informant:

& ***tsiltsela*** *elaj ve****amRa***|
& (= a hidden private name) call(ed) me and say(id)
Form: ***tsltsl****-Piel*-SUF-3-F-SG + ***ʔmr****-Qal*-SUF-3-F-SG
Meaning: perfective aspect + perfective aspect

ima al ***titkaSRi***|
mom, do not call (me)
Form: ***qšr****-Hitpael*-PRE-2-F-SG
Meaning: imperative mood

ani ***oleXet*** *leSiuR itamlut*|
I am going to the gym
Form: ***hlk****-Qal*-PTCP-F-SG
Meaning: progressive aspect

(.) akol besedeR||
everything is okay

It can be argued that if time expressions are not used, the text can still be understood as happening in the past, defining this past as non-specific. Yet, in many cases, without the time expressions, and in spite of the suffixed forms, texts cannot be interpreted by default as happening in the past. In cases of a non-specific past, and on condition that the time point of events is unknown from the broader context, IH speakers use expressions that represent the past, but do not give a specific time point. The examples below illustrate the use of such expressions to mark the non-specific past.

In the first portion, the speaker tells about an event that happened to him during his studies at Harvard. The specific time of this event is unknown; it is only known that it took place many years before the conversation.

(..) ***aiti oleX***| ***N-4-1:6-20*** (E-6)
I used to walk
Form: ***hjj***-*Qal*-SUF-1-SG + ***hlk***-*Qal*-PTCP-M-SG
Meaning: habitual past

deX {=phonetic pronunciation of deReX} a-
along the-

RiveR|
river

lebet asefeR—
to the school—

la- kompleks Sel bet asefeR leRefua Sel e haRvaRd|
to the complex of Harvard School of Medicine

*ve**aiti oleX***|
and I used to walk
Form: ***hjj***-*Qal*-SUF-1-SG + ***hlk***-*Qal*-PTCP-M-SG
Meaning: habitual past

kaits|
summer

XoRef|
winter

ze aja ejze|
it was about

majl vaXetsi|
a mile and a half

maSu kaze|
something like that

(…) @@|
(laugh)

@@@|
(laugh)

vejom eXad ***alaXti*** *bejom XoRpi*|
and one day I walked on a winter day
Form: ***hlk***-*Qal*-SUF-1-SG
Meaning: perfective aspect

Although it is known that the event occurred many years before the conversation, the speaker still uses the expression ***jom eXad*** 'one day'. The expression is needed in the context, to clarify the non-specific past, as well as to emphasize the single-time characteristics of this event ***alaXti*** 'I walked' as opposed to the background habitual phrase ***aiti oleX*** 'I used to walk'. If this expression had not been used in this particular location in the conversation, the context would not have been complete, and theoretically, the single-time action could have taken place some other time and place, and not necessarily be linked with the background events.

The same expression is used in the following text, again, for specifying the non-specific past. The speaker is telling about her daughter, who wanted to raise tadpoles.

abat Seli jom eXad ***XazRa*** | ***N-4-2:47-58*** (E-7)
my daughter one day returned
Form: ***ħzr***-*Qal*-SUF-3-F-SG
Meaning: perfective aspect

&|
(a hidden private name)

im e kos|
with a glass

majm|
of water

(.) vebifnim ***soXim*** *ejze jetsuRim*|
and there were strange creatures swimming inside
Form: ***sħj****-Qal*-PTCP-M-PL
Meaning: progressive aspect

vei ***mevia***|
and she brings it (to me)
Form: ***bwʔ****-Hifil*-PTCP-F-SG
Meaning: relative tense, past reference

vei ***omeRet*** *li*|
and she says to me
Form: ***ʔmr****-Qal*-PTCP-F-SG
Meaning: relative tense, past reference

ima|
mom

eveti *e*|
I brought eh
Form: ***bwʔ****-Hifil*-SUF-1-SG
Meaning: perfective aspect

RoSanim|
some tadpoles

As opposed to the previous chunk, in this chunk, the expression ***jom eXad*** ‘one day’ is needed in the context, to clarify the non-specific past only. When trying to eliminate this expression from the speech unit, a need for another time expression arises. The fact that the time expression is necessary to understand that this event took place in the past, shows that the time specification is not inflected in the verb. This chunk presents

also participle forms, used for the expression of relative tense. These forms are discussed in 5.2.1.5 below.

In the next chunk, the speaker is telling about an event that happened to him when he was a child. He uses the expression ***paam*** 'once' to express the non-specific past.

*[**eveti**]*| ***N-4-2:3-7*** (E-8)
I brought
Form: ***bwʔ***-*Hifil*-SUF-1-SG
Meaning: perfective aspect

kaRpada paam|
a toad once

kazot ktana|
a little one

*ve**eReti** et ze leima Seli*|
and I showed it to my mother
Form: ***rʔj***-*Hifil*-SUF-1-SG
Meaning: perfective aspect

*veze **kafats***|
and it jumped
Form: ***qfts***-*Qal*-SUF-3-M-SG
Meaning: perfective aspect

The expression ***paam*** 'once' gives the non-specific past meaning to this chunk. The same sequence of speech units, when appearing in a different context, could have been analyzed differently without this word, including as something that has not yet happened.

The next chunk also contains the expression ***paam*** 'once'. The speaker is telling about an event that happened to him when he was a student.

paam ***baRaX*** *li naXaS katan*| ***N-4-34:38-43*** (E-9)
once a small snake escaped from me
Form: ***brħ***-*Qal*-SUF-3-M-SG
Meaning: perfective aspect

beulam aaRtsaot|
in the lecture hall

(..) eX ***itstaaRti***|
I was so sorry
Form: ***tsʕr***-*Hitpael*-SUF-1-SG
Meaning: perfective aspect

(..) ***baRaX*** *li*|
it escaped
Form: ***brħ***-*Qal*-SUF-3-M-SG
Meaning: perfective aspect

siXakti *ito*|
I played with it
Form: ***sħq***-*Piel*-SUF-1-SG
Meaning: perfective aspect

joteR midaj|
too much

Again, the expression ***paam*** 'once' is needed to specify the non-specific past, and the same sequence of speech units, when appearing in a different context, could have been analyzed differently without this word.

5.2.1.4. The use of prefixed forms: prefixed forms do not express future tense

Prefixed forms in IH are referred to by traditional scholars as expressing future tense. The following examples show that verb prefixes do not point at the time of occurrence, but rather at some modal property. The examples given below show the use of prefixed forms in a non-future

meaning. No prefixed forms were found in the research that can represent future tense apart from a few cases of prefixed ***hjj*** 'be' in the *Qal* pattern, denoting future tense.

*aben Seli **jaSav** belevanon*| ***N-4-2324:138-142*** (E-10)
my son was in Lebanon
Form: ***jšb***-Qal-SUF-3-M-SG
Meaning: continuous aspect

kol aSeRut|
all (his military) service

*af paam lo **jadati***|
I never knew
Form: ***jdʕ***-Qal-SUF-1- SG
Meaning: perfective aspect

*im u **jaXzoR***|
if he would ever come back
Form: ***ħzr***-Qal-PRE-3-M-SG
Meaning: speculative mood

af paam|
never

This event has already ended at the time of the conversation. In spite of this fact, a prefixed form is used by the speaker, which according to traditional approaches would have been analyzed as expressing future tense. Future tense is defined as an event that follows the speech time, and that has not yet happened at the speech time. Therefore, this form cannot express future tense, as the event, to which this form refers, precedes the time of conversation, and has already ended. It can be interpreted as representing relative tense, though. Still, under the analysis of relative tense, the meaning of this unit is speculative. If we exclude the conditional from the expression, the speculative meaning remains as well. Hence, the analysis of speculative mood is preferred.

The next example shows a prefixed form used to express the imperative:

tiSali *et & ma katuv po*| ***N-3-22:133-134*** (E-11)
ask & (& is a hidden private name) what is written here
Form: ***šʔl****-Qal*-PRE-2-F-SG
Meaning: imperative mood

efo ze/
Where is it?

This is a prefixed form, which functions as an imperative. The vast majority of prefixed forms in IH which were found in the corpus function as imperatives, see 5.5.7 and 5.5.8 below. Another example of prefixed forms which function as imperatives is presented below.

Friend: ***G-4-2-3:771-776*** (E-12)

ulaj ***nisa*** *paam*| |
maybe we should go (there) some day
Form: ***nsʕ****-Qal*-PRE-1-PL
Meaning: cohortative mood

Informant:

tivdok|
check
Form: ***bdq****-Qal*-PRE-2-M-SG
Meaning: imperative mood

im ze kokaX {=phonetic pronunciation of kol kaX} maanjen otXa|
if it interests you so much

teleX *laRav bebet dagan*||
go to the rabbi in Bet Dagan (Bet Dagan is a location)
Form: ***hlk****-Qal*-PRE-2-M-SG
Meaning: imperative mood

teleX|
go
Form: ***hlk***-*Qal*-PRE-2-M-SG
Meaning: imperative mood

tagid *lo taSem SelXa*|
tell him your name
Form: ***ngd***-*Hifil*-PRE-2-M-SG
Meaning: imperative mood

This conversation presents a sequence of prefixed forms. It follows a story, told by the speaker, about a rabbi, residing in Bet Dagan, Israel, who knows the innermost things about a person, when this person gives him some details about the names of his parents. There are five prefixed forms in this conversation; none of them expresses future tense, since no future event is discussed here. The first line in this chunk was uttered by a friend of the informant, and expresses cohortative mood, which is a sub-type of the hortative mood; the rest of the chunk was uttered by the informant, and represents a sequence of suggestions to his friend, expressed as imperative mood. All the prefixed forms in this conversation express mood, none of them represents future tense. Note the underlined expression ***paam*** 'some day' in the first speech unit. This is the same expression used to express the non-specific past in the meaning of 'once'. With prefixed forms, its meaning is different. The presence of this word in the unit intensifies the degree of its un-certainty, pointing at the speaker's intention to do something in the long run. Many times, and also in this unit, it comes with the conjugation word ***ulaj*** 'maybe', which also points to uncertainty. The order of their appearance can change, but the meaning remains the same. If we take an identical conversation, and omit the two uncertainty words ***ulaj*** 'maybe' and ***paam*** 'some day' from this unit, the intonation with which it is uttered would probably change, but the verb ***nisa*** 'go' will still express an intention.

I suggest to also refer to example E-2 above, and to the traditional approach, which consider prefixed forms as expressing future tense. This

conversation describes a future event. It contains six verbal forms, and still, not even one of these forms is a prefixed form.

5.2.1.5. The use of participles: participles do not express present tense

Participles in IH are used as nominals (nouns and adjectives) in addition to their verbal use. They are different in nature from other verbal forms, as they do not inflect for person, only for gender and number. In this regard, the verbal forms behave like nominals. Yet, participles in IH are widely used as verbs. They are referred to by traditional scholars as expressing present tense in MH, and this is how they are taught in Israeli schools. The following examples show that participles **never** represent present tense. Rather, they express all kinds of imperfective-natured actions and situations, as well as relative tense, the latter is present in only a few cases. Examples are presented below.

Friend: ***N-4-2:126-133*** (E-13)

lo ani ***oevet*** *klavim*|
no, I like dogs
Form: ***ʔhb****-Qal*-PTCP-F-SG
Meaning: habitual aspect

Xatulim lemaSal|
cats for example

ani lo ***oevet***|
I do not like
Form: ***ʔhb****-Qal*-PTCP-F-SG
Meaning: habitual aspect

ze lo Xaja amina|
it is not a reliable animal

Informant:

ken|
yes

*zu Xaja Se**mitpaneket***|
it is a self-pampering animal (literally: it is an animal which pampers itself)
Form: ***pnq***-*Hitpael*-PTCP-F-SG
Meaning: habitual aspect

*venaim **lefanek** ota*|
and it is pleasant to pamper it
Form: ADJ + ***pnq***-*Piel*-INF

Friend:

*ata lo **mekabel** mimena Sum davaR beXazaRa*|
you do not get anything back from it
Form: ***qbl***-*Piel*-PTCP-M-SG
Meaning: habitual aspect

There are four participles in this conversation, none of which express present tense. Present tense is defined as an ongoing action or state. It is debatable whether present tense exists at all, because it is dynamic and changes every minute. But if we refer to it as the ongoingness of an action or state at the moment of speaking, none of the above participle forms meets the definition of present tense. All of these participles express habitual aspect in this conversation.

Refer also to example E-7 for the function of participles as expressing relative tense. There are three participle forms in this example: ***soXim*** 'swim', ***mevia*** 'bring' and ***omeRet*** 'say'. The first participle, ***soXim*** 'swim', denotes the progressive aspect, as it describes an action in progress (but not one which is ongoing now). The other two participles, ***mevia*** 'bring' and ***omeRet*** 'say', denote relative tense, as they describe an event simultaneous with the past event described in the preceding units. This

past event is represented by the lexical item ***jom eXad*** ‘one day’, which expresses the non-specific past. The participles represent actions, which are simultaneous to the time point in the past, when the event happened. The event described has already ended at the time of the conversation, and therefore these participles cannot describe present tense. Another example of participles used to express relative tense is presented below.

*az e **alaXti** beoto-* ***N-4-1:32-43*** (E-14)
so eh I walked in the same-
Form: ***hlk***-*Qal*-SUF-1-SG
Meaning: perfective aspect

*ota deReX Se-**aiti**-*
the same way that I used to-
Form: ***hjj***-*Qal*-SUF-1-SG
Meaning: past tense

*Se**aiti** Ragil **laleXet** ba*|
that I used to walk through
Form: ***hjj***-*Qal*-SUF-1-SG + Adjective + ***hlk***-Qal-INF
Meaning: past tense

*ze lo **aja** muSlag be-oto jom*|
it was not snowy that day
Form: ***hjj***-*Qal*-SUF-3-M-SG
Meaning: past tense

aval dej kaR|
but quite cold

*lo **istakalti** la-tsdadim*|
I did not look right and left
Form: ***skl***-*Hitpael*-SUF-1-SG
Meaning: perfective aspect

pitom ani ***maRgiS***|
suddenly I felt
Form: ***rgš***-*Hifil*-PTCP-M-SG
Meaning: relative tense, past reference

SeaRegel Seli lo ***oleXet*** *la-*
that my leg was not walking
Form: ***hlk***-*Qal*-PTCP-F-SG
Meaning: relative tense, past reference

laXofSi|
freely

ela|
but

taluj alea kelev|
a dog clung to it

There are two participles in this conversation, ***maRgiS*** 'feel' and ***oleXet*** 'walk', both expressing relative tense with a past reference point. The preceding units contain the auxiliary ***hjj*** 'be', which points at the past, as well as single lexical items with past reference, see example E-6 above, which contains the units preceding this example.

Participles can denote any imperfective aspect in SIH. Refer to example E-2 above. Two of the forms in this conversation are participles. The conversation describes an event, which has not yet happened. For this reason, the two participles in this conversation surely cannot express present tense. Both participles in this chunk express the progressive aspect, as they describe actions in progress. These actions are clearly not in the present, since they have not yet happened at the time of the conversation.

Note that relative tense cases are represented only by participles, but they are few, compared with the cases where participles represent

imperfective aspect. Another example, which demonstrates the use of participles to express relative tense, is presented below.

aXarej e- ***N-4-1314:114-119*** (E-15)
after eh

iks Sanim Selo ***itRaenu***|
several years in which we did not see each other
Form: ***rʔj****-Hitpael*-SUF-1-PL
Meaning: perfective aspect

ani ***magia*** *leboston beSiSim veSaloS*|
I arrived in Boston in 1963
Form: ***ngʕ****-Hifil*-PTCP-F-SG
Meaning: relative tense, past reference

veani ***Roa*** *oto gam beXul*|
and I saw him there too
Form: ***rʔj****-Qal*-PTCP-F-SG
Meaning: relative tense, past reference

Two participles are used in this conversation to express relative tense: ***magia*** 'arrive' and ***Roa*** 'see'. Although an exact time point of this event is given together with the use of the participles, the time point is relative to the flow of events in the speaker's story.

The cases of relative tense are also few compared with absolute tense cases in SIH (which are few as well): the majority of instances of tense in SIH is absolute tense, i.e. those cases that are relative to the speech time. As mentioned above, the tense category shows a very low usage percentage in SIH (~7%, see 5.4.1, 5.5.3 and 5.5.4 below).

5.2.1.6. The use of the auxiliary hjj 'be': tense representation in SIH

Only a very few verbal forms represent tense in SIH. These forms are limited to one root (***hjj*** 'be') appearing in one pattern (***Qal***), usually in the suffixed forms, together producing an auxiliary verb. These forms of ***hjj***

'be' are the only ones which represent tense in SIH. When using ***hjj*** 'be' forms, the use of additional time expressions is redundant, because the tense is already known from the context. Hence, in cases where ***hjj*** 'be' appears, usually no time expressions are present. Examples of such tense forms are presented below.

In the following conversation, the speaker talks about the suicide bomber who blew up a restaurant in Haifa, Israel, on October 2003. Since all the other participants know exactly when this event took place, no time expressions are needed in the sequence of speech units, and the root ***hjj*** 'be' is used.

bemaksim| ***N-4-2324:102-105*** (E-16)
in Maxim (***Maxim*** is the name of a restaurant in Haifa)

*kS**aja** apigua bemaksim*|
when the terrorist attach took place in Maxim
Form: ***hjj***-*Qal*-SUF-3-M-SG
Meaning: past tense

*az **aja** Sam e*|
there were eh
Form: ***hjj***-*Qal*-SUF-3-M-SG
Meaning: perfective aspect

kol minej miSpaXot im jeladim|
families with children there

The next example illustrates a similar situation. The speaker and another person, who is participating in the conversation, used to be neighbors. The speaker is relating to this period. Since all the participants know when this event occurred, the speaker is using ***hjj*** 'be' forms, and does not add any time expression to the conversation.

ken| ***N-4-1314:11-17*** (E-17)
yes

*u **aja** SaXen Seli*|
he used to be my neighbor
Form: ***hjj***-*Qal*-SUF-3-M-SG
Meaning: past tense

*ani **aiti** bat XameS esRe*|
I was fifteen years old
Form: ***hjj***-*Qal*-SUF-1-SG
Meaning: past tense

*kSeu **aja** student*|
when he was a student
Form: ***hjj***-*Qal*-SUF-3-M-SG
Meaning: past tense

*veani **aiti***-
and I was -
Form: ***hjj***-*Qal*-SUF-1-SG
Meaning: past tense

hjj 'be' forms can also be used with nominal predicates as time shifters. In such cases, they can be omitted from the unit, to obtain the same meaning but at another time occurrence. Nominal predicates without a support verb are grammatical in IH. Only the auxiliary ***hjj*** 'be' can be used to shift the nominal predicate in time, as will be apparent from the next example.

kol adjo| ***N-3-22-d:243-247*** (E-18)
all the ink

*ze **aja** keset im djo*|
it was an inkstand with ink
Form: ***hjj***-*Qal*-SUF-3-M-SG
Meaning: past tense

ajta nimRaXat |
used to be smeared
Form: ***hjj***-*Qal*-SUF-3-M-SG + ***mrħ***-*Nifal*-PTCP-F-SG
Meaning: habitual past

The second unit contains the auxiliary ***hjj*** 'be'. If we omit the auxiliary, the unit will still be grammatical, but it will not specify the time of occurrence:

ze keset im djo |
this is an inkstand with ink

In addition, ***hjj*** 'be' is used for the habitual past, together with participle forms. The combination of the two forms yields this meaning, which is a combination of habitual aspect (assigned by the participle) and past tense (assigned by the auxiliary verb ***hjj*** 'be'). For further explanation on the habitual past forms, see 5.4.4 below.

There are very few cases where ***hjj*** 'be' is used in a prefixed form to express future tense. In most of the cases, prefixed forms of ***hjj*** 'be' express mood, like all other prefixed forms in the language (see below). The following example shows the use of ***hjj*** 'be' in its prefixed form to express future tense.

Informant:

tekabel *et apRas*/ ***G-4-2-3:329-333*** (E-19)
you may receive the prize
Form: ***qbl***-*Piel*-PRE-2-M-SG
Meaning: assumptive mood

ije *tekes*||
there will be a ceremony
Form: ***hjj***-*Qal*-PRE-3-M-SG
Meaning: future tense

Friend:

ken|
yes

ken e|
yes eh

***Raiti** azmanot*|
I have seen the invitations
Form: ***rʔj**-Qal*-SUF-1-SG
Meaning: perfective aspect

This chunk contains three verbal forms. Two are prefixed forms and one is a suffixed form. The first prefixed form denotes an assumption of the speaker. The informant assumes that his friend will receive a prize. The second prefixed form contains the root ***hjj*** 'be', which denotes tense. From the context of this conversation, we can learn that the speaker knows about a ceremony that is going to take place. This is a pre-set event, and therefore, we know that it will happen and when. We also learn about it from the informant's friend, who uses a suffixed, perfective form, to mention that he has seen the invitations to this ceremony. Since the time of this ceremony is known, and it is scheduled for sometime after the speech time, it can be interpreted as future tense, and the auxiliary ***hjj*** 'be' is used for this purpose.

hjj 'be' forms representing tense (both past and future) constitute only 6-7% of the verbal forms in the language (see below). All other verbal forms represent other notions, out of which the most dominant one is aspect.

5.2.1.7. The combination of verbal forms in a conversation

The examples E-1 to E-19 above present verb forms that are referred to by traditional scholars as representing tense. In fact these forms represent aspects and mood, and only a few of them represent tense. It is apparent that most of these conversations contain a variety of verb forms that are

different from one another, and are a mix-up of suffixed, prefixed and participle forms, as well as some additional complex verb compound forms. The use of suffixed forms for the description of events that have not yet happened, and the use of prefixed forms for events that ended long ago show that the meanings lying behind the forms cannot express tense. Also, the fact that a conversation about the future can contain verbal forms, out of which not even one is a prefixed form, strengthens this claim. Additional examples are presented below to show the variety of verbs used in very short conversations.

titkaSRi *Se****jatsat***| ***Non-corpus example*** (E-20)
call me when you have left
Form: ***qšr****-Hitpael*-PRE-2-F-SG + *jts?-Qal*-SUF-2-F-SG
Meaning: imperative mood + perfective aspect

This speech unit was uttered by a native speaker, who was talking to her daughter. The daughter was at work, and the mother meant to pick her up after work. The first form is a prefixed form, representing a command. The second form is a suffixed form, representing a completed action but in the future. The event in the subordinate clause has not yet happened, yet, it does not use the prefixed form. The first prefixed form is not used as a future either, but as an imperative mood. Normative language purists would have considered these forms ungrammatical. But such a usage is widespread.

u ***baRaX*** *mimeni*| ***N-4-1:58-60*** (E-21)
it ran away from me
Form: ***brħ****-Qal*-SUF-3-M-SG
Meaning: perfective aspect

veani ***Rats*** *aXaRav*|
and I was running after it
Form: ***rwts****-Qal*-PTCP-M-SG
Meaning: progressive aspect

*@ani **Rodef** aXaRej akelev*|
(laughing) I was chasing the dog
Form: ***rdf***-*Qal*-PTCP-M-SG
Meaning: progressive aspect

This is a part of a longer conversation, uttered by a native speaker, who was talking about something that happened to him when he was younger. The first form is a suffixed form, representing the perfective aspect. The time point of this event is known from the previous context, and thus it is clear that it describes something in the past. Note that in other contexts, it could be interpreted differently, and not necessarily in the past. The other two forms are participles, representing actions in progress. The entire event ended a long time ago. Still, two participles are used to express the imperfectivity of these actions.

5.2.1.8. SIH as a non-tense language: summary

SIH is not a tense-based language, because its verbal forms do not carry a temporal meaning. If the verbal forms had represented tense, the time of occurrence would have been obvious from the forms, even when being isolated from their context. But this is not the case. A context-free SIH verb does not by default express the time of occurrence. From the above sections, it is apparent that peripheral means are needed in order to understand the time of occurrence of the described events. Such means are lexical time expressions, which are completely external to the verb system, and the auxiliary ***hjj*** 'be', which is part of the verbal system, but not a verb inflection. On the other hand, verbal forms, which in traditional theories are claimed to express tense, in fact express other semantic categories rather than tense, such as aspect and mood. Suffixed forms, which are claimed to express past tense, actually express the perfective aspect, and are widely used in contexts which have not yet happened. Prefixed forms, which are claimed to express future tense, actually express several types of mood, in particular the imperative mood, and can be found in non-future contexts. Participles, which are claimed to express present tense, never express present tense, but rather express the

imperfective aspect or, in some cases, relative simultaneous tense, and are always found in non-present contexts. In addition, all forms can be used one after the other within the same conversation without changing the absolute time point of the events. If IH were a tense language as claimed, I would expect, for example, all forms in a conversation about the past to be suffixed forms.

Apparently, none of the linguistic definitions of tense applies to SIH verbal forms, and additional information is always needed for the listener in order to understand the time of occurrence.

5.2.2. Why is SIH aspect-based?

In the previous section I show why SIH is not a tense-oriented language. I give examples of verbal forms, which do not express tense, but are claimed to express tense by traditional language purists. These examples are representative of the corpus as a whole, and verbal forms represent other notions rather than tense. But in order to claim that SIH is aspect-oriented, further arguments are needed. These arguments are presented below.

5.2.2.1. Historical reasons

As mentioned above, Israeli Hebrew (IH; also referred to as Modern Hebrew (MH) by scholars) is described in the literature as a tense-based language. Historically, it is unclear why its verb system has always been referred to as expressing tense. It has been debatable how the language spoken in Israel was created, and there are several theories about the emergence of SIH. No matter which emergence theory is adopted, the SIH parent language (or languages, if we follow Zuckermann's theory), as well as the SIH additional contributors, present(s) an aspectual verb system. Apparently, there is no reason that the target language would have a tense-based verb system, no matter what the emergence approach is. Being one of the core systems in a language, the verb system of SIH is assumed to reflect the character of the verb system(s) of

its antecedent(s), as well as the verb systems of its first speakers' native languages. This follows the ***founder principle***, according to which the target language would always reflect the character of the native languages of its founders (Zuckermann 2006:62, 2008:48). IH first speakers' native languages were mainly Yiddish and Slavic languages, as well as some additional ones. Therefore, according to all approaches, when referring to the emergence of Israeli Hebrew, its verb system should have presented aspectual properties. This is true in either of the 'emergence' theories: In case that IH emerged from previous Hebrew layers – it should have reflected the verb systems of Biblical and Mishnaic Hebrew, which are aspectual. If, on the other hand, IH is a Slavic language or a descendent of Yiddish in a Semitic disguise, as Wexler (1990) claims, it should also have an aspectual verb system, as both Slavic and Yiddish verb systems are aspectual (Binnick 1991:135-139, Jacobs 2005: 221-222). If IH is a new entity based on Yiddish and Hebrew, as Zuckermann (2006, 2008) claims, it should also have an aspectual verb system, as both Yiddish and previous layers of Hebrew present such systems, in addition to the minor contributors, such as Russian, Polish, German and Arabic, with the exception of English, which is a minor contributor, and a tense-based language. Thus, the origin of the idea according to which the IH verb system is tense-based is unclear.

5.2.2.2. Quantitative reasons

The analysis of forms in the corpus shows the following statistical distribution: Over two thirds of the forms in both groups (research group and control group) exhibit aspectual meanings, see 5.5.1 and 5.5.2 below. These forms include suffixed forms and participles, or variations of suffixed forms and participles with several types of complements. This means that more than 67% of the verbal forms in SIH are used to express aspect, and that these forms are the same ones that in traditional grammars are referred to as expressing past and present tense, respectively. Since the vast majority of the verb system in SIH is used to express aspect, SIH should be referred to as aspect-oriented, rather than as tense-oriented.

5.2.2.3. Theoretical linguistic definitions

The difference between the current analysis and the traditional one, is that in traditional grammar, there is no explanation for cases like the ones presented in examples E-1 to E-21 (as well as many more), which obviously do not express tense. Normative views might have conceived these as 'ungrammatical'. Yet, since these are widely produced by native speakers, it is impossible to exclude them from the language, with the claim that they are ungrammatical or non-representative. It is not likely that native speakers would use so many ungrammatical structures of their own language during speech, and still understand each other so well. If most of the native speakers of the language use these forms, then they must be grammatical, and there must be some logic in their use. Therefore, these forms are referred to in this study as representing standard speech, as well as being grammatical, where 'grammatical' does not refer to 'normative'. Normative approaches support the direction of the language to what the normativists consider 'grammatical'. All the rest is ungrammatical or constitutes a set of 'mistakes'. SIH native speakers use other rules than the normative ones. These rules have their own logic and they are not inferior to normative rules. SIH native speakers use 'non-normative' rules for daily communication and still understand each other very well. This means that they share the same rules. This also means that their non-normative rules work. This is called grammar, and therefore, these rules are grammatical. The linguistic definitions of aspect cover all these 'ungrammatical' cases, as opposed to the definitions of tense, which are obviously not followed in a case that the system is analyzed as tense-prominent.

The fact that tense in SIH is represented only by one auxiliary form, which is limited in root and pattern, corresponds to Bhat's theory whereby a language can be prominent for one semantic category, and that other semantic categories are represented to a lesser degree or by peripheral means in that language. Auxiliary verbs are one type of peripheral means. Lexical time expressions are another type of peripheral means. In SIH

both an auxiliary verb and lexical time expressions are used to express tense, but inflected forms express other categories which according to Bhat's theory means that SIH is not tense-prominent.

5.2.3. What is the status of mood in SIH?

The SIH verb system contains two main structure types which express mood: prefixed verbs and imperative forms. The former are referred to by traditional grammars as future tense, the latter as imperatives. The only detail in the traditional MH verb system that is parallel to the findings in this research is the use of imperative forms to express the imperative mood. But there is a large difference between the reasons for that use in the two approaches and between the ways that these imperatives are derived. The explanations are provided below.

5.2.3.1. The origin of imperative forms

The traditional approach presents the imperative forms as independent forms, based on the prefixed forms of each verbal pattern, with some constant changes. According to this approach, each pattern, apart from the passive patterns, has its own imperative form. All normative imperative forms are based on their parallel prefixed forms. For example, according to the traditional approach, imperative forms of the pattern *Qal* are based on their parallel prefixed form. This way, the imperative form of *Qal* should look as follows: $C_1əC_2aC_3$ or $C_1əC_2oC_3$. These forms are derivatives of $XiC_1C_2aC_3$ and $XiC_1C_2oC_3$, respectively, the two prefixed patterns of *Qal* (X stands for a consonant, which changes according to the person and number). Similarly, traditional scholars claim that imperative forms of the pattern *Hifil* are still in use, and should look as follows: $haC_1C_2eC_3$. This is a historical form, based on the prefixed form $XaC_1C_2iC_3$, (again, 'X' represents a changing consonant, depending on the person and number). Sometimes, the combination of the imperative pattern with a root forms a consonant cluster in word initial position. This mainly happens in the second person feminine and second person plural. Since traditional Hebrew does not allow a consonant cluster in word initial position, a short

epenthetic vowel is inserted between C_1 and C_2, as shown above for the *Qal* imperative forms. Imperative forms of the *Qal* pattern were found in the corpus, whereas not even one imperative form of the *Hifil* pattern was found. Only negligible numbers of imperative forms were found in other patterns than *Qal*; in the research group only three forms of *Nifal* imperative (non-normative) and eight forms of *Piel* imperative were found; in the control group only eleven forms of *Piel* imperative were found. *Hifil* imperative forms were completely absent, and their parallel prefixed forms were used instead. The imperative forms that were found do not follow the normative formation rules of the imperative. Upon further consideration, it turns out that the reason for using imperative forms in SIH is phonological, and not morphological. Imperative forms in SIH are employed almost always only in cases where a root with (a) weak consonant(s) is used. A negligible number of cases were observed with imperatives containing roots with three strong consonants. All these forms are derived by the omission of the initial syllable of the prefixed form, rather than by using a separate imperative pattern, as in the classical forms. Refer to example E-22 below; the omitted syllable is underlined:

Prefixed form:	***taazvi*** 'leave (it)'	***tifteXu*** 'open'	(E-22)
Normative imperative:	***ʔ`izvi***	***pitXu***	
Spoken imperative:	***azvi***	***fteXu***	
	(***ʕzb***-*Qal*-2-F-SG)	(***ptħ***-*Qal*-2- PL)	

Only forms like ***azvi*** 'leave (it)' and ***fteXu*** 'open' were found in the corpus. Not even one classical form like ***ʔ`izvi*** 'leave (it)' and ***pitXu*** 'open' was found. The forms that were found are derived from their parallel prefixed form by the omission of the first syllable, which contains the person and number. The imperative forms in SIH do not follow a constant pattern, but rather a phonological omission. The rules, according to which classical imperatives are derived, do not apply here, neither do they apply in other similar examples across the corpus. It has been already implied by Bat-El (2002:657-458) that imperatives in Israeli Hebrew (to which she

refers as Colloquial Hebrew) are derived phonologically. Yet, she refers to truncation in all imperative forms in IH. In the corpus truncation was found mainly in forms with weak root consonant(s), and in a limited number of patterns.

This means that SIH has phonologically-derived imperative forms. These imperatives are sometimes identical to and sometimes different in form from the normative patterns. They are different in their derivation process, as they follow a phonological constraint, and not a morphological pattern, and they are not possible for all roots. They are produced only under specific constraints; otherwise, their parallel prefixed forms are used. It is assumed that the normative imperative forms are not productive in SIH, and that identical normative and spoken forms are probably a result of a coincidence, rather than of an identical rule.

This means that the origin of the imperative forms in SIH is different from that of the classical, normative forms, and that the main mood-expressing category in SIH is the prefixed form, which is claimed to represent future tense according to normative views. Prefixed forms are used to express the imperative as well.

5.2.3.2. Prefixed forms in SIH express mood

Since there is complete agreement between form and modal meaning in SIH, and modality types are grammaticalized at the morphological level, it is concluded that mood exists in the verb system of SIH. The forms which express mood are prefixed forms and imperative forms, the latter being phonological derivatives of the former.

Refer to 5.2.1.4 above. All prefixed forms that were found in the corpus express mood. No prefixed form expressed anything else but mood. The specific mood type is not denoted by the prefixed patterns, but rather by other parameters in the context, such as lexical items or other verbal patterns. The most widespread use of the prefixed forms is the imperative mood, but other types of mood are also used with the prefixed forms. Refer to Example E-23 below.

*al **taSmii** et ze po*| ***N-3-23:77-84*** (E-23)
do not play it here
Form: ***šmʕ***-*Hifil*-PRE-2-F-SG
Meaning: imperative mood

…….

***tigzeRi** et ze*|
cut it (with scissors)
Form: ***gzr***-*Qal*-PRE-2-F-SG
Meaning: imperative mood

***tefazRi** et ze*|
scatter it
Form: ***pzr***-*Qal*-PRE-2-F-SG
Meaning: imperative mood

*Selo **jakiRu** et a##*|
so that it should not be recognized
Form: ***nkr***-*Hifil*-PRE-3-PL
Meaning: optative mood

SIH 'imperative' forms, which are phonologically derived from prefixed forms, also express mood, only that these forms express the imperative mood only, and not other mood types.

5.2.3.3. Quantitative information

Mood is the second most widespread category in SIH after aspect. It constitutes almost 25% of all verbal forms in a conversation, see 5.5.1 and 5.5.2 below. The patterns which represent mood in SIH are prefixed forms, as well as imperative forms, which are not the same imperative forms as in traditional grammars, but newly-created, phonologically-oriented ones.

Apparently, there is a hierarchy in SIH in the TMA categorization, where aspect is the most prominent, mood is the second most prominent,

and tense is the least prominent category. The grammaticalization of aspect is the most widespread, and makes use of the largest number of forms and the largest number of patterns (suffixed forms and participles). The grammaticalization of mood includes less forms than the aspect category: only the prefixed patterns and the imperative forms, which are assumed to be dependent on and derived from the prefixed forms and are limited in their distribution. The grammaticalization of tense is limited to one root in one pattern, in most of the cases only to suffixed forms. This produces the lowest number of forms, and is thus the least prominent. Also, in the case of tense, the use of many peripheral means is needed, which is typical for non-prominent categories.

There is a clear border in the SIH verb system between the forms and the meanings they represent: suffixed forms and participles represent aspects; prefixed forms (and imperatives) represent mood; a suffixed ***hjj*** 'be' in the *Qal* pattern represents tense.

5.2.3.4. Theoretical linguistic definitions

According to Bhat (1999), semantically speaking, only one of the three TMA categories can be prominent in a language. This means that the three TMA categories must be inter-related, since otherwise, they could have had the same degree of dominance, which is usually not the case. This is apparent in the above hierarchy of TMA categories in SIH. According to Bhat, languages make use of their prominent category to express the other two, non-prominent categories. For example, he claims that in languages, which are aspect-prominent, past tense is expressed by a variety of the perfective (p. 91). SIH presents exactly this case, where suffixed forms, basically expressing aspect, are used to express past tense, yet with additional peripheral means, usually time expressions, that indicate that the event happened in the past. Sometimes, participles can be used to express future tense as well, again, with the addition of a time expression, which denotes future. Mood can be also inter-related to tense. It is mainly used to express the imperative mood, but with the addition of

time expressions, its forms can be used to express future tense, like in the case of aspect.

5.3. Verb constructions – formal discussion

In this section I will start from the various verbal forms and study the TMA meanings they may express. Table 5-4 below shows the major verb forms in SIH and the major TMA meanings they represent. The participle is the most used verbal form in SIH. Participles in SIH represent mainly imperfective aspect, but also relative tense. Some of the forms are parallel to the normative forms, which are shown in Figure 5-1. Note the differences in meanings.

Table 5-4: Major verb forms and their meanings in SIH

Verb form	Tense	Mood	Aspect	Tense+ aspect
Suffixed verbs			Perfective	
Participles	Relative		Imperfective	
Prefixed verbs		Imperative + other types		
Imperatives		Imperative		
Suffixed ***hjj*** 'be' forms in *Qal*	Past			
Suffixed ***hjj*** 'be' forms in other patterns			Perfective	
Suffixed ***hjj*** 'be' + participle		Counterfactual		Habitual past

5.3.1. The participle in SIH and its use

Participles in SIH can be used both as verbs and as nominals. Each of the SIH verb patterns has its own participle forms, which are inflected for gender and number, but not for person. Participles can thus appear in four forms, similarly to nominals in IH. Figure 5-2 below shows the four participle forms of the ***Qal*** pattern. 'C' represents a root consonant; the stress location is also noted. The plural suffixes of the participles

correspond to plural suffixes in the nominal system of SIH. The root used in the example is ***lmd*** 'learn, study'.

	Singular	**Plural**
Male	*CoCéC → lomed*	*CoCCíC → lomdim*
Female	*CoCéCet → lomedet*	*CoCCót → lomdot*

*Figure 5-2: Participle inflections of the root **lmd** 'learn, study' in the **Qal** pattern*

When a participle is the only verbal form in the expression, it generally expresses the imperfective aspect. On a more limited scale, the participle also expresses relative tense. As mentioned above, this only happens in narrative texts. There is no grammatical distinction between imperfective sub-types, and the more specific aspectual meanings are derived from the context, rather than by a separate grammatical structure. Therefore, habitual, progressive, continuous, iterative and durative aspects are all expressed by the same form, which is the participle.

Participles are also used as parts of verbal constructions. Such constructions can include either two contiguous participles or a participle preceded by a suffixed form of the root ***hjj*** 'be' in the *Qal* pattern. In the former case – the two participles express a quantitative, durative aspect. In the latter case, the construction expresses the habitual past. Further details on these constructions along with examples are presented in 5.3.6.2 and 5.4.4 below, respectively.

As mentioned earlier, participles can also express relative tense in the past, i.e., in cases where past time reference is obvious from the context. This happens only in narratives, where participle forms serve as part of the flow of events. Examples for the use of participle as a relative tense specifier are presented in E-14 and E-15 above.

The main role of the participle is the expression of the imperfective aspect, i.e. it is marked for the imperfective. Its functioning as a relative tense specifier is dependent on the context and content of the conversation. Participles serving as imperfective aspect are default cases, whereas all other appearances of the participle are conditioned.

In Modern Hebrew grammars, participles are referred to by the authors as present tense. In fact, participles in SIH can serve as almost everything else but present tense. The many roles of the participle do not negate the fact that participles, in their deep structures, are marked for the imperfective aspect.

5.3.2. Suffixed forms and their use

Suffixed verb forms in SIH express the perfective aspect. They do not express past tense, as traditional scholars claim, because they are used to express complete actions, which are not necessarily in the past. There is one exception to this rule: Whenever the auxiliary verb ***hjj*** 'be' is used in combination with the verb pattern *Qal*, the suffixed form expresses past tense. In all other cases, it expresses perfective aspect. An example for a suffixed form expressing a perfective meaning, which is not in the past, but actually in the future, is presented below:

*lo **jeleX*** | ***C-4-1-3:229-232*** (E-24)
if it does not work
Form: ***hlk***-*Qal*-PRE-3-M-SG
Meaning: speculative mood

*lo **imtsa** Xen beenaj* |
if it does not work
Form: ***mts?***-*Qal*-PRE-3-M-SG {an idiom}
Meaning: speculative mood

alaX |

I will give it up
Form: ***hlk***-*Qal*-SUF-3-M-SG
Meaning: perfective aspect

mamSiXim *ala* |

and will continue forward
Form: ***mšk***-*Hifil*-PTCP-M-PL
Meaning: relative tense

5.3.3. Prefixed forms and their use

Prefixed forms in SIH express mood. Several types of mood exist in SIH, the most widespread is the imperative. Most of the prefixed forms are used as imperatives. Imperative forms are also used for this purpose, but they are derived from the prefixed forms, and are phonological in nature, see 5.2.1.4 above. There is no distinction in form between the various mood types. A distinction between them is possible according to the context of the conversation or to lexical items. As opposed to the traditional approach, prefixed forms do not express future tense. They are tenseless, appearing in conversations describing events that have ended. Also, they can be absent from conversations, describing future events.

5.3.4. Imperative forms and their use

Imperative forms express the imperative (directive) mood. They correlate with the prefixed forms in this regard. There is a clear distinction of when a prefixed form is used to express the imperative, and when an imperative form is used for the same purpose. Imperative forms are used only in cases where at least one root consonant is a weak consonant. Weak root consonants in SIH can be glottal consonants (which are not pronounced at all), glides or sonorant consonants. It does not matter where the weak consonant is located in the root in order that the imperative form be used. It can be the first, second or third (usually also last) consonant of the root.

Prefixed forms that express the imperative mood have all their root consonants overt.

Imperative forms are used only as commands. Prohibition, for example, is always expressed by the negation of a prefixed form, and does not make use of imperative forms at all. Examples of imperative forms from the corpus are presented below.

bo |
come
Form: ***bwʔ***-*Qal*-IMP-2-M-SG
Meaning: Imperative mood
G-12-4-1-B:371-373 (E-25)

jeled matok |
sweet boy

bo |
come
Form: ***bwʔ***-*Qal*-IMP-2-M-SG
Meaning: Imperative mood

Xake *Rega* |
Wait a minute
Form: ***ħkj***-*Piel*-IMP-2-M-SG
Meaning: Imperative mood
G-8-3-1:141 (E-26)

simi *et ze po* |
put it here
Form: ***sjm***-*Qal*-IMP-2-F-SG
Meaning: Imperative mood
D-6-3-1:322 (E-27)

5.3.5. Auxiliary verb constructions

There is only one auxiliary verb in SIH, which is the root ***hjj*** 'be' in combination with the *Qal* pattern. This form expresses tense, usually appearing as a suffixed form, sometimes appearing as a prefixed form. When suffix-inflected it represents past tense. When prefix-inflected it

represents future tense. When the root ***hjj*** ‘be’ appears in any other verb pattern it expresses aspect (if the pattern is suffix-inflected or a participle) or mood (if the pattern is prefix-inflected). Examples from the corpus of the auxiliary verb ***hjj*** ‘be’ are presented below.

*ze **ije** dalil* | ***C-2-1-2:157*** (E-28)
it will become diluted
Form: ***hjj***-*Qal*-PRE-3-M-SG
Meaning: Future tense

*ze **aja** eleganti* | ***G-8-1-3:322*** (E-29)
this was elegant
Form: ***hjj***-*Qal*-PRE-3-M-SG
Meaning: Past tense

5.3.6. Concatenated verbs

The number of concatenated verbs in this research was relatively low. Yet, several types of concatenated verbs could be identified, and are detailed below. Each of the verbs in these phrases is inflected separately. Still, it is important to note that as opposed to the habitual past construction, concatenated verb phrases with more than one inflected element denote only one TMA category, usually different types of mood or a quantitative aspect. The types of verb phrases with more than one inflected element that were found in this research are detailed below.

5.3.6.1. Two suffixed forms in a sequence

Sequences of two suffixed verbs were found in this study. Although not widespread, all the occurrences of this construction are characterized by a sequence of a state verb followed by an active verb. The first element in these phrases, the state verb, assigns a durative meaning to the whole phrase. Thus, these phrases represent durative aspect. This construction is an exception, for two reasons: First, it makes use of two qualitative forms in a sequence to express a quantitative aspect. Second, as opposed to other sequences of two inflected forms, it represents aspect,

and not mood. Each element of the phrase is separately inflected, and both elements have an identical inflection. But the construction still represents only one TMA category. Like other constructions found in this study, this may hint at a tendency to prefer more analytical constructions in the language. The following examples illustrate such constructions:

jaSav dibeR | ***G-4-2-3:884*** (E-30)
he was speaking (literally: he sat spoke)
Form: ***jšb***-Qal-SUF-3-M-SG + ***dbr***-Piel-SUF-3-M-SG
Meaning: durative aspect

amad safaR | ***C-11-4-1:57*** (E-31)
he was counting (literally: he stood counted)
Form: ***ʕmd***-Qal-SUF-3-M-SG + ***spr***-Qal-SUF-3-M-SG
Meaning: durative aspect

It should be noted that the two verbs in these constructions are always adjacent, and nothing can appear between them. There are cases where the conjugation word ***ve-*** 'and' is present between the two elements of the phrase. In these cases each of the elements expresses the perfective aspect independently.

5.3.6.2. Two participles in a sequence

A few sequences of two participles were found in this study. Like the sequence of two suffixed forms, this sequence also represents aspect, and not mood. But as opposed to the sequence of two suffixed forms, this sequence makes use of two qualitative forms in a sequence to produce a quantitative aspect, namely durative meaning. Similarly to the two suffixed forms, the first element in these constructions is always a state verb, which is apparently the element that assigns the durative meaning to the whole expression. This means that in SIH it is possible to produce a specific durative aspect using two participles, one after the other, with the first one being a state verb. Yet, in most of the cases the durative aspect is specified in SIH by external lexical means. It is possible that a process of change is underway, where the two forms exist. The distribution of the

forms suggests that expressions where external lexical means are used are currently the more dominant ones. Examples of two consequent participles are presented below:

joSev medabeR | ***G-4-2-3:57*** (E-32)
sitting (and) speaking
Form: ***jšb***-Qal-PTCP-M-SG + *dbR*-Piel-PTCP-M-SG
Meaning: durative aspect

omedet boXeRet | ***G-3-2-1:183*** (E-33)
standing (and) picking up
Form: ***ʕmd***-Qal-PTCP-F-SG + *bXR*-Qal-PTCP-F-SG
Meaning: durative aspect

5.3.6.3. Two prefixed forms in a sequence

A sequence of two prefixed forms was also observed in this study. Although not very widespread, it is clear from its occurrences that there are two main types of such constructions. The first type contains two identical prefixed forms, one after the other. Both these forms are inflected for the second person. This type always denotes the imperative, like in the following examples:

tamSiX tamSiX | ***G-6-3-2:129*** (E-34)
go on, go on
Form: ***mšk***-Hifil-PRE-2-M-SG + ***mšk***-Hifil-PRE-2-M-SG
Meaning: imperative mood

tavi tavi | ***D-7-4-1:304*** (E-35)
bring (it to me), bring (it to me)
Form: ***bwʔ***-Hifil-PRE-2-M-SG + ***bwʔ***-Hifil-PRE-2-M-SG
Meaning: imperative mood

In the second type, the first element is always a dynamic verb, more specifically a movement verb, in particular the verbs ***evi*** ‘bring’ (***bwʔ***-*Hifil*-SUF-3-M-SG) and ***ba*** ‘come’ (***bwʔ***-*Qal*-SUF-3-M-SG), both having the

same root. This type represents either directive or hortative mood, as in the following example:

tavo teSev | ***G-6-3-2:28*** (E-36)
sit down
Form: ***bwʔ***-*Qal*-PRE-2-M-SG + ***jšb***-*Qal*-PRE-2-M-SG
Meaning: directive mood

tavi niRe | ***D-7-4-1:408*** (E-37)
let me see OR let's see
Form: ***bwʔ***-*Hifil*-PRE-2-M-SG + ***rʔj***-*Qal*-PRE-1-PL
Meaning: hortative mood

Both types represent an illocutionary act, where the duplication of the prefixed form is meant to point at an immediate action, i.e. something, which is to be done immediately. This act can be either directive or hortative. In the second type, the two elements do not need to be inflected for the same person and number. Yet, the immediate act meaning is still there.

5.3.6.4. Two imperative forms in a sequence

A sequence of two imperative forms was also found in this study. This construction has two main types. Similarly to the sequence of two prefixed forms, the first type contains two identical imperative forms in a sequence. The example below shows this type:

kXi kXi | ***C-11-4-1-B:9*** (E-38)
take (it), take (it)
Form: ***lkħ***-*Qal*-IMP-2-F-SG + ***lkħ***-*Qal*-IMP-2-F-SG
Meaning: imperative mood (immediate)

Similarly to the construction with the two prefixed forms, the first element of the second type is always a dynamic verb, more specifically a movement verb. There were two such elements in this study: ***bo*** 'come' and ***leX*** 'go'. The following example illustrates such a construction:

bo kaX | ***G-12-4-1:149*** (E-39)
come take
Form: ***bwʔ***-*Qal*-IMP-2-M-SG + ***lkħ***-*Qal*-IMP-2-M-PL
Meaning: imperative mood (immediate)

In both types, this construction denotes the imperative. Apparently, there is no difference in meaning between the sequence of two prefixed forms and the sequence of two imperative forms. Please note that imperative forms are used only in cases where the roots of the forms have at least one weak consonant, otherwise the prefixed forms are used. Probably, the two constructions fulfill the same functions and the use of the imperative forms is due to phonological reasons rather than to morphological or syntactic ones.

5.3.6.5. A sequence of imperative form + prefixed form

Sequences of an imperative form followed by a prefixed form were found in this study. This construction type always contains a movement verb as its first component. The movement verbs observed in these constructions in the study were ***bo*** 'come' (root ***bwʔ***) and ***leX*** 'go' (root ***hlk***). The second component is a prefixed verb, which inflects for the second person, having an inflection identical to the first component, or first person plural. The former case denotes the imperative mood, the latter usually denotes the hortative mood. Furthermore, the imperative of ***bo*** 'come' can have both types of complement, whereas the complement of ***leX*** 'go' can only be of the first type, which means it can only have the same person-number inflection as the first component. The examples below show these types:

Imperative (***bo*** 'come') + prefixed form – both inflected identically:

boj teRdi | ***C-5-2-3:561*** (E-40)
come down here
Form: ***bwʔ***-*Qal*-IMP-2-F-SG + ***jrd***-*Qal*-IMP-2-F-PL
Meaning: imperative mood

Imperative (***leX*** 'go') + prefixed form – both inflected identically:

leXu tivdeku *ma* ***koRe*** *Sama* | ***G-6-3-2:366*** (E-41)
go check what is happening there
Form: ***hlk***-*Qal*-IMP-2-PL + ***bdq***-*Qal*-IMP-2- PL + ***qrj***-*Qal*-PTCP-M- SG
Meaning: imperative mood + progressive aspect

Imperative (***bo*** 'come') + prefixed form – differently inflected:

bo nazmin *pitsa* | ***G-5-1-1:535*** (E-42)
let's order pizza
Form: ***bwʔ***-*Qal*-IMP-2-M-SG + ***zmn***-*Hifil*-PRE-1-PL
Meaning: hortative mood

Apparently, there is no difference between the use of this construction, and the use of prefixed forms alone. The first two examples could have the same meaning when uttered without the first component (imperative form of a movement verb), i.e. ***teRdi*** 'go down' and ***tivdeku*** 'check', respectively. Yet in the third example, the compound cannot be separated, because it will lose its meaning.

5.3.6.6. Infinitive complements

Infinitive complements are very widespread in SIH. They can appear with any verbal form, as well as with adjectives. Infinitives do not carry TMA, since they are nominal in nature, and are not inflected. They are not discussed separately in this thesis, but rather as part of other constructions. Infinitive complements are considered grammatical in normative views.

5.3.6.7. Modal verbs

There are several modals in SIH. These are either verbs or adjectives with an inherent modal meaning, which are followed by an infinitive complement. In some cases they can also appear with nominal

complements in the accusative case. Such auxiliaries, for example, are ***Xajav*** 'must' and ***tsaRiX*** 'need', as well as ***jaXol*** 'can' and ***Rotse*** 'want'. The first two are mostly adjectives, the last two have verbal inflections. Although ***tsaRiX*** 'need' can inflect in the *Hitpael* pattern, these inflected forms are hardly used in regular speech. ***tsaRiX*** 'need' is mainly used as an adjective. ***jaXol*** 'can' can inflect in the *Qal* pattern in some cases, but usually its participle forms are used. Suffixed and prefixed forms of ***jaXol*** 'can' are more rare, and are usually replaced by a construction of the auxiliary ***hjj*** 'be' followed by a participle form of ***jaXol*** 'can', which is a more analytical structure. ***Rotse*** 'want' inflects in the *Qal* pattern, and is used this way in speech as well. ***Xajav*** 'must' appears only as an adjective. These forms, in particular ***Xajav*** 'must' and ***tsaRiX*** 'need', are not auxiliary verbs, but can perhaps be considered as semi-auxiliary forms. They are different from ***hjj*** 'be' in that the latter indicates only a shift in time, whereas this group of words indicates a modal property, which is inherent in their lexical root. Therefore, ***hjj*** 'be' cannot change the meaning of the complement, while these words can add an additional modal meaning to it. It is possible that these words will turn into auxiliaries in the future and that they are currently in the process of changing.

5.4. TMA categories – semantic discussion

In the previous section I started out from the various verb forms and studied their TMA meanings. In this section I take the opposite perspective, and study how various types of TMA meanings can be expressed formally.

5.4.1. Tense

5.4.1.1. Absolute tense

Representation of absolute tense in SIH is achieved only by the auxiliary verb ***hjj*** 'be' in combination with the *Qal* pattern. These are inflected forms of the root ***hjj*** 'be' in the *Qal* pattern, usually appearing as suffixed forms,

but sometimes also as prefixed forms. No participle forms of ***hjj*** 'be' exist. A very few forms of ***hjj*** 'be' inflected in the *Nifal* pattern (suffixed form) were found in this study. However, these do not denote tense, but rather aspect, similarly to other suffixed forms. The use of the auxiliary ***hjj*** 'be' as a tense specifier can be further sub-divided into two types of cases:

- When ***hjj*** 'be' is the only verbal form in the expression, and it is followed by a nominal complement, as in the following example:

  *ze lo **aja** efRoaX* | ***D-6-3-2:317*** (E-43)
  it was not a chick
  Form: ***hjj***-*Qal*-SUF-3-M-SG
  Meaning: past tense

- When ***hjj*** 'be' is followed by a verbal participle form, which denotes aspect, together expressing either the habitual past or counterfactual mood. Examples E-44 and E-45 below show the use of ***hjj*** 'be' as part of the habitual past, and as part of the counterfactual mood, resepctively. There are two consequent habitual past cases in Example E-44. Both of them appear in 'broken' speech units. Yet, this fact does not change their habitual past meaning.

  *i **ajta** beemet*| ***N-4-2:117-119*** (E-44)
  she was (=literally: used to) really
  Form: ***hjj***-*Qal*-SUF-3-F-SG
  Meaning: habitual past – first part

  oseket** bebaalej Xaim Sebaem (.) **aju-
  working with animals in which were (=literally: used to)
  Form: ***ʕsq***-*Qal*-PTCP-F-SG + ***hjj***-*Qal*-SUF-3-PL
  Meaning: habitual past – second part + habitual past – first part

  ***osim** nisuim*|
  performing trials
  Form: ***ʕsj***-*Qal*-PTCP-M-PL
  Meaning: habitual past – second part

Whole expression meaning: She used to work with animals, which used to undergo (medical) trials

The counterfactual mood is presented in Example E-45 below.

ani noRa ***oev*** *Xaj- baalej Xaim*| ***N-4-2:99-102*** (E-45)
I very much like ani- animals
Form: ***ʔhb****-Qal*-SUF-3-M-SG
Meaning: habitual aspect

mamaS|
really

aiti jaXol lilmod—
I could have studied—
Form: ***hjj****-Qal*-SUF-3-M-SG + ***jkl****-Qal*-PTCP-M-SG + ***lmd****-Qal*-INF
Meaning: counterfactual mood

*jeS miktsoa Se****nikRa*** *{animal husbandry}*|
there is a profession called animal husbandry
Form: ***qrʔ****-Nifal*-PTCP-M-SG
Meaning: habitual aspect

For discussion of the habitual past see 5.4.4 below. For discussion of the counterfactual mood see 5.4.2.2 below. Example E-18 above illustrates both ***hjj*** 'be' sub-types – past tense and the habitual past, where the first ***hjj*** 'be' is followed by a nominal complement and represents tense, whereas the second ***hjj*** 'be' is followed by a participle and represents the habitual past.

5.4.1.2. Relative tense

In the course of a conversation, especially in narrative chunks, cases of relative tense were observed in SIH. These cases are strictly conditioned. They are always expressed by participle forms, and they must have an absolute time reference established somewhere in the context. This time reference can be expressed either grammatically or lexically. The vast

majority of the cases of absolute time reference in SIH is lexical. For the use of participles as relative tense specifiers, see 5.3.1 above.

5.4.2. Mood

5.4.2.1. Imperative mood

Imperative mood denotes direct commands or requests, and is usually expressed in IH by two types of forms, one serving as the subsidiary of the other. These forms are the prefixed forms and the imperative forms, respectively. Types of direct commands are prohibition, permission and the like.

An example for the imperative mood in SIH, as observed in this study, is presented below.

al ***taSmii*** *et ze po* | ***N-3-23:77*** (E-46)
do not play it here
Form: ***šmʕ***-*Hifil*-PRE-2-F-SG
Meaning: imperative mood

5.4.2.2. Counterfactual mood

Counterfactual mood occurs in a conditional statement that indicates what would be the case if its antecedent were true. Since it describes a hypothetical situation rather than a real one, it is in many cases considered mood. Yet, researchers have pointed at a strong connection between counterfactuals and the habitual aspect, claiming that these two are using the same morphology. Their claim is based on a typological study of several languages (Haiman and Kuteva 2002:119). None of these languages was Israeli Hebrew. Yet, Israeli Hebrew represents similar behavior in this regard. Counterfactual mood structures were found in this research, having an identical morpho-syntactic structure as the habitual past.

An example for the counterfactual mood in SIH, as observed in this study, is presented below.

ani ***aiti neXSelet*** beRoRSaX | ***N-3-22:289*** (E-47)

I would have failed Rorschach

Form: ***hjj***-*Qal*-SUF-1-SG + ***kšl***-*Nifal*-PTCP-F-SG

Meaning: counterfactual mood

5.4.2.3. Assumptive mood

Assumptive mood indicates that the statement is assumed to be true, because under similar circumstances it is usually true, although there is no evidence that the statement is true at the moment of speech.

An example for the assumptive mood in SIH, as observed in this study, is presented below.

baRega Seani bematsav Sebo | ***G-9-3-1:524-527*** (E-48)

when I get into a situation in which

ani lo meRutse |

I am unhappy

……

az min astam i ***titmoX*** *bi ve****tagid*** |

then she will probably support me and say

Form: ***tmk***-*Qal*-PRE-3-F-SG + ***ngd***-*Hifil*-PRE-3-F-SG

Meaning: assumptive mood

……

5.4.2.4. Hortative mood

Hortative mood is a group of semantically similar deontic moods, which are relatively neutral with regard to attitude, usually reflecting encouragement with a little more urging to take part in a proposition.

An example for the hortative mood in SIH, as observed in this study, is presented in Example E-42 above.

5.4.2.5. Commissive mood

Commissive mood is a commitment of the speaker that the action is going to take place.

An example for the commissive mood in SIH, as observed in this study, is presented below.

*ani aXSav **jatXil ledabeR** Rak jafe* | ***N-3-22:61*** (E-49)
I will now start talking nicely {=meaning: from now on}
Form: ***tħl**-Hifil*-PRE-1- SG + ***dbr**-Piel*-INF
Meaning: commissive mood

5.4.2.6. Optative mood

Optative mood indicates a wish or hope that the speaker expresses.

An example for the optative mood in SIH, as observed in this study, is presented below.

*Seamaim lo **itkaReRu*** | ***G-5-1-1:531*** (E-50)
I wish that the water will not cool down
Form: ***qrr**-Hitpael*-PRE-3-M-PL
Meaning: optative mood

Note: In many cases, optative expressions start with the particle ***Se-*** 'that', like in example E-50 above, but this particle appears only in part of the optative expressions. No difference in structure or meaning was found between optative expressions which contain the ***Se-*** 'that' particle, and the ones which do not. Therefore, it is concluded that the optative nature of the expressions is not in the particle ***Se-*** 'that', but in the verb form.

5.4.2.7. Speculative mood

Speculative mood indicates that the utterance is based on a speculation of the speaker, and is not necessarily true.

An example for the speculative mood in SIH, as observed in this study, is presented below.

*gam im u **jaamod** al jad e* | ***N-4-2324:183-190*** (E-51)
even if he will stand next to eh
Form: ***ʕmd**-Qal*-PRE-3-M-SG
Meaning: speculative mood

(…) av |
a father

im bno |
and his son

*veaav **jenase lidkoR** oto* |
and the father will try to stab him
Form: ***nsj**-Piel*-PRE-3-M-SG + ***dqr**-Qal*-INF
Meaning: speculative mood

o aben |
or the son will

o maSu |
or someone else

*u lo **jagiv*** |
he will not react
Form: ***ngb**-Hifil*-PRE-3-M-SG
Meaning: speculative mood

*lo **ifga** baem* |
(he will) not hurt them
Form: ***pgʕ**-Qal*-PRE-3-M-SG
Meaning: speculative mood

5.4.3. Aspect

The grammatical distinction between aspects in SIH concerns the major distinction between perfective and imperfective aspects. This means that verb constructions denote either perfective or imperfective aspect, without further distinction of the aspectual sub-types. The distinction between aspectual sub-types in SIH is done only lexically, with the exception of a few minor and rare multiple-verb sequences, which are detailed in 5.3.6 above.

5.4.3.1. Perfective

Perfective forms in SIH are represented by suffixed verbs. This means that the suffixes attached to verbs, represent perfective aspect, alongside with person, gender and number. As opposed to traditional theories, and to most of the current approaches to the Modern Hebrew verb system (Berman 1978, Glinert 1994, Coffin-Amir and Bolozky 2005), verb suffixes never express past tense, unless the inflected root is ***hjj*** 'be' and the verb pattern is *Qal*. Only this combination represents past tense, see 5.4.1 above.

5.4.3.2. Imperfective

Imperfective meaning in SIH is expressed by participles. Participles are inflected for imperfective aspect, as well as for gender and number. As opposed to other verb forms in SIH (suffixed, prefixed), participles are not inflected for person. Thus, participles present only the distinctions of male-female and singular-plural, whereas person in these contexts is represented lexically. For this reason, participles have only four inflectional forms in each pattern, which are the singular-male, singular-female, plural-male and plural-female forms. The participles actually constitute the most consistent system in the SIH verb system, in contrast to suffixed and prefixed verbs, which show inconsistency in their forms (suffixed verbs are basically inflected for person, but not all of them are

inflected for gender). Thus, suffixed forms present seven inflections for each verb: first person singular and plural, second person singular male and female, second person plural (no gender distinction), third person singular male and female, and third person plural (no gender distinction). Prefixed verbs in SIH have only five inflections, as a result of a merger between some of the forms, such as the first person and third person male singular forms and the second person male and third person female singular forms). Traditional scholars tend to refer to participles in the verb system as expressing present tense. Yet, participles never stand for present tense, but rather represent imperfective aspect, leaving the expression of present tense to independent lexical items. In a few cases, participles can express relative tense, but these cases are limited in number, and can only denote past and future, but not present tense. For further explanations and examples see 5.3.1 above.

5.4.4. The expression of two TMA categories – the habitual past

Habitual past constructions in SIH contain two elements; each of these elements is inflected separately. These elements are the auxiliary verb ***hjj*** 'be', generated into the ***Qal*** pattern, and inflected by a suffix, representing past tense, followed by a participle, which is itself the inflected form for imperfective aspect. The combination of these two forms yields a habitual past, where the imperfectivity can only be realized as habitual in this structure. Examples from the corpus are presented in 5.4.1 above.

5.5. Distribution of TMA categories in the research

General notification: the percentages in all the graphs below are rounded.

5.5.1. Major TMA distribution in the research group

For the statistical calculations, only grammatical TMA forms are taken into account. This means that only forms that express TMA meaning by either a pattern or a syntactic structure, but not by lexical items, are taken into

account. The distribution of major TMA categories among the informants in this research is presented in Figure 5-3 below.

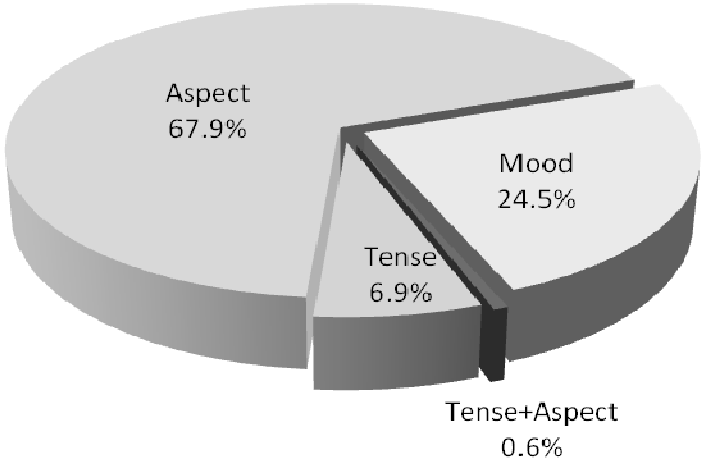


Figure 5-3: Distribution of major TMA categories in the research group

Israeli Hebrew turns out to be an aspect-prominent language. The aspect category is the most widespread category, while all aspectual forms constitute almost 68% (over two thirds) of the verb forms in a conversation. Only 6.9% of the verbal forms denote tense, and all of them are expressed by very limited means. This is in complete contradiction to all traditional theories on Modern Hebrew, which view the verb system of the language spoken in Israel as a tense-based system. These include absolute and relative tense forms, see the discussion in 5.4.1 above. About 0.6% of the forms represent both aspect and tense, and include structures with the auxiliary verb ***hjj*** 'be' and a participle. The remaining 24.6% represent different types of grammatical mood.

5.5.2. Major TMA distribution in the control group

The distribution of major TMA categories in the control group in this research is presented in Figure 5-4 below.

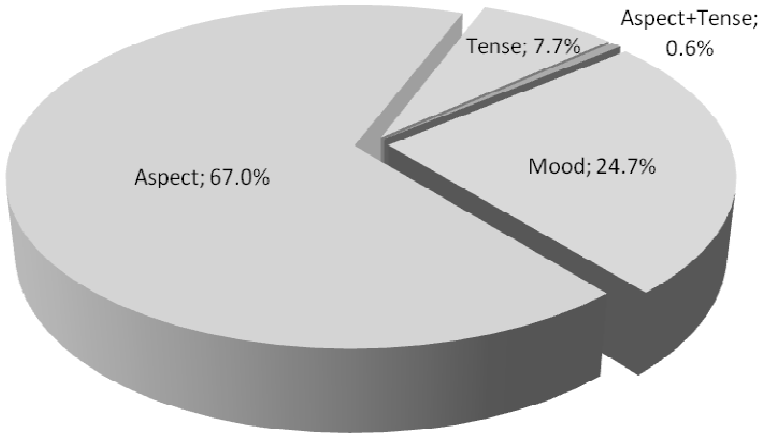


Figure 5-4: Distribution of major TMA categories in the control group

As shown here, the results in the control group are almost identical to the ones in the research group. Again, the aspect category is the most widespread one; the aspectual forms constitute 67% (exactly two thirds) of the verb forms in a conversation. The verbal forms which denote tense constitute 7.7% of the overall distribution, 0.8% more than in the research group (6.9%). These forms include absolute and relative tense forms, see discussion in 5.5.3 and 5.5.4 below. This strengthens the claim that Israeli Hebrew verb system is not tense-based. Identically to the research group, 0.6% of the forms represent both aspect and tense, and include structures with the auxiliary verb ***hjj*** 'be' and a participle. And almost identically to the research group, the remaining 24.7% represent different types of grammatical mood.

5.5.3. Tense distribution in the research group

Out of the 6.9% of the forms that express tense among the native speakers in the research group, most of the forms denote absolute tense. The distribution of absolute and relative tense forms among the research group is presented in Figure 5-5 below.

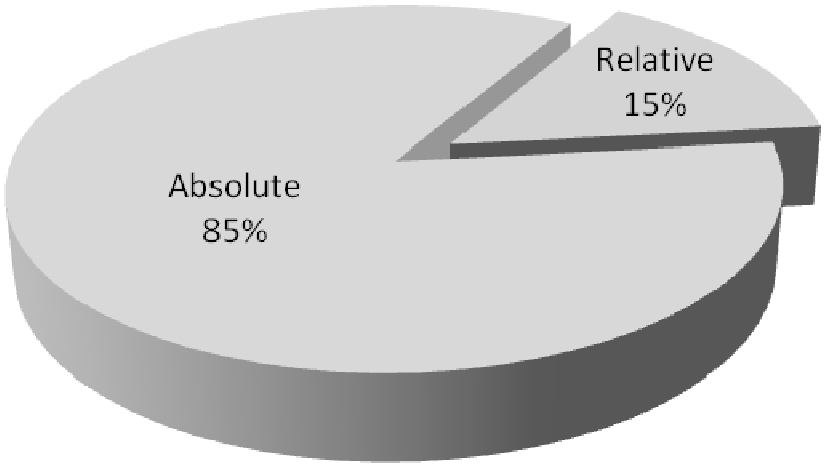


Figure 5-5: Distribution of absolute and relative tense forms in the research group

The vast majority of the forms in the sub-group of absolute tense express past tense. The division of the absolute tense sub-category into past and future tense is presented in Figure 5-6 below. No present tense forms are found in the research group.

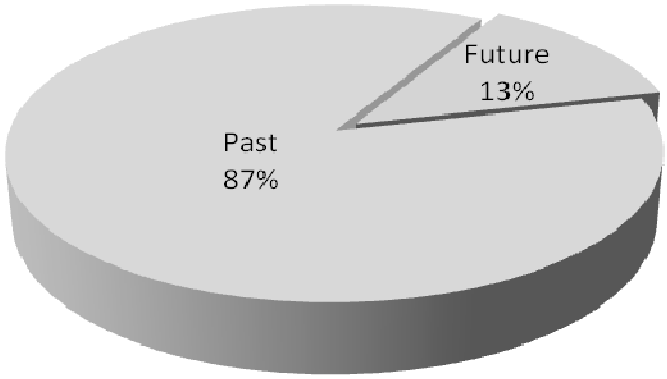


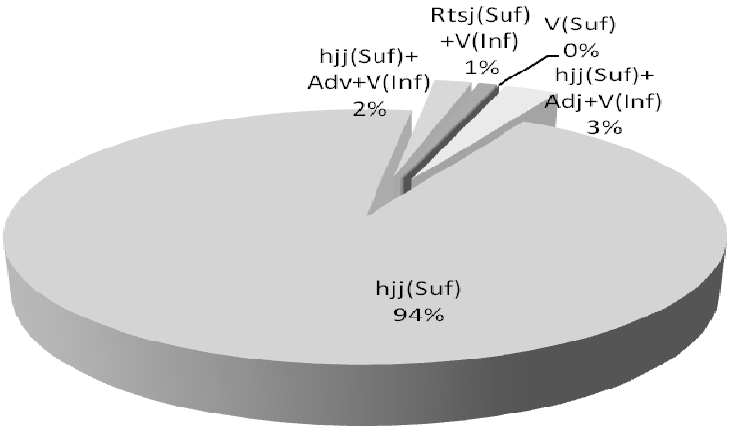
Figure 5-6: Distribution of absolute tense forms in the research group

This is also in contradiction to the common approach towards Modern Hebrew, which claims that Modern Hebrew has three tenses: past, present and future. No present tense forms are found in the research group, and the amount of past and future forms is very limited.

Future forms are always expressed by prefixed forms of the root ***hjj*** 'be' in the *Qal* pattern, such as the form ***ije*** (***hjj***-*Qal*-PRE-3-SG). Yet, forms of ***hjj*** 'be' in the *Qal* pattern can also express mood. The difference between cases where ***hjj*** 'be' in the *Qal* pattern expresses mood and where it expresses future is in the complement which follows it. In most of the tensed cases, the complement of ***hjj*** 'be' is a noun, whereas in most of the mood cases, the complement of ***hjj*** 'be' is an adjective. Yet, there is no clear border, and there are other types of complements as well in both categories.

Past forms are mainly expressed by suffixed forms of the root ***hjj*** 'be' in the *Qal* pattern, such as the form ***aja*** (***hjj***-*Qal*-SUF-3-SG). Yet, in the past tense category, a few (6% total) additional forms are found, as presented in Figure 5-7 below. These forms included two sequences of a

suffixed form of the root ***rtsj*** 'want' + an infinitive, one independent suffixed verb and eight constructions containing ***hjj*** 'be' and an adjectival or adverbial complement. The majority of these forms (73%, which are 5% of all the past tense forms) contain the root ***hjj*** 'be' (suffixed form) in combination with a complement. The number of forms without ***hjj*** 'be' is negligible (3), and cannot be regarded as representative.



InflectedAdj=an adjective, which inflects to M-F and SG-PL;
FrozenAdj=an adjective, which does not inflect; Rtsj='want'

Figure 5-7: Distribution of past tense forms in the research group

Seventeen percent of the forms in this tense group express relative tense. All these forms involve the use of participles: 81% of the forms are expressed by independent participles, whereas 19% are expressed by a complex structure of participle + infinitive. This structure includes a sequence of a participle, followed by an infinitive, and also plays the role of relative tense. The division of the relative tense sub-category into grammatical structures is presented in Figure 5-8 below. An example for a structure of participle+infinitive representing relative tense follows the figure.

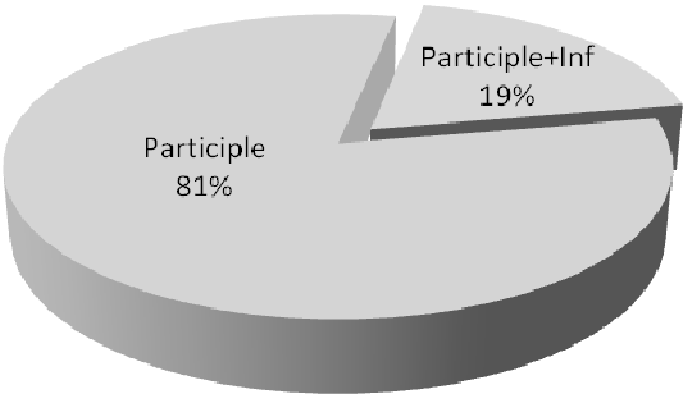


Figure 5-8: Distribution of relative tense forms in the research group

*u **amaR***| ***G-4-2-3:373-375*** (E-52)
he say
Form: ***ʔmr***-*Qal*-SUF-3-M-SG
Meaning: perfective aspect

takSiv|
listen (to me)
Form: ***qšb***-*Hifil*-PRE-2-M-SG
Meaning: imperative mood

*ani **Rotse laasot** meaXajal aze*|
I want to make this soldier distinctive
Form: ***rtsj***-*Qal*-PTCP-M-SG + ***ʕsj***-*Qal*-INF
Meaning: relative tense

mitstajen||
distinctive

5.5.4. Tense distribution in the control group

Similar to the research group, out of the 7.7% of the forms that express tense among native speakers in the control group, most of the forms denote absolute tense. Yet, the distribution of absolute and relative tense in the control group was significantly different from the distribution in the research group. The differences between the two groups are probably a result of the discourse type, and do not point at a significant difference in the verbal use of the forms. Although a higher percentage of relative tense forms are used in the control group, it is probably not a result of differences in linguistic structures, but rather differences in the content, participants and registers of the tested conversations. The distribution of absolute and relative tense forms among the control group is presented in Figure 5-9 below.

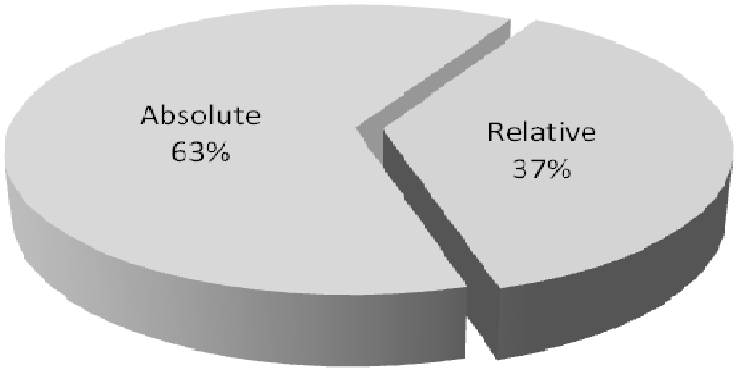


Figure 5-9: Distribution of absolute and relative tense forms in the control group

The vast majority of the forms in the sub-group of absolute tense express past tense. This is also similar to the research group. But

although in both groups the majority of forms is past tense, the distribution of past vs. future tense is different. This difference can be a result of the low number of tense forms in the corpus, which is probably not sufficient for statistical calculations, and can produce a high error rate and larger differences than those that really exist. The division of the absolute tense sub-category into past and future tense is presented in Figure 5-10 below. No present tense forms were found in the research group.

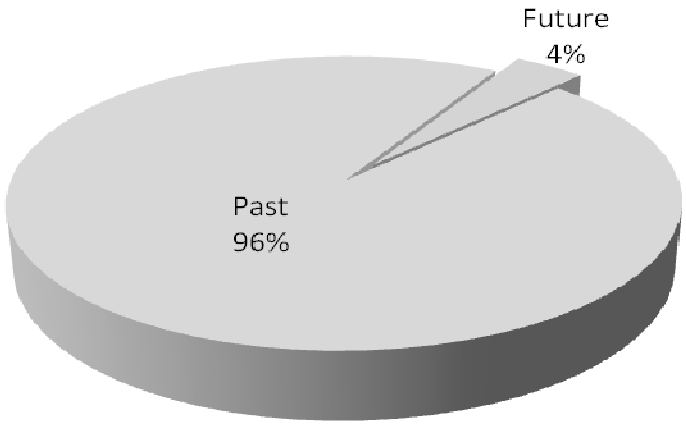


Figure 5-10: Distribution of absolute tense forms in the control group

The results in the control group constitute a further contradiction to the common approach towards Modern Hebrew, which claims that Modern Hebrew has three tenses: past, present and future. No present tense forms were found in the control group either, which is consistent in the two groups.

Also in the control group, future forms are always expressed by prefixed forms of the root ***hjj*** 'be' in the *Qal* pattern. And also in the control group, forms of ***hjj*** 'be' in the *Qal* pattern can express mood. There are only five cases of ***hjj*** 'be' representing future tense in the control group.

Therefore it is difficult to come to any conclusion regarding the difference between cases of tense and mood here.

Similarly to the research group, past forms in the control group are mainly expressed by suffixed forms of the root ***hjj*** 'be' in the *Qal* pattern. Only two additional forms expressing past tense are found in the control group, as opposed to the research group, and as presented in Figure 5-11 below. These two structures are negligible in number, and constitute only 4% of all the past tense forms. Similarly to the research group, both these structures contain the root ***hjj*** 'be' (suffixed form) in combination with some adjective; one of them contains also an infinitive.

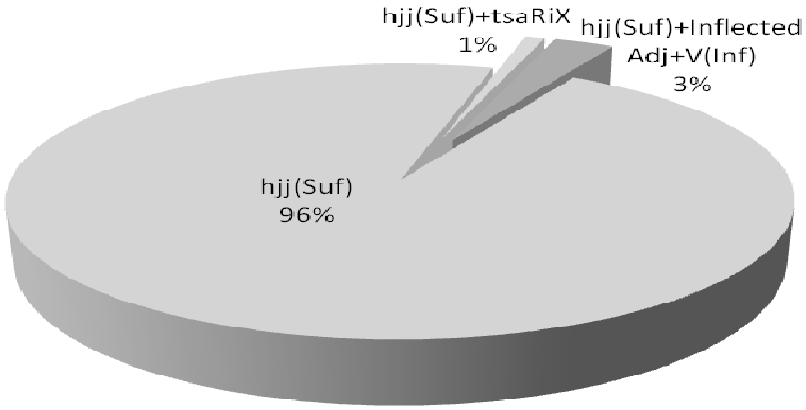


Figure 5-11: Distribution of past tense forms in the control group

Thirty seven percent of the forms in the tense group express relative tense. All these forms include the use of participles: 80% of the forms are expressed by independent participles, whereas 20% are expressed by a complex structure of participle + infinitive. These results are almost identical to the results in the research group. The division of the relative tense sub-category into grammatical structures is presented in Figure 5-12 below.

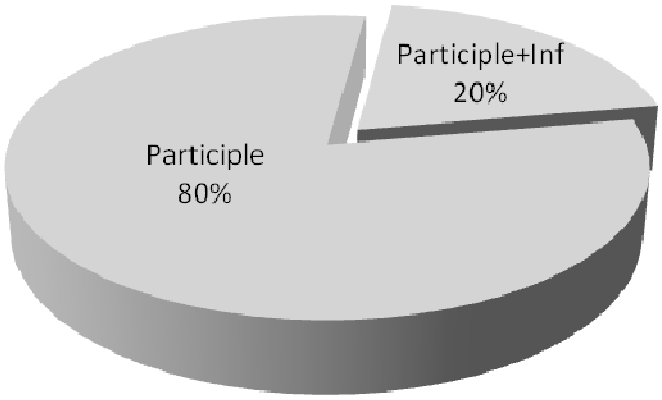


Figure 5-12: Distribution of relative tense forms in the control group

5.5.5. Aspect distribution in the research group

The most widespread TMA category in SIH is aspect. Over two thirds of the verbal forms in spontaneous speech express aspect among native speakers. The major distinction of aspect types is the perfective-imperfective distinction. The distribution of perfective and imperfective categories in the research group is presented in Figure 5-13 below.

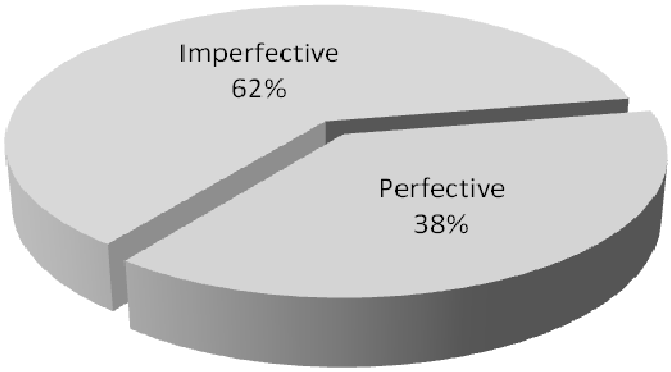


Figure 5-13: Distribution of perfective and imperfective categories in the research group

The sub-group of perfective aspect includes 3 occurrences of punctual aspect. Punctual aspect was rare in the research, and thus was not treated independently. This distribution refers to pure aspects only, and thus it does not include the cases of the habitual past.

The sub-group of Imperfective aspect includes two major groups: qualitative aspect and quantitative aspect. The former group (qualitative) contains aspect types that represent uncountable actions. These types are continuous and progressive aspects, the last being a sub-type of the first one. The latter group (quantitative) contains countable aspect types, such as habitual, iterative and durative. The distribution of qualitative and quantitative aspect categories in the research group is presented in Figure 5-14 below.

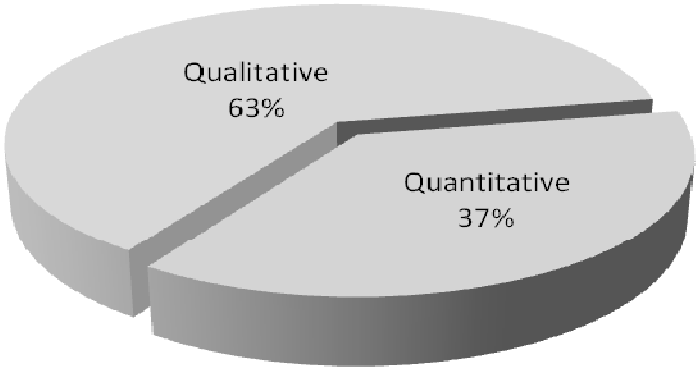


Figure 5-14: Distribution of qualitative and quantitative aspect categories in the research group

The internal distribution of the qualitative aspect categories in the research group is presented in Figure 5-15 below. In some cases it was impossible to determine the sub-type of the continuous aspect from the context. In these cases, the 'continuous' sub-category appears as undecidable.

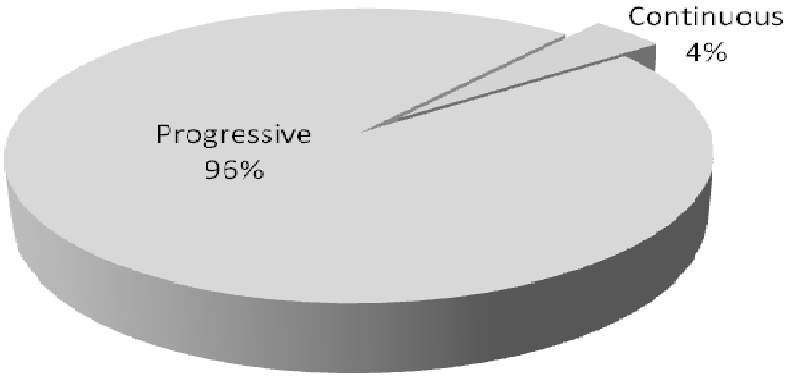


Figure 5-15: Internal distribution of the qualitative aspect category in the research group

The internal distribution of the quantitative aspect categories in the research group is presented in Figure 5-16 below. It is obvious that the 'habitual' category is the most dominant one, whereas some cases of iterative and durative aspects were also observed.

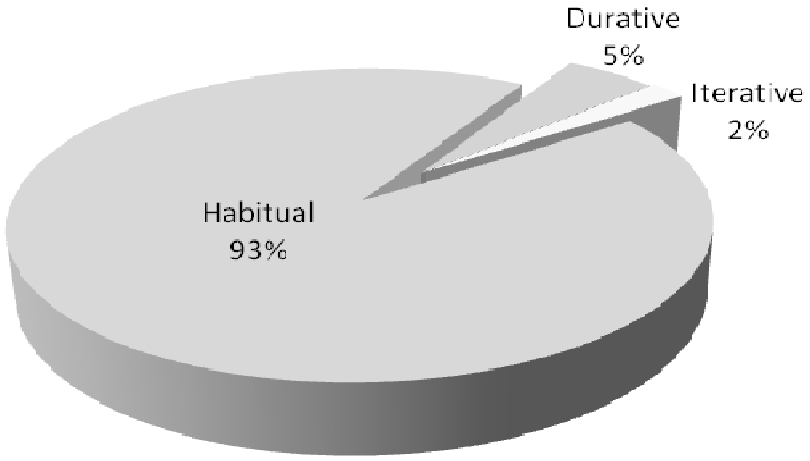


Figure 5-16: Internal distribution of the quantitative aspect category in the research group

The overall distribution of the aspect category in the research group is presented in Figure 5-17 below. It shows the distribution of all aspect sub-types, qualitative and quantitative, altogether. Apparently, the progressive is the most widespread aspect category in SIH, whereas the habitual is the second most widespread. The repetitions of the other three sub-aspects (durative, iterative and continuous) are quite limited.

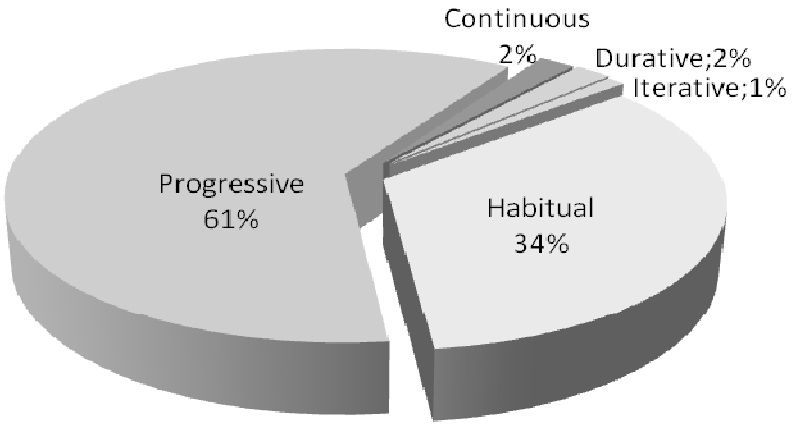


Figure 5-17: Overall distribution of the aspect category in the research group

5.5.6. Aspect distribution in the control group

In the control group, like in the research group, the most widespread TMA category in SIH is aspect. Exactly two thirds of the verbal forms in spontaneous speech express aspect. The major distinction of perfective-imperfective aspect is presented in Figure 5-18 below.

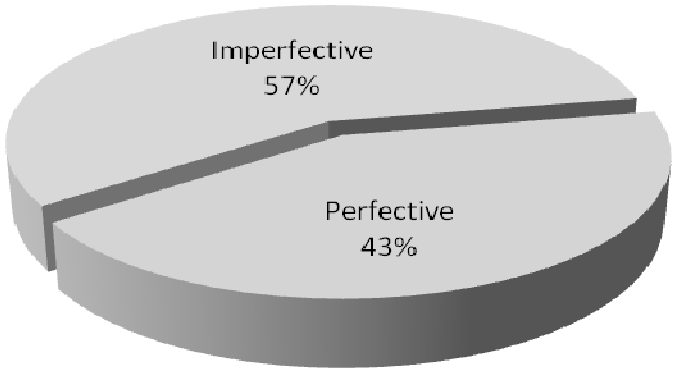


Figure 5-18: Distribution of perfective and imperfective categories in the control group

The sub-group of perfective aspect includes 5 occurrences of punctual aspect. As in the research group, the punctual aspect was rare in the research, and thus was not treated independently. This distribution refers to pure aspects only, and thus it does not include the cases of the habitual past.

The results in the control group are slightly different from the results in the research group. These differences are probably due to the conversation types, and therefore are not discussed separately.

The distribution of qualitative and quantitative aspect categories in the control group is almost identical to the research group, and is presented in Figure 5-19 below.

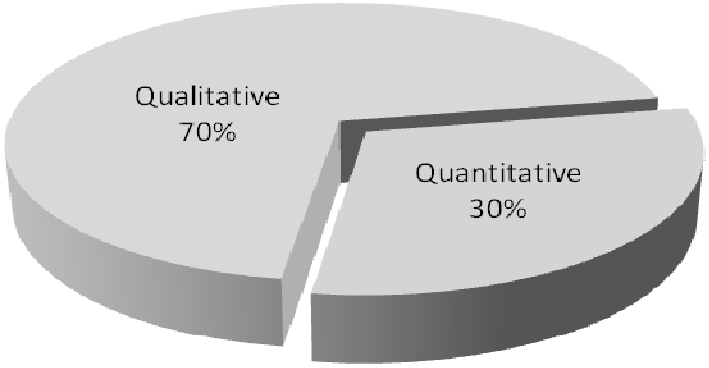


Figure 5-19: Distribution of qualitative and quantitative aspect categories in the control group

The internal distribution of the qualitative aspect categories in the control group is presented in Figure 5-20 below. The guidelines regarding the continuous aspect are identical to the ones used in the research group. The results are nearly identical to the ones in the research group.

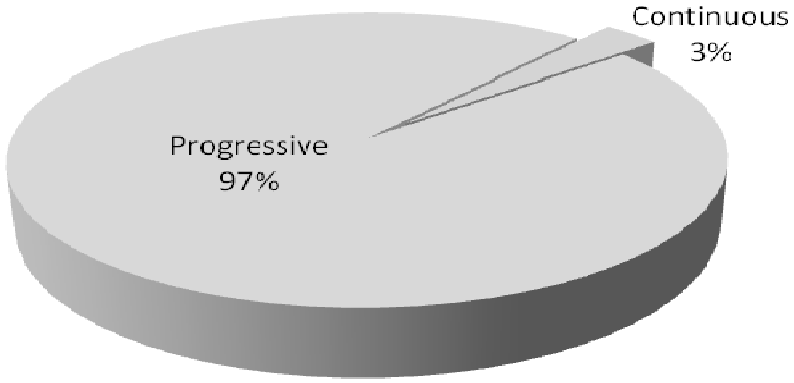


Figure 5-20: Internal distribution of the qualitative aspect category in the control group

The internal distribution of the quantitative aspect categories in the control group is presented in Figure 5-21 below. Also in the control group, like in the research group, the 'habitual' category is the most dominant one, whereas some cases of iterative and durative aspects are also observed. The distribution of the quantitative aspect in the control group is very similar to that of the research group.

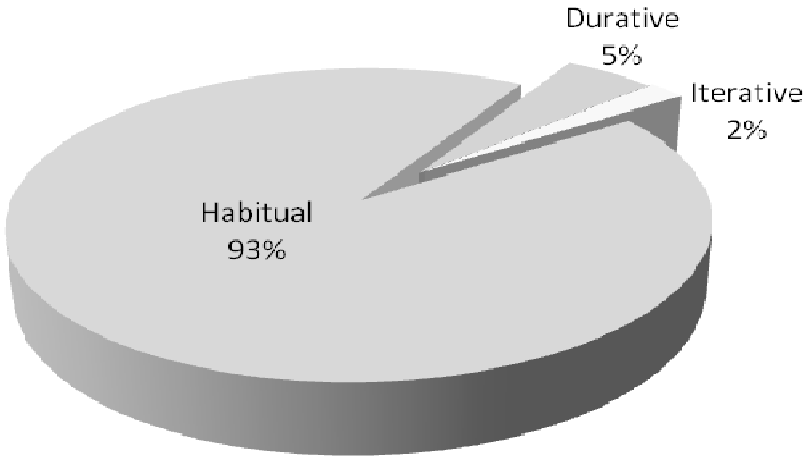


Figure 5-21: Internal distribution of the quantitative aspect category in the control group

The overall distribution of the aspect category in the control group is presented in Figure 5-22 below. This distribution is slightly different from the overall aspect distribution in the research group. Also here, the progressive is the most widespread aspect category, whereas the habitual is the second most widespread. The repetitions of the other three sub-aspects (durative, iterative and continuous) are quite limited in the control group as well.

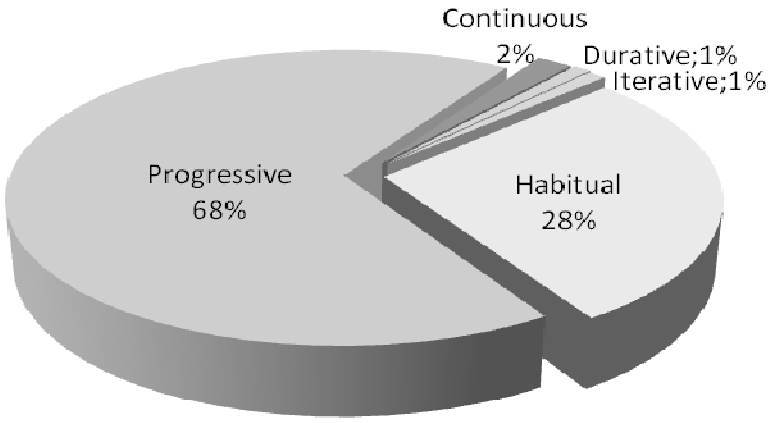


Figure 5-22: Overall distribution of the aspect category in the control group

5.5.7. Mood distribution in the research group

The overall distribution of the mood category in the research group is presented in Figures 5-23 and 5-24 below. The first figure (5-23) shows the forms which express mood in SIH. The second figure (5-24) shows the mood sub-types that exist in SIH.

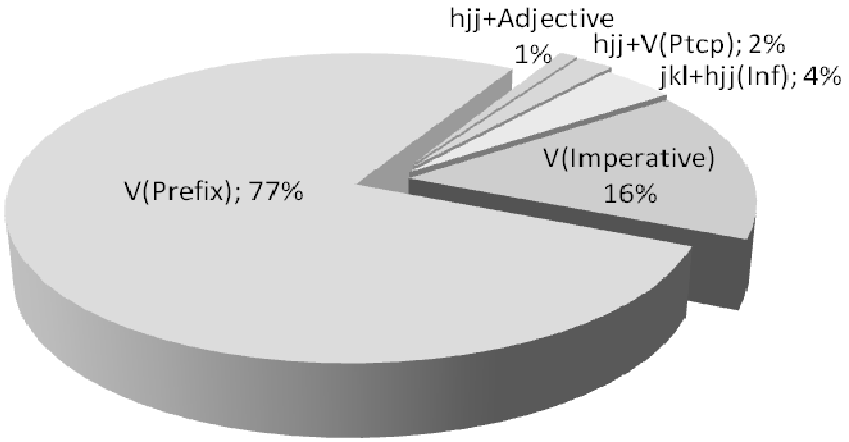


Figure 5-23: Forms which express mood in SIH – research group

The mood category in SIH is mostly expressed by prefixed forms (77%). There are also imperative forms which are used to express mood (16%), as well as some additional, marginal, forms (7%). Imperative forms in Hebrew are based on prefixed forms, and are built from them. The use of the imperative forms in SIH is probably a result of phonological processes, since imperative forms are found only among roots having at least one weak consonant. Hence, the imperative forms are not discussed separately in this thesis.

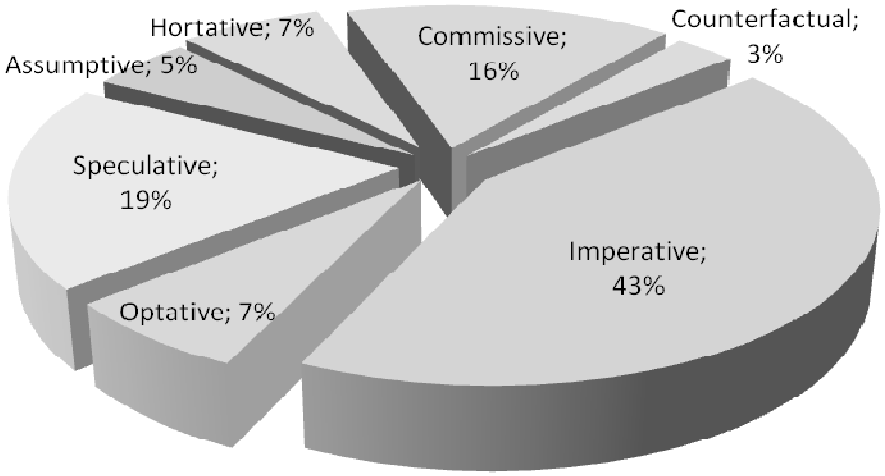


Figure 5-24: Overall distribution of the mood category in the research group

It is apparent from the figure above that a large variety of mood types are used in SIH. The total number of mood sub-types found in the research group was 7. An attempt was made to track some regularity between the mood types and specific verbal forms. Yet, due to the large variety of mood types, the repetitions of most of them were too few to track any regularity. Also, the relatively low number of forms which represent mood (2 main ones, and three marginal ones, total five) does not enable to find any correlation between the 7 mood sub-types and any formal distribution, apart from the fact that most mood sub-types are expressed by prefixed and/or imperative forms and structures. The only correlation is between structures of ***hjj*** 'be' + participle and the counterfactual mood.

The most widespread mood categories were taken for this purpose. The categories that were taken are the ones which occurred more than 100 times. Three such categories were found in the research group, out of the total of 7 mood categories: commissive, imperative and speculative. An internal distribution of structures representing each of these categories is presented in Figures 5-25 to 5-27 below.

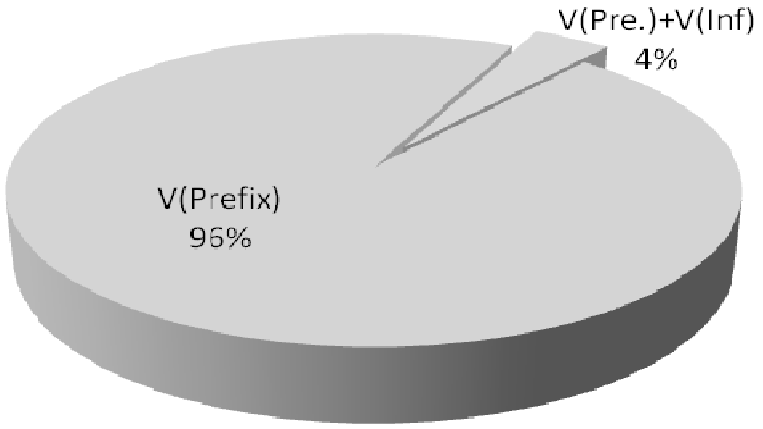


Figure 5-25: Formal distribution of the commissive category in the research group

'Complement' in the imperative and speculative categories below represents the following complements: infinitive, prefixed form, or imperative form.

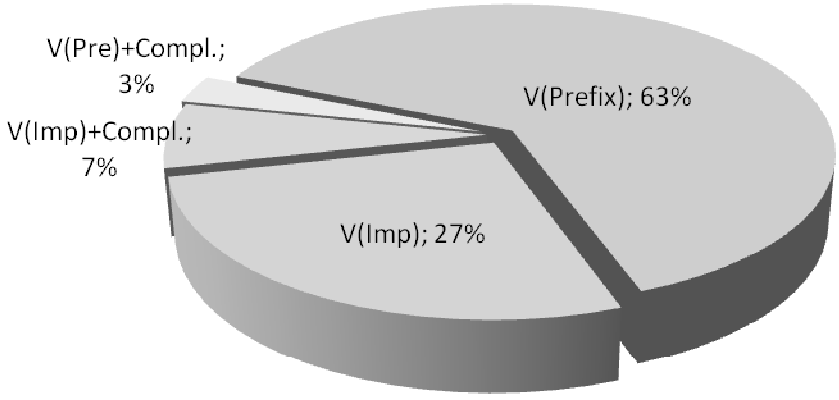


Figure 5-26: Formal distribution of the imperative category in the research group

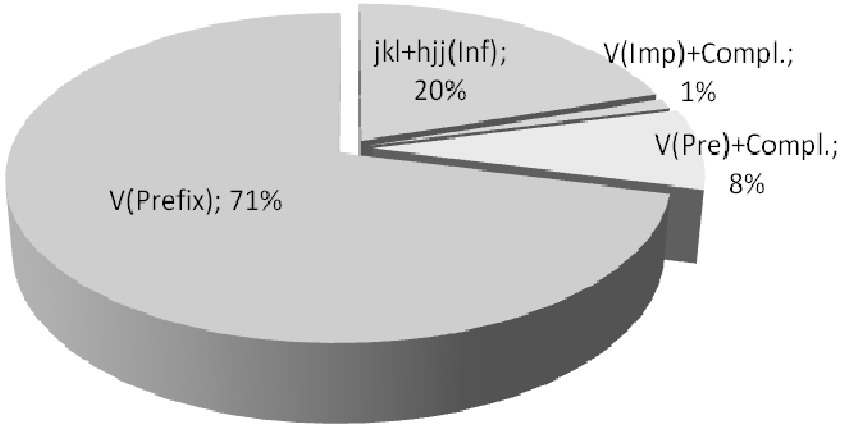


Figure 5-27: Formal distribution of the speculative category in the research group

The counterfactual category, which appears less than 100 times in the research group, always contains forms with the root ***hjj*** 'be'.

5.5.8. Mood distribution in the control group

The overall distribution of the mood category in the control group is presented in Figures 5-28 and 5-29 below. The first figure (5-28) shows the forms which express mood in SIH. The second figure (5-29) shows the mood sub-types that exist in SIH. It is apparent that in the control group as well the mood category is mainly expressed by prefixed forms. In the control group, similar to the research group, there are imperative forms which are used to express mood.

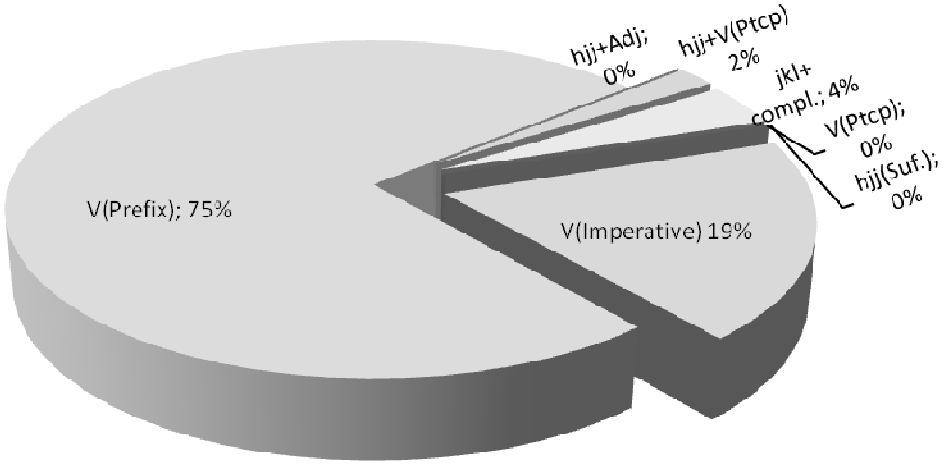


Figure 5-28: Forms which express mood in SIH – control group

The percentage of the forms is very similar to the research group: The mood category in SIH is mostly expressed by prefixed forms (75%). There are also imperative forms which are used to express mood (19%), as well as some additional, marginal, forms (6%). A larger number of structures are used in the control group to express mood than in the research group

(7 as opposed to 5). But the percentage of the additional structures is negligible (<1%; numbers are rounded).

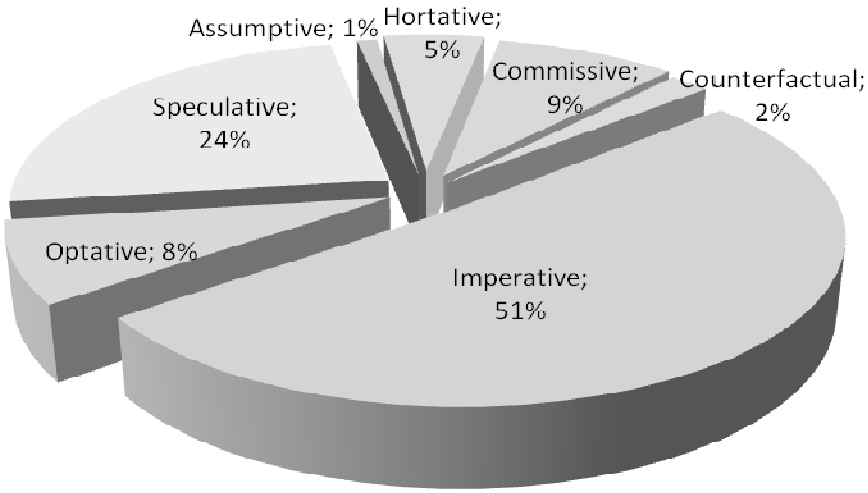


Figure 5-29: Overall distribution of the mood category in the control group

Similarly to the research group, the total number of mood categories found in the control group was 7. But the distribution of the categories was slightly different in the control group. Although the three most and least widespread categories in both groups are the same, the percentages of their distribution are different.

The most widespread mood categories in the control group are the imperative and speculative categories. These categories are repeated more than 100 times. This is slightly different than in the research group, where the commissive category also repeated more than 100 times. An internal distribution of structures representing each of these categories is presented in Figures 5-30 to 5-31 below; 'complement' in these categories represents the following complements: infinitive, prefixed form, or imperative form.

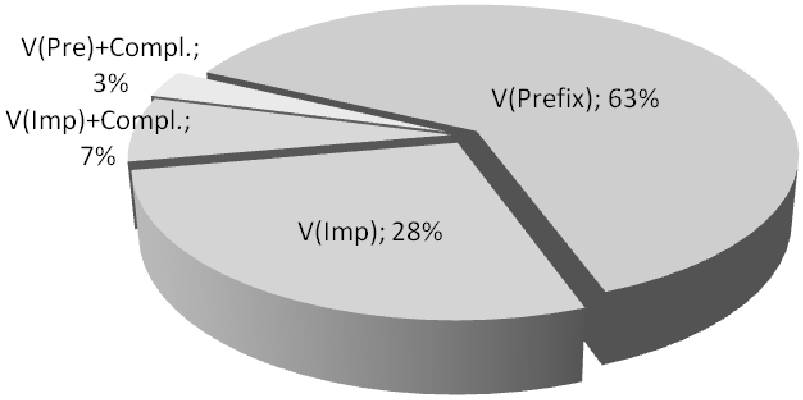


Figure 5-30: Formal distribution of the imperative category in the control group

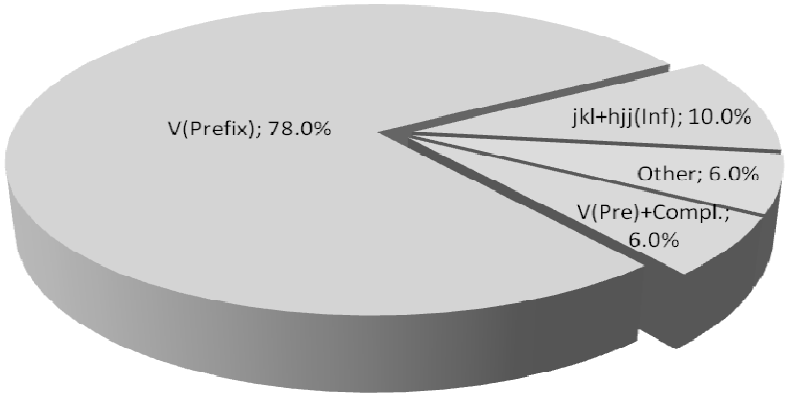


Figure 5-31: Formal distribution of the speculative category in the control group

As in the control group, the counterfactual category, which appears less than 100 times in the control group, always contains forms with the root ***hjj*** 'be'.

5.6. Expression of TMA

5.6.1. Lexical TMA

Tense, mood and aspect in SIH are all expressed by various linguistics means, i.e. lexical, morphological and syntactic. In order to be considered grammatical, they need to be either morphological or syntactic, but not lexical. Thus, cases where TMA units were expressed only lexically were excluded from this research. Such cases included, for example, instances of tense, which were expressed by independent lexical items such as ***maXaR*** 'tomorrow' or ***etmol*** 'yesterday'. Such units were not analyzed as expressing tense, since the tense element in these units was lexical. Other cases included instances of modality that are part of the consonantal root, and thus lexical. Such cases were, for example, ***tsaRiX*** 'need' (***tsrk***-ADJ-M-SG) ***laleXet*** 'go' (***hlk***-*Qal*-INF) 'need to go' or ***ani*** 'I' ***mevin*** 'understand' (***bjn***-*Hifil*-PTCP-M-SG) 'I understand'. Examples like the former one were not analyzed as modal, because the modal meaning is contained in the root ***tsrk*** 'need'. They were analyzed for aspect or tense, if they expressed an aspectual or temporal meaning in addition to the inherited modal meaning. Examples such as the latter one were analyzed by comparative analysis, where the form was substituted with another form having a different root with no inherent modal meaning. The meaning was thus assigned according to the pattern, ignoring the lexical modal meaning.

Grammatical TMA can be either integrated in the pattern, or inflected on the verb, or it can be syntactic, i.e. a combination of two consequent inflected verbs. Participles, for example, always carry imperfective meaning or relative tense. These meanings are pattern-internal, and they do not change when the pattern is further inflected for gender or number or both. In these cases, the pattern itself is a TMA-carrier. Prefixed forms, for example, do not carry TMA meaning on their basic pattern or stem, as the stem itself without its inflections is meaningless. Therefore, the modal meaning of the prefixed forms is carried by the inflections of the prefixed forms, and not by the pattern. Infinitives, for example, are not inflected in

SIH, and have a unified pattern which does not change. It does not carry any TMA meaning either. Therefore, combinations of a verb or verb-substitute and an infinitive are marked for TMA only by their inflected portion, which is usually the first one in the sequence. Such combinations were thus separated, and TMA was analyzed only for the inflected component of the phrase. Infinitives in such examples were considered as complements, where complements denote no TMA category in SIH. For further details on these constructions see 5.3.6.6 above.

5.6.2. General overview

First, all verb constructions in SIH except for one can be grammatically inflected for one TMA category only. There is only one construction in SIH which can be grammatically inflected for two TMA categories. This construction is the habitual past, which expresses past tense and habitual aspect, see discussion in 5.4.4 above. The same construction is used also to express the counterfactual mood, see discussion in 5.4.2.1 above. Otherwise, no double TMA inflection was found in SIH. Apparently, SIH cannot inflect two TMA categories on the same verb or verb phrase. This means that grammatically it is possible to inflect only one TMA category in SIH, while additional TMA categories within the same expression can be expressed only lexically, by periphrastic means. In cases of a verb phrase with two elements or more, only the first element is customarily inflected for TMA, while its complement is usually an infinitive, which is not inflected. Construction types, as well as their repetitions in the language, where the complement is not an infinitive, are very few. For further details see 5.3.6 above.

The most widely grammaticalized TMA category in SIH is aspect, while mood is grammaticalized to a lesser degree, and tense is the least grammaticalized. The grammatical resolution of aspect distinction goes as far as the major distinction between perfective and imperfective, whereas the distinction between qualitative and quantitative aspects is lexical, using periphrastic means. Since most of the verbal structures in SIH are aspectual rather than anything else, Israeli Hebrew can be considered an

aspect-prominent language (see Bhat 1999). The nature of its aspectual prominence will be discussed later on in this thesis.

Tense in SIH is grammaticalized only in two very limited cases, one of which is the presence of the auxiliary verb ***hjj*** 'be' in the expression, generated into the Qal pattern. This construction represents absolute tense. Participle forms may represent relative tense in narrative texts, yet, these cases are few, and most of the time, participles represent aspect. In all other cases, tense is limited to periphrastic means only, see 5.4.1 above for details and examples.

The Grammaticalization of mood in SIH is limited to prefixed forms and, to a lesser extent, to some verb phrases, which contain prefixed forms or imperatives (see below). Prefixed forms in SIH express either the imperative or other mood types. Normative imperative forms are still used in SIH, but these seem to appear only in cases where roots with weak consonants are present. Their use is probably due to phonological reasons rather than morphological ones. See discussion in 5.4.1.2 above for the mood category.

5.7. An outline of the TMA system of Spoken Israeli Hebrew

5.7.1. Forms vs. meanings

An outline of mapping forms to TMA categories in SIH is presented in Table 5-5 below.

Table 5-5: An outline of the TMA system in SIH

Form	Tense	Aspect	Mood
Suffixed verb		perfective	
Prefixed verb			Imperative +additional (*)
Participle	Relative (past / future)	Im-perfective	
Imperative form			imperative
*Root **hjj** 'be' only (Qal pattern)*	Absolute (past / future)		
*Root **hjj** 'be' (Qal pattern) + participle*	habitual past		counterfactual
Two suffixed forms in a sequence		durative	
Two participles in a sequence		durative	
Two prefixed forms in a sequence			immediate illocutionary act
Two imperative forms in a sequence			imperative
Imperative + prefixed form			Imperative / commissive

(*) Additional mood types: speculative, assumptive, hortative, commissive, optative, speculative; counterfactual mood is not expressed by a prefixed verb only.

5.7.2. TMA categories in SIH classified to FDG layers

An outline of mapping TMA categories in SIH to FDG layers is presented in Table 5-6 below. The table shows the TMA categories, which exist in SIH, distributed according to the layers they represent in FDG.

Table 5-6: Crossover of TMA categories in SIH with FDG layers

<table>
<tr><th>TMA category → FDG layer ↴</th><th>Aspect</th><th>Aspect + Tense</th><th>Tense</th><th>Mood</th></tr>
<tr><td>illocution</td><td rowspan="4"></td><td rowspan="2"></td><td rowspan="2"></td><td>Illocution (imperative, commissive, hortative, optative)</td></tr>
<tr><td>π^{p}</td><td>Epistemic subjective (speculative, assumptive, counterfactual)</td></tr>
<tr><td>π^{ep}</td><td rowspan="2">Absolute tense + habitual aspect (hjj-Qal + participle)</td><td>Absolute (hjj-Qal or lexical modifiers)</td><td rowspan="3"></td></tr>
<tr><td>π^{e}</td><td>Event quantitation (imperfective distinctions by lexical modifiers)</td><td>Relative (participle or lexical modifiers)</td></tr>
<tr><td>π^{t}</td><td>Event qualification (perfective-imperfective distinction; represented by suffixed forms and participles, respectively)</td><td colspan="2"></td></tr>
</table>

The category of aspect is represented in the first (predicate) and second (predication) layers. The category of tense (absolute) is located in the third (episode) layer. Relative tense which in SIH is limited, is represented, together with quantitative aspect, in the second (predication) layer. Note that both quantitative aspect and relative tense are represented in SIH by the same morphological pattern: the participle. Mood is located in the highest, proposition layer, as well as under illocutionary acts, which are located above all the other layers. The combination of aspect+tense (the habitual past) is located across the second (predication) and third (episode) layers.

As mentioned before, the higher up one goes on the FDG layer, the more complex is its semantic unit, the more redundant details are included

in the conversation and the more abstract is the entity it represents. The function of operators at higher layers is cognitively more complex than at the lower layers. Therefore, the function of operators with wider scope is communicatively least motivated, whereas the most motivated function is the one of predicate operators (π^f) as well as predication operators (π^e), which are narrower in scope. These operators describe the event, which occurs nearly in every expression. This means that a standard conversation would contain more basic FDG layers (namely π^f and π^e expressions), than complex ones (namely π^{ep} and π^p). Hence, TMA categories, located lower in FDG hierarchy and describing the predicate or predication, would be more basic than other TMA categories, which are located higher up in the hierarchy.

Since FDG layers are hierarchically organized, and lower FDG layers are components of higher FDG layers, a language cannot contain an episode layer without containing the predicate and predication layers, since these are its components. Therefore, a construction can either contain no layers, or it can contain some layers, with the proviso that their sub-layers are also included. A construction cannot contain, for example, layers 1 and 3, without layer 2.

TMA expressions in SIH apply to all four layers and to illocutionary acts, thus representing hierarchical relations, where lower layers are components of higher ones. Since the function of the first layer operators (π^f) is the most required and least redundant of all the layers, aspect would represent the most basic and dominant category in SIH; it is located in the lowest FDG layers (predicate and predication layers). Also, the frequency of aspect is the highest in SIH, see below. This trend is also apparent in Boland's findings for TMA in English among adults, where TMA categories, which appear in more basic layers, are more frequent than categories, which appear in higher layers (2006:511). Although Boland's TMA categories were tested in the framework of Functional Grammar (FG) rather than FDG, the basic idea is identical, only that the additional layer in FDG enables a more detailed division of the layers. Aspect in SIH, in its major perfective-imperfective distinction, is

grammatically represented by verbal inflections (operators), rather than by lexical items (satellites), and is thus more basic to the language. Only when a further specification is needed, such as sub-categorization of an imperfective aspect type, do we find lexical items in combination with aspectual expressions.

Tense and mood are represented in higher FDG layers than aspect. They also appear in a much smaller distribution than aspect in SIH, and are thus less dominant categories. Tense (absolute) is located in the episode layer, and its distribution is very low, as it is very limited in use, and applies only to one root in one pattern. Usually, lexical items, and not grammatical structures, are used to assign past tense meaning to aspectual perfective forms and future tense meaning to imperfective or participle forms. Relative tense is located in the predication layer, together with quantitative aspect. It is very limited in its distribution, and usually occurs in narrative texts only. Note that relative tense uses the same grammatical forms (participles) as quantitative aspect, which is located in the same layer.

Mood in SIH is expressed in the two highest layers: layer 4 (proposition) and higher illocutionary acts. Event-oriented modality is an illocutionary act and thus is grammatically represented above layer 4. Event-oriented modality includes deontic-imperative forms, which are basically expressed in SIH by prefixed forms, sometimes by phonologically-derived imperative forms. About 50% of the mood cases in SIH are imperative cases. These are more basic than other mood occurrences, as no additional lexical items are needed next to the prefixed forms in order to clarify the imperative meaning. Epistemic modality is grammatically represented in layer 4, which is more complex than aspect and tense. The occurrences of epistemic mood apply to the whole proposition. In these occurrences prefixed forms are used as well, but additional information is needed to distinguish between the different mood sub-types and to connect between these forms and the other layers. This information is obtained either from lexical items, which are located next to the verbal forms, or from the broader context.

The habitual past, which is a combination of aspect and tense, is located in-between aspect and tense, in the second (predication) and third (episode) layers. This is a more complex category, and it is dependent on background events.

As mentioned above, the distribution of TMA categories in SIH shows that aspect is the most frequent category. It is also located in more basic layers, where operators' functions are communicatively more crucial, and a lesser amount of peripheral means is used in order to utter the semantic contents of the expression. Furthermore, aspectual expressions are used as the ingredients of larger contexts, and hierarchically are more basic and less redundant. An example of this point is apparent in expressions, where perfective forms are used together with time expressions, to express past tense. It is a use of aspectual forms, which are more basic, to express tense, which is less basic and also less widespread. All the aforementioned constitute some of the periphrastic means to express TMA functions in the higher layers. For example, in order to fully understand an epistemic modal expression, it is necessary to include all the background events, which in turn are built with sequences of expressions from lower layers. It was shown previously that suffixed verbal forms and participles do not denote tense, since additional information is needed in the context to understand the time of the events. They rather denote aspectual functions. The combination of all these points, fits into Bhat's theory, and present SIH as an aspect-prominent language.

Tense and mood in SIH are located in higher layers than aspect. This means that their meaning, in most cases, is not obvious from the context, and that additional modifiers are needed to provide the meaning. These modifiers can be either satellites or expressions from lower layers, which are more basic, and add the needed additional information to the whole context.

Mood is less widespread in the language than aspect (but still much more widespread than tense), and thus is located in the highest layer,

which are less basic. Mood, as shown above, is a less dominant category in SIH than aspect.

Figure 5-32 below illustrates the crossover of TMA categories in SIH with FDG layers. For each layer two parameters are mentioned: the TMA category that it represents in SIH and the type of grammatical structures that are used for it. Categories, which do not exist in SIH are presented as empty boxes.

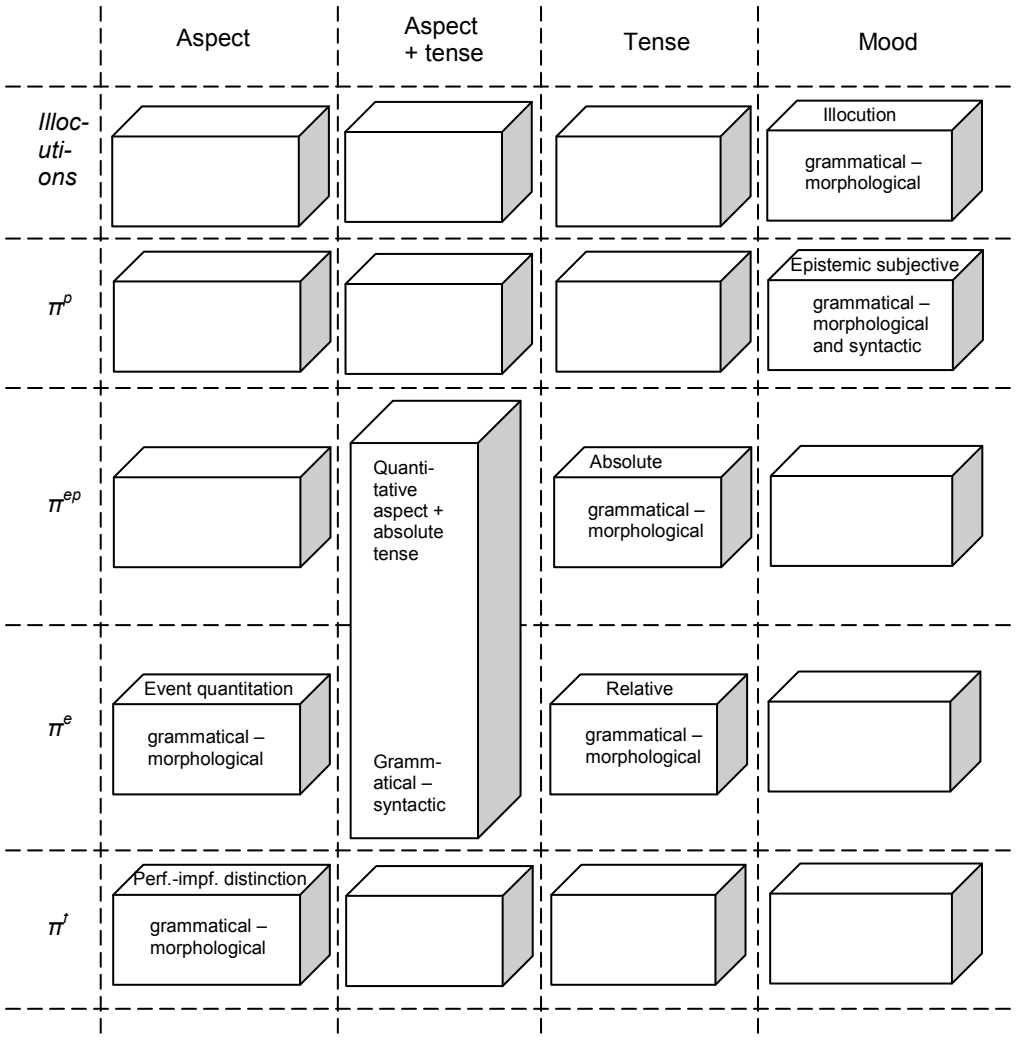
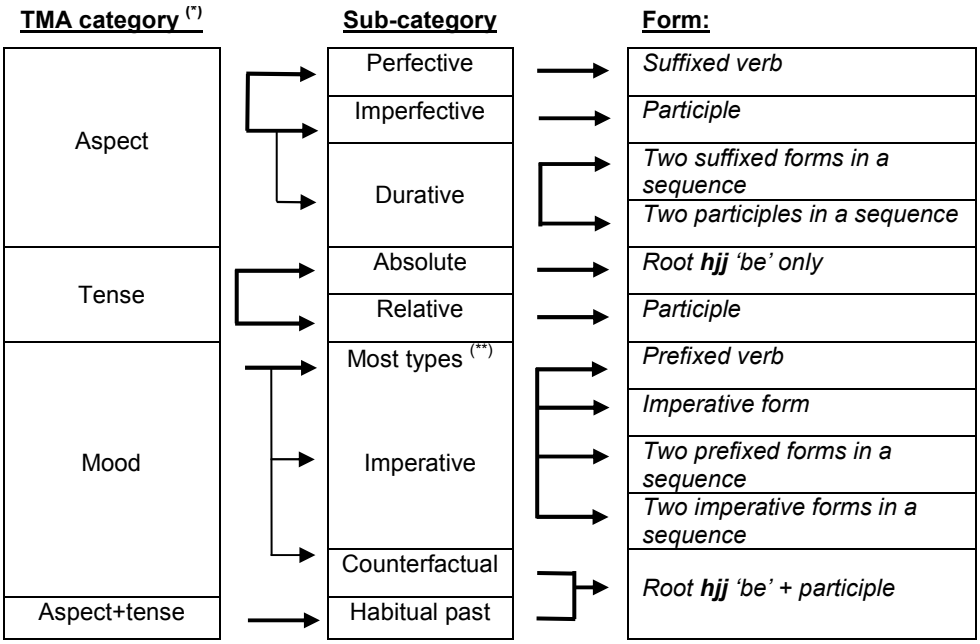


Figure 5-32: 3-D representation of TMA categories in SIH: classification according to FDG layers and means of expression

As mentioned in 3.4.1 above, referring to a lower layer of representation, correlates with a decreased need for external operators, and makes the property more basic. The above figure shows that the lowest layer (predicate layer – π^f) represents only aspect in SIH and not other TMA categories. This means that aspect is the most basic property in SIH. This goes hand in hand with the statistical findings of this study, which show that aspect is the most dominant category in SIH, constituting about two thirds of the TMA system (see 5.5.1 and 5.5.2 above).

5.8. A suggested aspectual system for SIH

On the basis of the current field research, a new verb system is presented in figure 5-33 below for Spoken Israeli Hebrew. This system is aspectual. It represents the actual spoken language in Israel, which is independent of previous Hebrew varieties or normative approaches.



(*) Bold arrows represent major categories; unbold arrows represent sub-categories.

(**) Most types: speculative, assumptive, hortative, commissive, optative; imperative mood is presented independently as a sub-category; counterfactual mood is not expressed by a prefixed verb only.

Figure 5-33: Israeli Hebrew aspectual system

5.9. Summary: SIH as an aspect-prominent language

Bhat (1999:43-61) points out to three main types of aspect-prominent languages, according to the **grammatical** distinctions that they make between the aspectual sub-categories: (i) perfective vs. imperfective; (ii)

ingressives, progressives, egressives and resultatives; and (iii) semelfactives, iterative, habitual and frequentatives. When comparing several aspect-prominent languages, different grammatical aspectual distinctions can be presented, because they differently grammaticalize their aspects. An aspect-prominent language can be of one type, but can still retain some or all of the other types, only that the latter are not grammaticalized. Since IH makes a grammatical distinction between perfective and imperfective categories, it can be classified into the first type. IH also contains some other sub-categories of aspect, such as progressive, iterative and habitual. The distinctions between them are not grammaticalized, and therefore IH would not be classified as being of the other two types.

The most important aspectual distinction in languages belongs to the first type of perfective-imperfective distinction. Languages of this type are characterized by the tendencies listed below, but do not need to include all of them in order to be classified as part of this group:

- Other temporal and modal properties found in these languages may constitute further sub-divisions of the aspectual main division (Bhat 1999:45-46).
- Using auxiliaries with participles can denote more specific temporal and modal properties (Bhat 1999:46-47).
- In some languages of the perfective-imperfective type the imperfective is a formulation of the perfective form with some suffix (Bhat 1999:46).
- In other languages of the perfective-imperfective type, there is a tendency to use perfective forms to describe past events, punctual and resultative events, and imperfective forms to describe progressive and durative events. In these languages, the perfective-imperfective aspectual system led language purists to conclude that these verb systems express tense (Bhat 1999:48).

Israeli Hebrew has an aspectual perfective-imperfective verb system. Its verbal system can be analyzed in the frame of Bhat's criteria

mentioned above regarding the interpretation of verbs in such verb systems:

- In IH temporal properties, when grammaticalized, are expressed by using a subset of the aspectual means. This subset is the suffixed forms, used to express past tense only with the root ***hjj*** 'be'. Mood on the other hand in IH is not a subset of aspectual structures, as it is independently grammaticalized. Yet, mood is a much less widespread category than aspect in IH, and therefore the IH verb system is aspectual and not modal, see discussion above.
- In IH, as in other languages which Bhat mentions, the combination of an auxiliary together with a participle is used to express more specific temporal properties. This way, the auxiliary ***hjj*** 'be' in a suffixed form is used with a participle form to express the habitual past, which is a more specific temporal – aspectual category.
- Imperfective forms in IH are not derived by suffixation of their parallel perfective forms. Perfective forms in IH are suffixed, whereas the imperfective forms are infixed, and each of the two forms is derived independently by a different affixation process.
- A tendency to use perfective forms to describe past events, as well as punctual and resultative events, and imperfective forms to describe progressive and durative events is well noted in IH. As mentioned above, Hebrew language purists tend to analyze IH/MH verb systems as expressing tense, where the suffixed perfective forms are analyzed as past tense. IH imperfective forms (participles) are analyzed as expressing present tense, and modal forms are analyzed as expressing future tense. It is possible that the analysis of IH/MH as a tense language originated from this fact.

These criteria are optional. They constitute possible, but not compulsory, characteristics of perfective-imperfective languages. Some languages can only present one of them. Three of the above four criteria are met in IH, two of them are fully met, and one is partially met.

Therefore, IH can be regarded as a classical case of a language with an aspectual (perfective-imperfective) verb system.

6. TMA studies in Hebrew and Semitic languages

The results in Section 5 suggest that the SIH verb system is aspectual. In this section, I will compare the findings with findings from other Semitic languages, as well as with previous TMA studies in Hebrew.

6.1. TMA in SIH compared with other Semitic languages

Section 5 above demonstrates that the verb system of SIH is practically tenseless. The distribution percentages of the forms suggest that it is more aspectual than anything else, since the majority of the forms represent aspectual properties. In addition to the aspectual structures it contains several mood types, but modal properties in the SIH verb system are much fewer than the aspectual ones. The distribution of tense in the SIH verb system is marginal.

Hebrew language purists still refer to Israeli Hebrew or Modern Hebrew as a tense language. This view can be explained in the frame of Bhat's theory (1999), who claims that grammatical traditions of many aspect-prominent languages usually emphasize the category of tense at the expense of aspect and mood. These traditions state that aspectual or modal markers actually denote tense. These approaches make use of terms like 'past', 'present' and 'future', and these notions actually represent 'perfective' and 'imperfective' aspects (p. 121). This description reflects the reality in Israeli Hebrew, where traditional grammarians use the term 'tense' to actually represent aspect and mood. Bhat (1999) claims that in some languages aspect markers are attached to verbs only when the aspectual meaning is not derivable from the context, and that when these verbs stand out of context, they can be interpreted as tense (p. 125). This seems to be the situation in Hebrew too. As is shown above, Israeli Hebrew speakers, while speaking, use aspects, and not tense; but when being out of context, the verbal forms they use may be interpreted as expressing tense.

Composed of roots and patterns, as well as verbal inflections, the Israeli Hebrew verb system is characterized by Semitic features. Viewing the SIH verb system in the light of other Semitic languages reveals a systematic correlation between them in terms of aspectual properties. Israeli Hebrew shares aspectual properties with at least the following four Semitic languages: Amharic, Classical Arabic, Egyptian Arabic[1] and Neo-Aramaic (see below). Yet, in these four Semitic languages, the imperfective aspect is assigned to the prefixed forms, whereas in Israeli Hebrew the imperfective aspect is assigned to the participle. There is however a parallelism between Israeli Hebrew and the other Semitic languages in the basic aspectual notion of the verb system, as well as in the representation of the perfective aspect by the suffixed form.

Amharic: Yimam (2006) presents aspects in Amharic, identifying the affixes in the verb system as aspect indicators. He claims (p. 195) that verb affixes distinguish between perfective and imperfective forms in Amharic, where verb suffixes reflect perfective aspect, and verb prefixes reflect imperfective aspect. Yimam omits affixes from the Amharic verb forms so as to isolate the verb stems which represent the basic perfective and imperfective forms. He presents two stems, one representing the basic perfective aspect, the other the basic imperfective aspect. These stems, as well as the affixes are similar to the stems and affixes which are used in the Israeli Hebrew verb system, except that the prefixed form denotes the imperfective aspect in Amharic, but not in IH. The situation in Amharic corresponds to other Semitic languages. Sisay and Haller (2003) agree with Yimam on the perfective and imperfective forms, but claim that these forms frequently reflect past and future tense, respectively (p. 5). This approach is similar to the traditional approach as regards Hebrew verb tenses, according to which suffixed forms express past tense, and prefixed forms express future tense, and can be explained in the frame of Bhat's (1999) theory described above.

[1] Please note that Classical Arabic and Egyptian Arabic are considered two different languages; in order that a native speaker of Arabic would understand Classical Arabic (s)he must be literate.

Classical Arabic: Horesh (2002) discusses tense and aspect in Classical Arabic. He brings examples of forms with different meanings, such as suffixed forms which denote different notions. Horesh claims that the identical forms with different meanings are implicatures. Apart from pointing at the aspectual properties of the verb system in Classical Arabic, Horesh does not elaborate on this issue further, but simply recommends further investigation. Also he does not draw any conclusions regarding the dominant meaning of each of the forms.

Egyptian Arabic: Cuvalay-Haak (1996) brings an overview of TMA categories in Egyptian Arabic (Cairo dialect), and emphasizes the differences between the behavior of verbs in Classical and Modern Arabic dialects (p. 206). Similarly to Israeli Hebrew, participles in Modern Arabic dialects can function as either nouns / adjectives or verbs (p. 145-169), and can denote a variety of TMA functions, depending on their function, dialect and context (p. 209). Also, she claims that suffixed forms in Modern Arabic are referred to as expressing the perfective aspect with past time reference (p.115). But as opposed to IH, suffixed forms can also denote factual mood (p. 119), when referring to future events, which are perceived as certain. The use of prefixed forms in Egyptian Arabic is different from their use both in Amharic and in IH. When they have a null additional marking, they are mainly used to express either non-past tense or habitual aspect. Prefixed forms with additional marking can denote some functions, for example, the ***sa-/sawfa-*** prefix would point at a future tense (p. 125). Yet, the basic notion of the prefixed forms expressing the imperfective aspect is consistent with that of Amharic, but not with IH.

Neo-Aramaic: Similarly to the other Semitic languages, the Neo-Aramaic verb system is also aspectual. According to Krotkoff (1982:23-40), Hoberman (1989:123-148) and Coghill (1999), the Neo-Aramaic verb system includes a perfective-imperfective distinction, as well as some additional sub-aspects, that are interpreted as tense and mood. For example, prefixed verbs (prefix ***i-***) in Neo-Aramaic are used to denote general imperfective aspect, while future tense is expressed by another prefix (***bed-***, ***bet-***, ***bd-*** or ***bt-***). This reminds one of the Arabic verb system,

where the imperfective is represented by prefixed forms, and a more distanced future tense is formed by the addition of the prefix ***sa-/sawfa-***. This, however, is different from IH in that IH has no future tense at all, with or without prefixation. Furthermore, IH imperfective forms are not prefixed forms. The suffix ***-wa*** in Neo-Aramaic is attached to the verb to express the habitual past, whereas the suffix ***-IV*** (*V* represents a vowel) denotes perfective aspect, a pure and simple action. Suffixed forms denoting perfective aspect are common to all Semitic languages mentioned here. Yet, the use of a suffix to express the habitual past is unique to Neo-Aramaic, whereas the habitual past is obtained by a periphrastic use of the verb 'be' in the other Semitic languages discussed. All three Neo-Aramaic researchers agree that the verb system of Neo-Aramaic is aspectual.

IH shares the property of an aspectual verb system with the other four Semitic languages. There is yet a difference in the use of aspects between IH and the other Semitic languages. Whereas the use of suffixed forms to express perfective aspect is common to IH and the other Semitic languages, imperfective aspect is expressed in IH by participles, and not by prefixed forms, like in the other Semitic languages. Prefixed forms in IH are used for modal purposes, whereas in the other Semitic languages they usually express the imperfective aspect.

In addition to aspects, IH exhibits a minor and limited tense category: the auxiliary verb ***hjj*** 'be' is used for the expression of tense. The same auxiliary 'be' is used to express tense in three of the four other Semitic languages (Amharic, Classical Arabic and Egyptian Arabic).

Amharic: Tense in Amharic is formed by adding auxiliary verbs, such as ***nä*** 'be', where the auxiliary verb has different forms when attached to the perfective or imperfective forms (Yimam 2006:198). The auxiliary verbs are not added to the verbs instead of the aspects, but are an addition to the aspects, and can appear in two forms: past and non-past. In IH, the auxiliary verb ***hjj*** 'be' is also added to the expression in addition to the aspects, which is identical to Amharic. But in IH the auxiliary verb ***hjj*** 'be' can also be used independently with a nominal complement, even

if there is no other aspectual form in the expression. The latter situation is not discussed by Yimam, and therefore I cannot make the comparison between IH and Amharic in this regard.

Classical Arabic: Horesh (2002) refers to tense in Classical Arabic only briefly, bringing examples of the addition of the auxiliary verb ***ka:n*** 'be' to express continuous aspect in the past (p. 6). It is not mentioned to which forms this auxiliary can be added, perfective forms, imperfective forms, or both. The addition of the auxiliary verb ***ka:n*** 'be' to express a double TMA category corresponds to the Israeli Hebrew form ***hjj*** 'be' + participle, which is used to express the habitual past.

Egyptian Arabic: Copula / auxiliary verbs can appear with either a following verb or a nonverbal predicate (Cuvalay-Haak 1996:172). In the latter case of nonverbal predicates, the copula verbs are not needed to denote present tense. This is parallel to IH, where the copula / auxiliary verb ***hjj*** 'be' can be used as a time specifier (past or future) in a nominal expression, and in its absence, the whole expression denotes an ongoing state. Complex verbs, which are the former case, are formed by a combination of a copula / auxiliary followed by a verb (p. 172), which can also stand independently without the copula (p. 175). Cuvalay-Haak cites Moutaouakil (1988:189), stating that a verb that denotes perfective meaning when standing alone would be used in its suffixed form to express absolute past tense, and would appear in its suffixed form with a copula verb to express relative past tense. This is not parallel to IH, where suffixed forms can have past tense reference in their immediate environment, but in combination with a copula they do not express relative tense, which is the function of the participle. Cuvalay-Haak points that double TMA meanings of one predicate cannot co-occur in Arabic dialects, and that only one TMA meaning can be assigned to a verb by inflection. There are no double TMA inflections in IH either, and each verb can be inflected for only one TMA category. Therefore, two TMA categories should be inflected on two separate verbal forms: the main verb and the auxiliary ***hjj*** 'be'.

Similarly to IH, and differently from the other three Semitic languages discussed above, modal categories are briefly mentioned only for prefixed verbal forms of Neo-Aramaic (Coghill 1999:42). This might correspond to IH prefixed forms, but it is not sufficiently detailed in order to come to definite conclusions. Despite this declaration, the author still insists that the verb system of Neo-Aramaic is more aspectual in nature, which seems to be similar to IH.

6.2. TMA in SIH compared with previous studies in Hebrew

TMA studies in Hebrew are mainly directed towards Biblical Hebrew rather than towards Modern Hebrew. Studies in Modern Hebrew usually deal with literary and written materials, rather than spoken materials, since these materials are more readily available than spoken texts, and easier to access. Since SIH is different from these areas of the language, the comparison between them is difficult and may be irrelevant, as most of the studies on Modern Hebrew point at a tense system, whereas IH according to this research presents an aspectual system.

Generally speaking, the research of SIH was 'neglected'. Various studies on Modern Hebrew (Berman 1978, Glinert 1989, Coffin-Amir and Bolozky 2005) have brought a bulk of examples from Hebrew, some of which included spoken phrases, others were taken from different Hebrew layers, but were not based on any substantial data. This study is based upon a corpus of spontaneous conversations, and thus takes into account speech variations, which are not included in any of the other studies on Modern Hebrew. The results prove that relying on written text does not cover all the spoken varieties.

There are studies, claimed to have been performed on Modern Hebrew, that are not based on spoken corpora, and thus do not represent the spontaneous spoken language. The sources of the examples provided in these studies are mostly unknown, as they are usually not cited, and in many cases they do not correspond to spontaneously spoken texts, which are characterized by a much faster speech, overlaps between speakers, truncations and additional discourse features.

The verb system of SIH according to this research is aspectual, and not tense-based. Although it contains several mood types and structures as well as minor tense forms, the distribution percentages of the verbal forms suggest that it is rather aspectual than anything else. The majority of the forms are concentrated within the aspect category.

The current suggested verb system of Spoken Israeli Hebrew is characterized by aspectual properties. It contains five verbal patterns, and not seven, as noted in the literature. It does not have the two passive patterns that are referred to in the literature, the latter being unproductive in the frame of the verb system. It does not have unique imperative patterns, which are referred to in the literature. Imperative forms in IH are derived phonologically from prefixed forms, and they do not follow a constant morphological pattern, like in the traditional Hebrew grammar. They are possible in the ***Qal*** pattern, and also, on rare occasions, in the ***Piel*** and ***Nifal*** patterns, but never in the ***Hifil*** or ***Hitpael*** patterns. Prefixed forms are used for the imperative functions instead. It is also shown that IH contains mood, in a lower distribution than aspect, as well as tense, which is the least widespread category.

Most of the available analyses of the Hebrew verb system refer to the traditional division of the verb forms into seven patterns (Blau 1986:126-148, Coffin-Amir and Bolozky 2005, Junger 1987:13), and this is also how the system appears in Hebrew textbooks and is taught in Israeli schools (Blau 1967, 1975). Researchers tend to refer to the two passive patterns as part of the verb system, although they are not productive in the spoken language according to this study. Examples presented in books on IH / MH are mixed up. Some look as if they were taken from the spoken language, whereas other instances of 'spontaneous speech' are dubious (Junger 1987:79), and would probably never be produced during spontaneous speech.

This research shows that tense is the least prominent category in SIH. Yet, studies of Hebrew refer to tense categories more than to any other TMA category. Glinert (1989, 1994:90-91) reviews in depth the Hebrew verb system and discusses the tense category, but only mentions and

brings examples of 'tenses' in Hebrew (past, present and future), which express in fact a wide range of aspects and moods in addition to tense. He states that his use of the terms "past", "present" and "future" is meant for simplicity and convenience only, and he doubts their categorization (p. 121). Unlike others, he refers to complex structures in the Hebrew verb system, such as the root ***hjj*** 'be' + participle or the root ***hlk*** 'go' + infinitive, which express aspect (the former) or mood (the former and the latter) (pp. 124-125, 331-332). Indeed, the former construction expresses both mood and aspect according to the current study as well, but while aspectual, it also expresses tense, which is not mentioned by Glinert for this construction. The latter construction is found in negligible number in this research and it always expresses aspect, but never mood. Glinert's doubt of the 'tense' system in Hebrew is closer to reality than other views, although his examples are taken from both channels, spoken and written, and there is no distinction between them. Henkin (1991) investigated unique uses of past tense in children's language. She mentions the use of suffixed verb patterns, to express "imaginary past", defined as another, imaginary world, in which the playing child is not included. Participles were used among children to return back to reality (pp. 342-343), but are not classified to any semantic category whatsoever. Of all studies, Henkin's study is the only one performed on a real spoken corpus of Hebrew language. Yet, it deals with children's language, and the relevance of children's language to adult's spoken language is unclear. Like most of the other researchers, Bar (2001:53) also refers to the verb system as composed of three tenses: past, present and future, which are expressed by three structures: suffixed forms, participles and prefixed forms, respectively. She does not doubt this classification, and takes for granted that tenses in Hebrew exist. Her analyses are adjusted to the tense notions accordingly. Schwarzwald (2001:38) also refers to the Hebrew verb system as expressing three tenses (past, present and future) and one modal pattern (imperative), similar to the other traditional approaches. She refers to the structure of ***hjj*** 'be' + participle as expressing an aspect, and which can also express modality in certain cases (2001:62). Her latter conclusion corresponds to SIH counterfactual mood and habitual past,

only that the past property in the habitual past was ignored. In this regard, she follows Glinert's view. Schwarzwald also refers to a construction of a verb form followed by an infinitive as expressing aspect and modality (2001:63). She claims that the added infinitive is the item that expresses aspect or tense in the verb phrase. The findings in this study show the opposite: Since TMA categories must be inflected, infinitives cannot bear TMA properties, because they are never inflected. Schwarzwald does not refer to tense, aspect and mood as independent categories, and as in other studies, she refers to traditional Hebrew, and not to the spoken variety. Azar (1995) reviews the 'tense' system of Mishnaic Hebrew, which does not correspond to IH. His review corresponds to the common theories, referring to a sequence of suffixed forms (for example '***CaCaC***', '*C*' stands for a consonant; p. 4) as the 'skeleton' or 'foreground' of the story, and to ***hjj*** 'be' + participle forms as background events. He classifies the verb forms as expressing various tenses, and divides them, according to the types of sentences where they appear, to forms which express absolute and relative tense (p. 4-27). This division does not correspond to IH, but Azar states clearly that it adequately describes Mishnaic Hebrew.

In spite of defining their book as a grammar of Modern Hebrew, Coffin-Amir and Bolozky (2005) also show a traditional approach when referring to what they call Modern Hebrew. Regarding the verb system, they mention several pronunciations in speech, but their approach is not different from the traditional ones when presenting the verb system as having three tenses and one modal form, which is the imperative, where participles are presented as expressing present tense (p. 35-36). Imperatives are also referred to by Schwarzwald (2001, see above), but have been proved to be absent from the IH verb system in their traditional form in this research. Coffin-Amir and Bolozky refer to habitual forms as present tense (p. 36) and to continuous forms as past tense (p. 38). Imperatives are presented as mood (p. 44), whereas in IH they do not exist in their traditional form, and all prefixed forms are referred to as future tense (p. 38); in IH, on the other hand, they represent mood, including the imperative mood. Verb affixes, which stand for person,

gender and number, are referred to as representing tense (p. 37-38). Coffin-Amir and Bolozky contradict themselves when presenting in two different places in their book an identical structure that expresses two different functions, as follows:

Phrase	Structure	Function
tsRiXim lehakSiv	***tsaRiX*** + inf	Mood expressed by the infinitive (p. 44-45)

'need' (M-PL) 'listen' (INF), literally: 'need to listen'

tsRiXim lavo	***tsaRiX*** + inf	Modal structure (p. 301)
'need' (M-PL)	'come' (INF), literally: 'need to come'	

The difference between these two forms is the personal pronoun, which precedes the structure (see below), and not the existence or non-existence of the infinitive in the phrase. The modal property is intrinsic in the first component of these constructions ***tsRiXim*** 'need', which carries a modal meaning as part of its lexical semantics. Also, like Schwarzwald (2001, see above), they refer to infinitives as expressing mood. Mood cannot be expressed by the infinitive, as the infinitive is not an inflected form. Their distinction between modality to mood within the same structure is somewhat strange:

*atem **tsRiXim lehakSiv** lanu* (p.45)
you (PL) need (M-PL) listen (INF) to us
'you must listen to us'

*kulam **tsRiXim lavo** bazman* (p. 301)
everyone need (M-PL) come (INF) on time
'everyone must come on time'

Coffin-Amir and Bolozky classify modal expressions as having present tense, with some exceptions in the past and future tenses (p. 306). Although the IH verb system is mostly aspectual, aspects are mentioned only in the context of Biblical Hebrew, and are presented as verb tenses in Modern Hebrew. None of the TMA categories is presented as part of a semantic system. Tsarfaty (2004) investigates the use of aspects in Modern Hebrew. She does not use spontaneous conversations, but rather

narratives, which are based upon a picture book of 45 pictures forming a story (p. 19). She claims that Modern Hebrew verb system is regarded as having three verb tenses, a system that was taken from Mishnaic Hebrew, as opposed to the rest of Modern Hebrew structure, which is based on Biblical Hebrew (p. 32). She also claims that according to traditional theories the tenses in Hebrew have default aspectual meanings, where past tense bears also a completive meaning, and the participle bears also a progressive meaning (p. 34-35). These declarations correspond to what is found in the current research, where suffixed forms express the perfective aspect, and participles express the imperfective aspect. Unlike other researchers, Tsarfaty thinks that verbs do have aspectual meanings, which are incorporated by the combination of the root to its pattern (p. 93). This claim also corresponds to the findings of this research, but she further withdraws from determining the verb system as aspectual, and adds that the aspectual meanings are not pure meanings, but rather implicatures (p. 35). Tsarfaty, like the others, speaks about seven verb patterns in Hebrew (p. 36), referring to the passive patterns as productive, which apparently is not the case.

Some researchers refer to other categories than tense. Rosen (1977) points at a mood category (pp. 194-197), and also refers to some aspectual ones (p. 179). He claims that the mood category is syntactic in nature, and the aspectual category is morphological in nature. But his relation to Hebrew is still traditional, and does not correspond to the spoken variety. Berman (1978) hints at an aspectual category in Modern Hebrew. She makes a clear distinction between Biblical and Mishnaic Hebrew to Modern Hebrew when referring to the verb tenses. She claims that suffixed forms in Biblical Hebrew represent perfective aspect, whereas prefixed forms represent imperfective aspect. Participles started representing present tense in Mishnaic Hebrew (Berman 1978:139-140). She refers to Modern Hebrew as having three verb tenses: past, future and neutral. The latter is expressed by participles, and since it is neutral (neither past nor future), she calls it “present” (p. 142). Past and future are parallel to the perfective and imperfective Biblical forms, respectively. Berman distinguishes the participles from the other forms, saying that

these forms are names, which can serve as verbs in the present tense (pp. 140, 142). She emphasizes the difference between Biblical and Mishnaic Hebrew to Modern Hebrew. Her approach to the Modern Hebrew verb system as parallel to that of Biblical Hebrew in terms of its aspects is different from the other approaches, and probably much closer to reality (see Section 5 of this thesis). Still, these distinctions are general and are not made for the spoken variety. In her paper on subjectless constructions in Modern Hebrew (1980) Berman further mentions some modal structures (p. 768), which are similar to structures obtained in this study. Yet, their representation of TMA categories is lexical and not grammatical, as their pattern never changes. Berman's examples are taken both from written Hebrew and from spoken Hebrew. From all studies, Berman's approach is the closest to the spoken variety of Israeli Hebrew, stating that its verb forms are parallel to perfective and imperfective Biblical forms. Yet, the findings in this research show a different picture of the forms used for each of the functions. Tsivoni (1991) reviewed the means of expressing tense and aspect in Written Hebrew. She claims that Hebrew verb forms do not only express tense, but also additional categories, including aspect and mood (p. 55). This conclusion corresponds to the current findings. She brings examples for expressing the categories of aspect, tense and mood using verb patterns, verb structures and phrases of verbs with adverbs. All these examples contain lexical items expressing TMA, which are not neutralized during the analysis in order to determine the exact meaning of the verb pattern itself. This entails classifications that are guided by lexical items rather than by real TMA grammaticalization of forms and structures. A minority of the examples do exhibit real TMA-form correlation, but these examples are literary, and are never used in IH speech. Furthermore, they would probably be classified as 'strange' by IH native speakers. Such examples are: ***mitjaSev haja*** 'used to get himself seated' and ***boXa hajta*** 'used to cry' on page 60. Similarly to all the other studies, Tsivoni's research is based on Written texts, and although it covers a respectful list of Israeli books, it cannot represent the spoken variety.

According to the current research, SIH participles express the imperfective aspect. Gordon (1982) describes the development of participle forms in Modern Hebrew and their meaning as expressing tense. He compares them to parallel forms in Biblical and Mishnaic Hebrew. His approach is also traditional, as he uses tense as the main property of the Hebrew verb system. Azar (1995) refers to participles in Mishnaic Hebrew in particular. He claims that participles are used both as verbs and as nominals, as opposed to other researchers, who refer to Hebrew participles as nominals only. When using participles as verbs, he claims that they express the future, which starts immediately after the speech point, and thus is 'clean' of modality (p. 15). This analysis is similar to English forms representing an immediate future such as ***I am leaving this evening***. His claim about the participles being used as future tense does not correspond to the current study, where participles represent the imperfective aspect. Yet, the fact that he negates their modality goes hand in hand with the findings here. Meltzer (2007) also claims that participles can be used both as verbs and as nominals, adjectives in particular. She classifies these forms according to their character. She thinks that stative participles can be used both as verbs and as adjectives, whereas non-stative participles, which require a theme or an agent, can only be used as verbs. She does not directly address the TMA issue in Hebrew participles, but only makes the distinction between their function as a nominal and their function as a verb. For further details on her approach see 2.3.3.3.1 above.

Mood as a grammatical category in SIH is found in the prefixed forms of the IH verb system. Most studies which claim to have investigated mood in Hebrew, check in fact modality, and not mood. Most researchers ignore modal lexical elements in the expressions they analyzed, and conclude that Hebrew has mood. Kopelovich (1984) claims that mood in Hebrew should be referred to as a notion in the language, rather than a syntactic or a morphological item (p. 7). She calls it mood, although she does not assign a grammatical structure to it. Kopelovich's theory was constructed on the basis of written questionnaires, which were given to native speakers of Hebrew. Written tests cannot be referred to as

representing the spoken language. Ambar (1989) checked what the ways to express modality in Modern Hebrew are. She mainly referred to lexical elements, which contain modality as part of their semantics. Lexical modality is observed in this study too, but in its scope, it is lexical, and not grammatical. Ambar did not refer to mood as a grammatical semantic category. Similarly to most of the other researches, she did not mention Spoken Hebrew. Bar (1999, 2001) checked temporal and modal features in Hebrew conditionals, and compared them to non-conditionals (2001). She claims that participles, when used as verbs, can express all three tenses: past, present and future (1999:218-219). This is in contrast to the system that is presented in this research for SIH. It is not likely to have the same form to express everything, since it points to an irregularity in the system. It is more likely that the analysis of the system is inaccurate. Bar claims to have also found modal use of verb patterns, where modality was syntactic, such as cases where verbs preceded the subjects (1999:221), the use of the root ***hjj*** 'be' + participle pattern (2001:50) and the addition of a ***Se-*** 'that' morpheme to prefixed verb forms (1999:252, 2001:50). The last two findings do correspond to the results of this study, according to which ***hjj*** 'be' + participle can express counterfactual mood, and the addition of a ***Se-*** 'that' morpheme to prefixed verb forms can express optative mood. Also, according to Bar forms with the root ***hjj*** 'be' are used as tense markers in verb forms which look identical in the present and past (1999:244). This claim seems to be correct, as some of the ***hjj*** 'be' + participle constructions contain a participle form, which is identical to the prefixed form of the same verb. Yet, these cases are part of the standard habitual past constructions, and they carry the same meaning. Bar's corpus included various written sources, such as the Bible, the Israeli writer Amos Oz and modern journals. These sources do not reflect on the spoken varieties of IH. She also brings examples for sentences containing suffixed forms, which express modality, but like the others, does not refer to other elements in these sentences, mainly lexical elements. The lexical elements and not the verb patterns in these examples bear the modal feature (2001:55).

The combination of two TMA categories in SIH is possible only in the case of the habitual past (see Section 5). Muchnik (1989) checks the ways of expressing tense, mood and aspect in Chanoch Bartov's book "*Everyone Had Six Wings*" (in Hebrew). She claims to have found linguistic patterns which express all three categories, and concludes that each meaningful expression or clause bears at least one of these semantic categories, but not all of them together. Although tense in IH is the least prominent category, Muchnik claims that two semantic categories can co-exist within the same clause or expression, on condition that one of them is tense (p. 52), but she does not bring examples to show that. She classifies the verb patterns and their prefixed / suffixed forms according to TMA categories, but there are many overlaps between different semantic representations of the same forms. This cannot be defined as a system, as it does not correspond to basic linguistic TMA definitions or to the findings in this research. In complete contradiction to the results of this study, aspect is classified as the least dominant TMA category in the language of the book she investigates. Muchnik's research is based upon one literary text, and therefore cannot represent the situation in Hebrew, all the more so Spoken Israeli Hebrew.

Tense, mood and aspect have not been investigated in Modern Hebrew as one system. Studies on TMA in Hebrew are only available for Biblical Hebrew, and are very few in number. Rattray (1997) checked the system of aspect-tense-mood in Biblical Hebrew, Samuel A and B. She claims that suffixed and prefixed forms in the Bible do not represent tenses or aspects, but she does not provide any analysis to what they do represent. Unlike other researchers, Rattray claims that tense, aspect and mood are three components of one system, and their existence as one entity in languages is much more widespread than their existence in languages as separate entities (p. 28). This research proves that this point is correct. Rattray classifies Biblical forms as having constant functions, i.e. a one to one relationship between form and meaning. Participles, she claims, represent imperfective-durative and realis forms, suffixed forms are a combination of perfective with realis, and prefixed forms are a combination of a non-durative aspect with either realis or irrealis (p. 149-

150). Although Rattray's research deals with Biblical Hebrew, these conclusions correspond to many of the findings of the current research. Yet, the comparison between the two studies can be misleading, as two different languages are involved.

7. Sociolinguistic aspects

Some sociolinguistic variables are checked below. It is interesting to see if any significant differences can be found between different populations in the usage of structures vs. functions in SIH, and if any sociolects exist in IH.

The following populations were compared using correlation coefficient tests. The notions tested are structures vs. meanings, i.e. it is checked if two populations are using the same structures to express the same TMA category or not. The following populations are considered:

- Gender: male vs. female

  The distribution of males and females in the research corresponds to their distribution in the general population, which is about 50%-50%. Eleven male informants and eleven female informants are compared.

- Origin: Ashkenazi vs. Mizrahi

  The Jewish population has its roots in many different countries, which are usually classified into two major groups. Ashkenazi Jews originate in American and European countries, whereas Mizrahi Jews originate in Asia or Africa, mainly in Arab countries. Only SIH native speakers are considered. There are twelve Ashkenazi Israelis and ten Mizrahi Israelis among the informants in this research.

- Education: high (15 years and up) vs. low-mid (0-14 years)

  Israelis with a university degree or equivalent are considered as having high education, whereas Israelis who do not hold an academic degree or equivalent are included in the low-mid education group. There are ten Israelis with high education vs. twelve Israelis with low-mid education among the informants in this research.

Age groups are not compared, because the number of informants per group is 13 (young: 16-34 years) vs. only 9 (older: 35-70), too large a

difference in the number of informants per group, as well as too low a number of informants in a group with a too wide age range (35-70).

It is important to note that the number of informants in this project is 22. The control group included at least this number. Yet, sociolinguistic comparisons could be done only for the informants, since the origin – education distribution of the non-informants is unknown. Therefore, it is possible that in case of a significant difference between the two groups, the real difference in the population as a whole is insignificant. Hence, it should be taken into account that the differences presented here serve only as recommendations for future research in this direction.

7.1. T-M-A

A comparison of the major distribution of tense, mood and aspect is made between the research and control groups. The general percentages turn out to be similar. The largest differences that can be observed between categories in the groups are 0.8-0.9%, see 5.5.2 above. A correlation coefficient analysis shows that the correlation between the research and control groups is 0.999. This means that the differences in the usage of TMA categories between the two groups are completely insignificant, and that the findings in the control group strengthen the ones that are observed for the research group.

The TMA distribution is also compared between the group of informants with high education and the group of informants with middle and low education. The correlation between them is 0.999 as well. This means that no differences can be observed between these two groups in the usage of major TMA categories.

TMA distribution can be compared further between the group of male informants and the group of female informants. The correlation between these groups is also 0.999. Here too, no significant differences can be established between the two groups in the usage of major TMA categories.

The last two groups that can be compared are the groups of informants from Ashkenazi origin vs. informants from Mizrahi origin. The correlation between these groups is 0.992. Although the correlation between these two groups is lower than found in the other ones, the result can still be considered as representing a high degree of correlation. Therefore, no significant differences can be said to exist between these two groups in the usage of major TMA categories.

7.2. Tense

Since tense is a marginal category in SIH, the results in the tense category may not be representative, because the low number of structures expressing tense is not sufficient in order to come to a definite conclusion. The error rate may also be too high. Yet, the comparison is made here to serve as an initial indication of potential changes.

The distribution of tense may be compared between the research and control groups. The correlation between the research and control groups is only 0.924. Under certain conditions, this would mean that the differences in the usage of TMA categories between the two groups are possibly significant. Yet, because of the low number of forms representing tense in IH, I would not concur with this position, but would recommend that the use of tense in IH be further investigated.

In this research, the distribution of tense is not compared between sub-groups, because the number of occurrences of tense is too low to draw any valid statistical conclusions.

7.3. Aspect

The distribution of aspect types may be compared between the research and control groups. Correlation coefficient tests are performed separately for the perfective aspect and imperfective aspect, since the distribution of the two main aspectual categories could differ between the two groups. Such a difference would not be necessarily a result of differences in the use of forms between the groups, but could be a result of the conversation

types. Therefore, the perfective and imperfective categories are analyzed separately.

The correlation between the research and control groups is 0.999 in both aspectual categories. This means that the use of both perfective and imperfective categories is very similar, almost identical, in the research and control groups, and that probably no significant differences exist between the groups in their use of aspectual categories.

Correlation coefficient tests can also be performed in the same way for (i) the groups of male informants vs. female informant; (ii) the group of informants with high education vs. the group of informants with middle and low education; and (iii) the groups of informants from Ashkenazi origin vs. informants from Mizrahi origin.

The results in all groups show a constant correlation value of 1.0 in the perfective aspect category, and a correlation of 0.999 in the imperfective aspect category. This means that the use of both perfective and imperfective categories is practically identical in all groups, and that there are no significant differences between the groups in the use of aspectual categories.

There is a minor difference of 0.001 in the correlation tests of the sub-groups (i)-(iii) vs. the research and control groups in the perfective aspect category. This difference was regarded as meaningless.

7.4. Mood

The variety of forms used to express mood can be compared between the research and control groups. Two correlation coefficient tests are performed here; the first one checks the correlation between groups in the use of forms to express specific mood types; the other one checks the correlation between groups in the use of forms to express the imperative mood. This is necessary because the imperative mood has a relatively large number of occurrences. The two correlation coefficient tests are performed, as in the previous categories, for all four groups: the research

vs. control group, as well as the three sub-groups mentioned in Section 7.3 above.

The correlation between the research group and the control group is 0.998, when checking the mood category as a whole, i.e. the variety of forms used to express all types of mood. When checking the forms used to express the imperative mood, the correlation between the two groups is 0.999.

In the groups of male informants vs. female informants the correlations are identical to those of the research vs. control groups: 0.998, when checking the mood category as a whole, and 0.999 when checking the forms used to express the imperative mood.

In the other two groups the correlations are slightly different from those of the research vs. control groups.

In the group of informants with high education vs. the group of informants with middle and low education the correlation is 0.998, when checking the mood category as a whole, and 0.992 when checking the forms used to express the imperative mood.

In the groups of informants from Ashkenazi origin vs. informants from Mizrahi origin the correlation is 0.995, when checking the mood category as a whole, and 0.999 when checking the forms used to express the imperative mood.

Although very slight differences are observed between the groups, these differences do not point to any significant differences in the use of forms to express mood. The differences are negligible, and are probably a result of the fact that the informants tested in the sub-groups are a subset of the research group, whereas speakers in the control group were not part of the tested sub-groups, but rather additional subjects. Differences can also be a result of rounding the numbers in the test.

7.5. Summary

Since there is nearly complete agreement between all groups and sub-groups in the aspect and mood categories, sociolects cannot be defined for IH in this regard. Rather, to a large extent, it may be assumed that the core systems of IH are common to all speakers.

Although marginal, the difference in the use of the category of tense between the group of informants and the control group merit further investigation. They can be indicative of change, or they can be the result of the relatively low number of occurrences of tense in IH. It is also possible that more extensive research would reveal no such differences at all.

In general, according to this research, I would conclude that there are no significant differences between populations in the use of TMA categories in IH, and that there is a great deal of agreement between all populations in the use of these categories.

8. Summary, conclusions and recommendations

8.1. Review of the research questions

The findings of this study are presented below in the framework of the research questions addressed in Section 1.

- **TMA categories in SIH**

  TMA categories fully exist in SIH, i.e. all three categories, tense, mood and aspect, are present. These categories are found in various distributions, whereby aspect is the most widespread and dominant category, followed by mood. Tense is found in this study, but its occurrences are limited to a very few structures. This is in complete contradiction to all the traditional theories, which refer to the Modern Hebrew verb system as a tense system with three tenses.

- **TMA expressions in SIH**

  All three TMA categories are grammaticalized to different degrees, aspect to the highest degree and tense to the lowest degree. The degree of grammaticalization is determined according to the following criteria:

  - The distance of the category marker from the verb;
  - The need for peripheral means to express the category;
  - The distribution of the semantic category in the language.

  All linguistic means are used to express TMA categories in SIH: morphological, syntactic and lexical. The morphological and syntactic means and the interface between them are factors in the determination of the degree of grammaticalization of the semantic category in the language. Lexical means add information, but are not considered as part of the TMA system.

- **Differences between linguistic realizations of tense, aspect and mood in SIH**

  Aspect and mood in SIH are primarily expressed by morphological means, i.e. verb patterns and inflections. They can also be expressed by syntactic structures, i.e. combinations of verbs and complements, but these are rare. Syntactic structures, which are found in this study, include several types of verb phrases (constructions), such as combinations of two verbs in a sequence or a sequence of a verb and an infinitive. Aspect and mood are linguistically realized by morphological means in the verb system. Both categories also appear in syntactic structures. Tense is realized by one morphological pattern combined with a specific consonantal root; in all other cases it is mainly lexical.

- **Relations between semantic categories and linguistic structures**

  In general, a specific morphological or syntactic structure always denotes the same TMA category, with the exception of one structure, which is the ***hjj*** 'be' + participle, that expresses both the habitual past (aspect-tense) and the counterfactual (mood) categories. In the latter case, the distinction between the two meanings is made according to the context. Aspect is expressed mainly morphologically by suffixed form and participles. Mood is expressed mainly by prefixed forms, imperative forms (phonologically-derived) and some additional syntactic combinations. Tense in a few instances is expressed by the root ***hjj*** 'be' in the ***QaI*** pattern. Otherwise – it is expressed lexically.

- **Interaction between semantic categories**

  The role of verbal construction constituents in relation to TMA categories is strictly defined and is very clear. In case of multiple TMA categories in a verbal construction, each construction constituent bears only one TMA meaning, where the same type of constituent will always bear the same TMA meaning. The combination of two constituents with two TMA meanings (one meaning each) yields a

multiple TMA meaning. For example, the structure representing the habitual past, which expresses both aspect (habitual) and tense (past), has two constituents: the root ***hjj*** 'be' and a participle. The former is always inflected for tense. The latter is always inflected for aspect. Together they form the combined meaning of the habitual past. Very few constructions of this type were found in the study. Most of the time each verb is inflected for only one TMA category; combinations are rare.

- **Differences between populations**

  No significant differences between populations are found in this research. There are, however, recommendations for further studies, where correlation coefficients between the various populations is lower than 0.99. See Section 7 for details.

8.2. Conclusions

The main conclusion of this study is the claim that IH is an aspect-prominent language, and not a tense-prominent language, as most approaches have previously claimed. See Section 5 for details.

Additional conclusions regarding the IH verb system, which are derived from this study, are the existence of five, and not seven, verbal patterns in IH, the absence of passive forms in IH speech and the different ways in which imperative forms are derived in IH (phonologically-motivated) as opposed to Hebrew (morphologically-motivated). All these conclusions are in contradiction to traditional approaches, which perceive IH / MH as having seven verbal patterns, as well as passive and imperative forms. See Sections 4 and 5 for further details and data on this topic.

8.3. Summary and Recommendations

The findings in this study show that the verb system of Israeli Hebrew is completely different from the Hebrew one, as perceived by normative

views. IH presents a different verb system than traditional Hebrew, has less verbal patterns, as well as different functions for these patterns. Although aspectual like previous Hebrew layers, IH aspects are represented by other patterns than those in previous Hebrew layers.

The verb system is one of the core systems in a language. Israeli Hebrew has many other differences, both phonological and syntactic, as compared with traditional Hebrew, apart from the verb system differences presented in this thesis. Also, in light of the findings of this research and the discontinuity of almost 2000 years between Hebrew and IH, I would consider adopting Zuckermann's terminology (2006, 2008), and use the name 'Israeli' for the language spoken in Israel, as opposed to 'Hebrew', which is the traditionally employed entity.

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Appen – language resources and development of high quality speech and language technology and applications:
http://www.appen.com.au/services/otsp.asp

Corpora of Spontaneous Spoken Italian LABLITA, University of Florence, Italy: http://lablita.dit.unifi.it/coralrom/lablita_corpus.html

DELIC Spoken French Corpus, University of Provence, France:
http://lablita.dit.unifi.it/coralrom/delic_corpus.html

ELDA – Evaluations and Language resources Distribution Agency:
http://catalog.elra.info/index.php?cPath=37_41&osCsid=1ee4076a9f74ff608e85b5c4ae19fd13

Göteborg Spoken Language Corpus (GSLC), Göteborg University, Sweden: http://www.ling.gu.se/projekt/tal/index.cgi?PAGE=3

The Academy of the Hebrew Language:
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The Spoken Dutch Corpus: http://lands.let.kun.nl/cgn/doc_English/topics/project/pro_info.htm#intro

Appendix 1: Text sample – Conversation number N-3-22

A transcription of a full conversation from the corpus is presented below. The letters 'A' and 'D' represent two informants, who participated in this conversation; the letters 'B' and 'C' stand for two additional speakers, who were included in the control group. The two informants are part of the research group. It is known that 'B' and 'C' are IH native speakers. The conversation took place in an office of a Biotechnology company in Israel.

Line	Speaker	Sampa transcription	Gloss
1	A	#### |	(Unclear speech)
2		@@@@ |	(laughter)
3		Rega |	One moment
4		jeS li od eXad |	I have another one
5		zeu |	That's it
6		lo peRateti gam oto ||	I have not detailed it either
7	B	(...) & |	(pause) (a hidden private name)
8		boj ani iten laX |	Come here, I will give you
9		teS- kama Seelot [Seani tsXa tSuva] |	some questions to which I need an answer
10	A	[eX koRim leze] /	How do you call it ?
11		a- oRifisez /	The orifices
12		oRifis |	Orifice
13		{yeah} oRifis |	Yeah, orifice
14	B	oRifis dipo /	Orifice Depot ?
15	C	@ |	(laughter)
16	A	lo |	No
17		oRifis @@ |	Orifice (laughter)
18	C	lo ze |	Not that
19		lo |	No
20		lo ze |	Not that
21	A	@@@@ |	(laughter)
22		@oRifis @dipo @@@ |	Orifice Depot (laughter)
23	C	en leXa od tavlaot lo besedeR po /	Don't you have more wrong tables here?

Line	Speaker	Sampa transcription	Gloss
24	A	ma |	What
25		ma at ma at XoSevet /	What do you what do you think ?
26		Seani os- mejatseR dvaRim lo besedeR /	That I produce wrong things ?
27	C	@@@ |	(laughter)
28	A	ani ne-	I (truncated)
29		@@@@ |	(laughter)
30		i XoSevet Seani —	She thinks that I (truncated)
31	C	lo ze ma SeamaRti |	This is not what I was saying
32	A	[@@@@] |	(laughter)
33	C	[sliXa] |	Sorry
34		[[lo itkavanti]] ||	I did not mean it
35	A	[[ani osafti et aamuda azot]] |	I added this column
36		veaz kaRa li |	And then happened to me
37		amikRe amaatsiv aze |	this sad incident
38	C	@@@ |	(laughter)
39	A	vebiglal Seani tsaRiX od amuda |	And since I need an additional column
40		kedej laanot al @a —	to answer the
41		@@@@ |	(laughter)
42		al adRiSot a -	the demands which
43		bilti |	are never
44		jodot sova |	sufficient
45		Sel ani lo ekRa beSem |	of I will not say the name of
46	B	ki maklitim otXa |	Because you are recorded
47	A	oj |	oh
48	C	@@@ |	(laughter)
49	B	@@ |	(laughter)
50	A	oj vaavoj li |	Woe is me
51		ze ze ze |	This this this
52		ma ma ze maklitim oti |	What what do you mean I am recorded
53		maflilim oti |	I am incriminated
54		@@ [@@] |	(laughter)
55	B	[bedijuk] |	Exactly
56	C	i iStamSa beota mila |	She used the same word

Line	Speaker	Sampa transcription	Gloss
57	B	kol afadiXot |	all embarrassing failures (slang)
58	C	SalaXti leXa |	I have sent you
59	B	ata jodea kama fadiXot ani asiti po /	do you know how many embarrassing failures (slang) I had ?
60	A	ani lo jodea |	I don't know
61		ani aXSav atXil ledabeR Rak jafe |	I will now start speaking only nicely
62	B	[##] |	(Unclear speech)
63	C	[i tova] |	She is damn good
64	A	hoXdojtS ani edabeR |	I will speak Hochdeutsch
65	C	i tova |	she is damn good
66		[Xaval al azman] ||	It's fantastic (slang)
67	D	[## kol kaX aRbe RaaS] |	So much noise
68	A	bema i tova /	She is good at what ?
69	C	i /	She
70	B	[lo ani] |	Not me
71	A	[ken]|	Yes
72	D	ma at ### po \	What are you (unclear speech) here ?
73		kol ajom at joSevet po |	You have been sitting here all day
74	B	lo ani im [dvaRim XadaSim] |	No, I am with new things
75	C	[beivRit] |	In Hebrew
76		[[ma zot omeRet]] |	What do you mean ?
77	B	[ken]] |	Yes
78		& lo jaXol aja lizbol ed ze |	& would not have been able to bear it
79		[ani im kol a] —	I, with all my (truncated)
80	A	[a ken] /	Ah yes ?
81		jeS la ivRit tova /	Is her Hebrew good ?
82	D	naXon |	Right
83	D	[lama at tsXa laSevet ita] /	Why do you need to sit with her ?
84	C	[a ken]|	Ah yes
85	A	ken /	Yes ?
86		meuktsaat /	Refined ?

Line	Speaker	Sampa transcription	Gloss
87	B	mamaS |	Really
88	A	ken /	Yes ?
89	D	[lama at tsR- tsXa laSevet ita] /	Why do you need to sit with her ?
90	A	[ona al kol a] -	Answering all the (truncated)
91	B	Xelek ani [[tseXa]] |	I need some of it
92	A	[[klalim Sel a]] -	Rules of the (truncated)
93	B	veXelek e |	and some eh
94		lo |	no
95	D	gam aktav jad [Sela lo baRuR] /	Is her handwriting also not clear ?
96	A	[ivRit a- gvoa] |	High Hebrew
97	C	lo |	No
98		Sela besedeR ||	Hers is OK
99	A	[at medabeRet gvoa gvoa] /	You are speaking arrogantly (an idiom)
100	D	[az lama i tsXa laSevet] —	so why does she need to sit (truncated)
101	C	[lejad SelaX kulam bRuRim] |	Compared with yours - all are clear
102	D	az lama i tsXa laSevet itaX /	So why does she need to sit with you ?
103		paam & Saal ota |	Once & asked her
104		lama ani joSevet al jada |	Why I am sitting next to her
105		az i amRa |	So she said
106		ki i lo @mevina et aktav Seli |	Because she cannot read my handwriting
107		ze samatoXa |	This is a mess (slang)
108	C	u koes alea [kSei joSevet po] |	He is angry with her when she is sitting here
109	B	[gam & koes] |	Also & is angry
110	C	al titsXeki |	Don't laugh
111	B	aval ze dav -	But this is (truncated)
112		lo aju dvaRim [Se- ze] |	There have been nothing that this
113	A	[mi koes] /	Who is angry ?
114	D	Saalti lama i tsXa laSevet lejadeX |	I have asked why she needs to sit next to you
115	A	ken /	Yes ?

Line	Speaker	Sampa transcription	Gloss
116	D	lama /	Why ?
117	A	kaXa jeS ### |	This way there are (unclear speech)
118	C	ki jeS dvaRim Se- tsaRiX e |	Because there are things that require eh
119		[Sei tsRiXa laSevet lejadi] |	That she would sit next to me
120	A	[jeS dvaRim Se] -	There are things that
121	C	Sei tsXa laanot aleem toX kedej |	That she needs to answer while in progress
122	B	Seani tsXa [laanot aleem toX kedej] |	That I needs to answer while in progress
123	A	[jeS dvaRim]|	There are things
124		Sei jeXola laasot Rak bejeSiva |	That she can do only when seated
125	D	lamRot Seaktav jad SelaX baRuR |	Although your handwriting is clear
126	B	ze lo kaSuR laktav jad /	It has nothing to do with handwriting
127	D	#### |	(Unclear speech)
128	A	@@@ |	(laughter)
129		lo jodea |	I don't know
130		eX efSaR leazbiR ed ze aXeRet /	How can you explain it differently?
131	B	kol eXad vea-	Each one with one's own and (truncated)
132		#### Selo |	(unclear speech) his
133	C	tiSali et & ma katuv po |	Ask & what is written here
134		efo ze /	where is it ?
135	B	a naXon |	Ah right
136	C	[ma katuv po] /	what is written here ?
137	B	[boj] |	Come on
138		[[apRopo ktav jad]] |	and apropos handwriting
139	C	[[mitaXat lameXika]] /	Under the deletion
140	D	lesiXa |	to a conversation
141	B	betaX |	Sure
142	C	(.) vema od katuv po /	And what else is written here ?
143		[Xuts milesiXa] /	Apart from to a conversation ?

Line	Speaker	Sampa transcription	Gloss
144	D	[&] |	(a hidden private name)
145	B	aXSav taXSevi |	Now think
146		al aeX ani aotijot niRot |	about how the letters look
147	C	[eX & kaRa ed ze] /	How did & read it ?
148	B	[bli lesiXa] |	without to a conversation
149	D	neSika |	Kiss
150	B	mamaS |	Yeah, sure
151	C	@@@ |	(laughter)
152	B	afilu ani lo igati leze |	even I did not guess
153	D	neSama |	Soul (in Hebrew this is a nickname to a good person)
154		amaRt li neSama |	You said to me Soul
155		at amaRt li neSama |	You said to me Soul
156	C	i mamaS alXa RaXok |	she went really far
157	D	aval ze nesiXa |	But this is Princess
158		& |	(a hidden private name)
159		aval katuv nameR velo & |	But it says tiger and not (a private name)
160		& lesiXa |	(a hidden private name) to a conversation
161	B	@ |	(laughter)
162	D	aikaR Seu omeR seaktav Seli lo tov |	Yet (slang) he says that my handwriting is not good
163	B	biglal advaRim amaflilim [SejeS po] |	Because of the incriminated things here
164	D	[# amRu li ##] |	(unclear speech) I was told (unclear speech)
165	B	[[ani lo agid kol ma SejeS li]] |	I will not say everything that I have to say
166	A	[[ani gam Xosev]] |	I also think
167		Seu lo jaXol leagid laX ed ze |	that he cannot say that to you
168	D	aval lo naim li leagid laXem |	But it is not very nice to say it to you
169		[SebehaRvaRd amRu li] —	That in Harvard I was told (truncated)
170	A	[u lo jaXol leagid Seaktav Sela lo tov] |	He cannot say that her handwriting is not good

Line	Speaker	Sampa transcription	Gloss
171	D	Selekol	That all
172	A	en la ktav |	She has no handwriting
173	D	takSiv Rega |	Listen for a moment
174	A	[ze lo ktav] |	This is not a handwriting
175	D	[behaRvaRd amRu li] |	In Harvard I was told
176	C	[ze heRoglifim] |	These are hieroglyphics
177		ma SejeS la |	what she has
178	D	Sekol a {brilliant people} |	that all the brilliant people
179		ze beajat ktav ||	it is a handwriting problem
180		@@@ |	(laughter)
181	C	(.) tiRe et amitsRim akadmonim |	(pause) look at the ancient egyptians
182	A	ken |	Yes
183		ktav ajetedot |	the cuneiform script
184		ze gam ken |	This is also
185		{brilliant} |	brilliant
186	C	@ |	(laughter)
187	D	aval [ze] |	But this is
188	A	[##] |	(unclear speech)
189	D	ze ktav aja |	This script was
190		kmo —	like (truncated)
191		[kmo kol #] |	like all (unclear speech)
192	B	[ze Sel anaSim Seem e] |	This belongs to people that eh
193		jetedot ||	cuneiform
194	A	ken |	Yes
195	D	ata lo jodea lama |	You don't know why
196		lama ### |	why (unclear speech)
197		lama ajetedot niRot kmo jetedot |	Why do the cuneiform look like cuneiform
198		lama beXlal |	Why at all
199	A	[jaS li seela] |	I have a question
200	D	[ata jodea lama] |	Do you know why ?
201	A	jeS li Seela Rak |	I have a question only
202		Rak at aXSav |	only you now

Line	Speaker	Sampa transcription	Gloss
203	D	ata [jodea lama] |	Do you know why
204	A	[nitlet beilan gavoa behaRvaRd] |	You rely on higher opinions (idiom) in Harvard
205	D	lama asafot —	Why do the languages (truncated)
206		Rega |	Just a minute
207		[lama asafot aSemi] —	whay do the Semitic languages (truncated)
208	A	[az bo tagid li] |	So please tell me
209	D	[[Stok Rega]] |	Shut up for a minute
210	A	[[mi behaRvaRd amaR laX ed ze]] /	Who told you that in Harvard ?
211	D	amaR li ed ze |	Told me that
212	A	mi mi /	Who who ?
213	D	e |	Eh
214		tagid li |	Tell me
215		lama |	Why
216		asafot [aSemijot] |	are the semitic languages
217	B	[i matsa eXad Seamad leitalot] |	She found someone who was about to be hanged
218	D	niXtavot mijamin lesmol |	written from right to left
219		veasafot aaXeRot mismol lejamin /	And the other languages from left to right ?
220	A	ze injan Sel tamRuRim |	This is a matter of road signs
221	D	lo |	No
222		az ani azbiR laXem |	So I will explain it to you
223	A	[@ paam a] —	(laughter) once (truncated)
224	D	[ki asafot] |	Because the languages
225		kol aSemijot veze |	All the Semitic and the like
226		itXilu liot safot kadmonijot |	started to be ancient languages
227		lo aja et ipaRon |	they had no pens, pencils
228	A	[lo] |	no
229	D	[ze et] —	This is a pen
230	A	#### |	(unclear speech)
231	D	Stok Rega |	Shut up for a minute
232		avdu im e jated vekaze |	They worked with a peg and the like
233	A	ani jodea |	I know

Line	Speaker	Sampa transcription	Gloss
234	D	az dafku kaXa |	So they hit it this way
235		ze oleX mijamin lesmol |	It goes from right to left
236		i efSaR laasot kaXa |	You cannot do the other way around
237	C	lama /	Why ?
238		[vemi Sesmali] /	and someone who is lefty ?
239	D	[naXon] /	correct
240		veim kotvim beet noRmali |	And if you write with a normal pen
241		[kmo anaSim ze] |	Like people that
242	C	[veim miSu Sesmali] /	And if someone is lefty ?
243	D	az im aita kotev beet mijamin lesmol |	So if you had written with a pen from right to left
244		kol adjo |	All the ink
245		ze aja keset im djo |	It was an inkstand with ink
246		ajta nimRaXat |	would have been smeared
247		az laXen itXilu ed ze mitsad smol ||	so they started it from left
248		@@ |	(laughter)
249	A	ani XaSavti Sekan |	I thought that here
250		asafot aSemijot |	are the Semitic languages
251		vekan asafot aanti Semijot |	and here are the anti-Semitic languages
252		az e |	so eh
253	C	veim miSu smali /	And if someone is lefty ?
254	D	jeS beze igajon |	It makes sense
255	C	az u ose afuX im ajad |	So he does the opposite with his hand
256	B	aval ajapanim kotvim gam kaXa vegam kaXa ||	But the Japanese write either way
257	D	### naXon |	(unclear speech) right
258	A	(...) em moRXim et adjo kaXa |	(pause) they smear the ink this way
259	D	aja efSaR laasot kaXa /	It could have been done this way
260		i efSaR ||	It is impossible
261	B	aim biXlal |	Is it at all
262		ata jodea |	you know
263		jes laem et aomanut azoti |	they have this art

Line	Speaker	Sampa transcription	Gloss
264		Seem tseXim laasot et a-	where they need to do the (truncated)
265	C	efSaR |	It is possible
266		u smali |	He is lefty
267	A	tsjuR |	a painting
268	B	ken |	yes
269		jeS laem e |	they have eh
270		ke- e |	(stuttering)
271		naniaX em osim igul |	Suppose that they are making a circle
272	A	kaligRafja |	Calligraphy
273		Ratsit leagid |	you wanted to say
274	B	lo |	No
275		aval ata tsaX |	But you need
276		Xuts mikaligRafja jeS |	apart from calligraphy there is
277		ata tsaX le- liRot |	you need to see
278		leistakel al a-	to look at the
279		akevot Seadjo ose |	traces of the ink
280		veliRot |	and see
281		velo liRot meefo u itXil ||	and not see where it started
282	A	ze RoRSaX |	This is Rorschach
283		at mitkavenet ||	You mean
284		aakevot Sead—	The traces of the (truncated)
285	B	RoRSaX ze amifXanim |	Rorschach is the tests
286	A	nu |	So (slang)
287		ze aakevot Seadjo ose |	is the traces that the ink leaves
288		[at jeXola asotsjatsjot] |	You can assiciations
289	B	[ani aiti neXSelet beRoRSaX] |	I would have failed Rorschach
290	A	@@ |	(laughter)

Appendix 2: Transcription symbols

The transcription symbols used in this thesis are based on the transcription method of Du Bois et al 1992 and 1993. These transcription symbols were converted into IH according to Izre'el 2004). The symbols are provided in the table below. Each speech unit was written in a separate line. Note that these symbols were used in the Hebrew orthography transcription, and are not necessarily present in the text sample in Appendix 1.

Symbol	**Sampa transcription**
||	end of speech unit – final tone
|	end of speech unit – non-final tone; the speaker continues talking in the next speech unit
/	end of speech unit – uprising tone; a reaction is expected in the next speech unit, not necessarily by the same speaker
–	end of speech unit – truncated word;
—	end of speech unit – truncated expression;
(..X..)	pause; 'X' (if exists) stands for the pause duration in seconds; (.) = a very short pause; (..) = a medium pause; (..) = a long pause
;	a separator between the speaker code and his/her speech
:	length; an extremely long vowel or consonant
(( ))	comments
[ ]	simultaneous speech of two speakers or more
@	laugh
#	unclear syllable; the number of # symbols will be identical to the number of unclear syllables which was uttered
'	stressed syllable; this symbol is used at the beginning of thesyllable
{ }	Phonetic transcription or a word in foreign orthography

Appendix 3: New words in Hebrew

The following booklet was issued by the Academy of the Hebrew Language in 2008. It is titled: ***Words – an invitation to a tour in Hebrew***. The booklet contains new terms that the Academy of the Hebrew Language invented for loan words, which are currently used in Israeli Hebrew in their original, foreign, form. Sixty two words are presented in the booklet in various fields of life. Out of these 62 words, only 3 are used in standard, ordinary, spontaneous IH. Some others are used in higher registers, mainly in the media. Most of these words are not a part of the IH lexicon.

In the last page, there are seven additional words under the title: "*who remembers how we used to say:*". These words have indeed been accepted in the spoken language during its 120 years of existence. This shows the very low percentage of words, which originate in the official bodies in Israel, and are accepted by native speakers of IH. The power of the language in the street is much stronger in this regard, which supports the assumption that IH and Hebrew are two different entities. This example shows the differences in vocabulary, but this deep gap exists also in other systems, such as the verb system investigated in this research.

The words are transcribed, analyzed and translated into English below:

Field	Word #	Trans-cription	Root	Pattern	Gloss	Comments
On the way	01	migdol	***mgdl***	$C_1iC_{2a}C_{2b}oC_3$	pylon	
	02	maa-gana	***ʕgn***	$maC_1C_2aC_3a$	marina	
	03	mitspoR	***tspr***	$C_1iC_{2a}C_{2b}oC_3$	mountain viewpoint	Sometimes used by Israeli travelers
Environment	04	akva	***qwj***	basic	aquifer	
	05	miXzuR	***mħzr***	$C_1iC_{2a}C_{2b}uC_3$	recycling	Well acclimatized
	06	nituR	***nṭr***	$C_1iC_{2a}C_{2b}uC_3$	monitoring	Used in professional jargons
	07	kajamut	***qjm***	$C_1aC_2aC_3+ut$	sustain-ability	

Field	Word #	Trans-cription	Root	Pattern	Gloss	Comments
Transportation	08	galgal Xiluf	***galgal + ħlp***	Basic + $C_1iC_{2a}C_{2b}uC_3$	spare tire	
	09	eXkeR	***ħkr***	$heC_1C_2eC_3$	leasing	
	10	magbea	***gbh***	$maC_1C_2eC_3$	jack	
	11	maXvan	***kwn***	$maC_1C_2aC_3$	indicator	Sometimes used in high registers
	12	miXmo-net	***kmn***	$miC_1C_2óC_3et$	Speed trap	Sometimes used in high registers
	13	nekeR	***nqr***	$C_1éC_2eC_3$	puncture	
	14	tsmigija	***tsmg***	$C_1C_2iC_3$	Tire repair shop	
	15	tsfiRoR	***tspr***	$C_1C_2iC_{3a}oC_{3b}$	“kojak” flasher	
On-site	16	gumXa	***gmħ***	$C_1uC_2C_3a$	niche	
	17	Xalon maskit	***Xalon + skt***	basic + $maC_1C_2iC_3$	vitrage	
	18	mevoa	***bwʔ***	$maC_1C_2eC_3a$	lobby	
	19	muzeon katuR	***muzeon + qṭr***	basic + $C_1aC_2uC_3$	open air museum	
Sports	20	gliSat Xevel	***glš +Xevel***	$C_1C_2iC_3at$ + basic	rappelling	
	21	galSan Seleg	***glš +Seleg***	$C_1aC_2C_3an$ + basic	snowboard	
	22	galgeSet	***glš***	$C_1aC_2C_1éC_3et$	skateboard	
	23	tsanRan	***tsnr***	$C_1aC_2C_3an$	snorkel	
	24	kapetset	***qpts***	$C_1aC_2éC_3et$	trampoline	
Internet	25	igeRet mejda	***igeRet + mejda***	basic + basic	newsletter	
	26	eXsen najad	***ħsn + njd***	$heC_1C_2eC_3$ + $C_1aC_2aC_3$	flash memory	
	27	joman ReSet	***joman + ReSet***	basic + $C_1éC_2eC_3$	blog	
	28	meku-van	***qwn (*)***	$meC_1uC_{2a}C_{2b}aC_3$	online	
	29	miR-Setet	***ršt***	$miC_1C_2éC_3et$	internet	
	30	paRtsuf on	***paR-tsuf + on***	basic + suffix	emoticon	
	31	tsRufa	***tsrp***	$C_1C_2uC_3a$	attachment	
	32	tguvit	***tguva + it***	basic + suffix	talk-back	

Field	Word #	Trans-cription	Root	Pattern	Gloss	Comments
Communication	33	XadSiR	***Xad + SiR***	prefix + basic	single	
	34	neimon	***nʕm + on***	$C_1C_2iC_3$a + suffix	ringtone	
	35	kdimon	***qdm***	$C_1C_2iC_3$ + suffix	promo	
	36	jeduan	***jdʕ***	$C_1C_2uC_3$an	celebrity	
	37	mizke	***zkj***	mi$C_1C_2aC_3$	credit	
	38	misRon	***msr***	$C_1C_2iC_3$ + on	SMS	Sometimes used in high registers
	39	samlil	***sml***	$C_1aC_2C_{3a}iC_{3b}$	logo	
	40	alilon	***ʕll + on***	$C_1C_2iC_3$a + suffix	comics	
	41	taklitoR	***taklit + oR***	basic + basic	CD, DVD	
Food	42	askala	***skl***	ʔa$C_1C_2aC_3$a	grill	
	43	bsomet	***bsm***	$C_1C_2óC_3$et	aroma	
	44	tuganim	***ṭgn***	$C_1uC_2aC_3$ + suffix	fries, chips	
	45	kaRiX	***krk***	$C_1aC_2iC_3$	sandwich	Acclimatized to some degree
	46	midganim	***dgn***	mi$C_1C_2aC_3$ + suffix	cereal	
	47	matsle	***tslj***	ma$C_1C_2eC_3$	barbecue	
	48	mekaR	***qrr***	me$C_1aC_2eC_3$	cooler	
	49	matsait	***matsa + it***	basic + suffix	place-mat	
	50	teSeR	***tšr***	$C_1éC_2eC_3$	tip	Sometimes used in high registers
Objects	51	Xafits	***ħpts***	$C_1aC_2iC_3$	gadget	
	52	minsa	***nsʔ***	mi$C_1C_2aC_3$	carrier	
	53a	matsbea	***tsbʕ***	ma$C_1C_2eC_3$	marker pen	
	53b	madgeS	***dgš***	ma$C_1C_2eC_3$	highlighter	
	54	punda	***pnd***	$C_1uC_2C_3$a	pouch	
	55	tsamdan	***tsmd***	$C_1aC_2C_3$an	scotch	
	56	tatsRef	***tsrp***	ta$C_1C_2eC_3$	puzzle	
Health	57	XamaR-moRet	***ħmr***	$C_1C_2aC_3C_2óC_3$et	hangover	
	58	RageSet	***rgš***	$C_1aC_2éC_3$et	allergy	
	59	jaefet	***ʕjp***	$C_2aC_1éC_3$et	jet lag	
	60	mesaed	***sʕd***	me$C_1aC_2eC_3$	nursemaid	
	61	Slomut	***šlm***	$C_1C_2oC_3$ut	wellness	

(*) The root is derived from the word ***kav*** ‘line’ and has only two consonants; the addition of the third consonant ***n*** is to keep the tri-consonantal principle.

Last page:

Today:	**Used to say:**	**Gloss**
meavReR	vintelatoR	ventilator
daXpoR	buldozeR	bulldozer
daRkon	paspoRt	passport
monit	taksi	taxi / cab
miRSam	Retsept	prescription
solela	bataRija	battery
paalulim	efektim	effects

Summary

The purpose of this research study is the investigation of tense, mood and aspect (TMA) categories in the verb system of Spoken Israeli Hebrew (SIH), also referred to as Modern Hebrew (MH). The Modern Hebrew verb system is generally perceived as a tense-based system, and is so presented in most of the traditional literature, as well as in a majority of textbooks. This analysis has been commonly accepted and was seldom critized.

The research underlying this thesis was motivated by the fact that the traditional analysis of the verb system of Hebrew has to specify a large number of exceptions, and that many of the analyzed forms are inexplicable to Israeli Hebrew native speakers. It was therefore suspected that the verb system of SIH is not tense-based, but rather aspect-based and/or mood-based. Indeed, apart from containing several grammaticalized modal structures, this research shows that the SIH verb system is aspectual – rather than tense-oriented.

The research is based on a corpus of ongoing spontaneous conversations in Spoken Israeli Hebrew that were recorded in real-time. It contains authentic Israeli Hebrew speech as used by native speakers in everyday conversations. Twenty-two informants distributed across relevant demographic groups were investigated. In addition, at least an equivalent number of non-informants were used as a control group. The non-informants also actively participated in the conversations.

In this way, a spoken corpus of more than 44,000 words was established. Approximately 1000 words per informant were used, as well as a similar number of words per non-informant. The resulting 44,000 words in the corpus can be broken down to informants' speech (~22,000 words) and the speech of the non-informants (~22,000 words). The corpus is divided into speech units which are determined according to prosodic criteria in the discourse, following accepted theories of discourse

analysis. The corpus is fully transcribed using a conventional transcription method for Hebrew.

According to the Israeli Central Bureau of Statistics (ICBS), there are approximately 3.8 million native speakers of Israeli Hebrew in Israel in the year 2009. The informants in this study constitute a research group and the non-informants constitute a control group. This division into groups was done according to the demographic distribution of the participants in the conversations. Participants, whose demographic characteristics were known, are included in the research group; participants, whose demographic characteristics were not known, are included in the control group. Both groups include Israeli citizens and residents. The demographic distribution of population of the research groups in this study is based upon the official reports of the ICBS. They include Israeli Hebrew native speakers, males and females, ages 16 and older, from different origins and education levels. Non-native speakers are not included in this research, in order to try and sketch the basic, native verb system of the language.

The conversations are spontaneous in nature, representing everyday speech in various registers. All verbal forms appearing in the conversations were listed for this study and are taken into consideration in the final analyses. The total number of verbal forms analyzed is over 6,000. All the verbal forms are presented in the same form in which they appeared in the conversations. It was not put to question whether these verbal forms are normatively adequate or not. Also, the forms are not converted to normative forms in their listing or analysis. It is assumed that native speakers of a language have their own set of rules in mind and know best what their language is like and how to best express themselves in their language.

The results of this research raise some serious questions regarding the analysis of verbs in SIH according to the normative verb system. In traditional Hebrew grammar there is no explanation for many verbal forms if the tense-based approach is applied. These forms would probably be conceived under normative views as ‘ungrammatical’ or ‘exceptional’. The

alternative analysis of the SIH verb system as aspect-based as proposed in this study covers all these 'ungrammatical' cases, as opposed to the tense-based analysis, which leaves these cases unexplained.

Further, several additional points are observed in this research. The first one is the absence of passive forms from the verb system. Israeli Hebrew speakers use other strategies to express passive notions in their language rather than using passive patterns. Traditional grammars define two passive patterns in the Hebrew verb system (***Pual*** and ***Hufal***), which are believed to exist in Modern Hebrew too. Also, they state that sometimes the ***Nifal*** pattern expresses passive notions. This research suggests that the two passive patterns do not exist in the verb system and are used only for the formation of nominals, nouns and adjectives. Also, in most of the cases the ***Nifal*** pattern does not express passive notions. The percentage of all passive forms in this research is lower than 0.5%, a fact that cannot be ignored and should be further explored.

The second point is the derivation of imperative forms. For each verbal pattern, traditional grammars define a unique imperative morphological structure that expresses the imperative mood. Again, the imperative structures are believed to be a part of the verbal system of traditional Hebrew, and are also believed to be present in Modern Hebrew. However, the traditional imperative forms were not found at all in this research. Instead, prefixed forms (which are analyzed by traditional grammars as expressing future tense) are used, as well as some imperative forms that are phonologically derived from their parallel prefixed counterparts. It is therefore suggested that imperative forms in SIH are phonologically motivated and are not derived according to any morphological pattern.

The distribution of the verbal patterns is also surprising. New verbs in Israeli Hebrew (as well as in traditional Hebrew) are derived mainly in the ***Piel*** pattern. Therefore, it is common to think that the ***Piel*** pattern is the most widespread pattern in the Hebrew verb system. This study suggests that the ***Piel*** pattern has fewer repetitions in ordinary conversations than both the ***Qal*** and the ***Hifil*** patterns. Although widely used for verb formation, its distribution is much lower than other patterns.

There are verb phrases in SIH which are not referred to in the traditional verb system. Several types of verb concatenations were found in this research, which express unique TMA meanings, and are not covered by traditional grammars. About 10% of the verbal forms in the verb system consist of concatenated verbs. Although a minority, this number is meaningful and these forms may hint at a trend towards a more analytical formation in the SIH verb system.

The verb system of SIH, as observed in this study, is different from the traditional Hebrew one. It contains five and not seven patterns, it does not contain passive patterns or any passive forms whatsoever, its' imperative forms are phonologically motivated and not morphologically derived, the distribution of patterns is different than expected; and the existence of concatenated verbal phrases raises questions about the synthetic character of the verb system. In spite of the wide use of derivational morphology and synthetic forms, which is typical to Semitic languages, the SIH verb system is also characterized by more analytical structures in the verb system.

Samenvatting

Deze dissertatie bestudeert de uitdrukking van temporele, modale en aspectuele (TMA) categorieën in het werkwoordelijke systeem van het Gesproken Israëlisch Hebreeuws (GIH), ook wel Modern Hebreeuws (MH) genoemd. Het Modern Hebreeuwse werkwoordelijke systeem wordt over het algemeen opgevat als een tempus-gebaseerd systeem en wordt ook vaak op deze manier gepresenteerd in de traditionele literatuur en in de meeste leerboeken. Deze benadering is breed geaccepteerd en werd zelden bekritiseerd.

Het onderzoek dat aan deze dissertatie ten grondslag ligt werd ingegeven door het feit dat de traditionele analyses van het Hebreeuwse werkwoordelijke systeem een groot aantal uitzonderingen moeten stipuleren en dat veel van de geanalyseerde vormen niet zijn uit te leggen aan moedertaalsprekers van het Israëlisch Hebreeuws. Om die redenen ontstond het vermoeden dat het werkwoordelijke systeem van het GIH niet tempus-gebaseerd maar aspect- of modus-gebaseerd is. Deze studie toont aan dat, naast enkele gegrammaticalizeerde modale structuren, het werkwoordelijke systeem van het GIH inderdaad aspect-gebaseerd en niet tempus-gebaseerd is.

Het onderzoek is gebaseerd op een corpus van rechtstreeks opgenomen spontane conversaties in het GIH. Het bevat autentieke spraak zoals die gebruikt wordt door moedertaalsprekers in alledaagse conversaties. Tweeëntwintig informanten verdeeld over de relevante demografische groepen werden onderzocht. Daarnaast werden tenminste evenveel niet-informanten gebruikt als controlegroep. De niet-informanten namen actief deel aan de conversaties. Op deze manier werd een corpus van meer dan 44000 woorden gecreëerd. Per informant werden ongeveer 1000 woorden gebruikt, en een even groot aantal per niet-informant. De resulterende 44000 woorden in het corpus kunnen worden onderverdeeld in spraak van informanten (~22,000 words) en spraak van niet-informanten (~22,000 words). Het corpus is onderverdeeld in eenheden van spraak die worden vastgesteld op basis van prosodische criteria, zoals algemeen geaccepteerd in discourse analyses. Het corpus is volledig

getranscribeerd, waarbij gebruik gemaakt wordt van een algemeen gangbare transcriptiemethode voor het Hebreeuws.

Volgens het Israëlische Centrale Bureau voor de Statistiek waren er ongeveer 3,8 millioen moedertaalsprekers van het Israëlische Hebreeuws in Israël in 2009. De informanten in deze studie vormen de onderzochte groep en de niet-informanten de controlegroep. Deze verdeling in groepen werd gerealiseerd naar de demografische spreiding van de deelnemers in de conversaties.

Deelnemers waarvan de demografische eigenschappen beschikbaar waren maken deel uit van de onderzochte groep; deelnemers waarvan de demografische eigenschappen niet beschikbaar waren maken deel uit van de controle groep. Beide groepen bevatten Israëlische staatsburgers en mensen met een verblijfsvergunning. De demografische spreiding van de leden van de onderzochte groep in deze studie is gebaseerd op de officiële rapporten van het Israëlische Centraal Bureau voor de Statistiek. De groep omvat moedertaalsprekers van het Israëlisch Hebreeuws, mannen en vrouwen van 16 jaar en ouder, van verschillende afkomst en met verschillende opleidingsniveaus. Niet-moedertaalsprekers zijn niet onderzocht in deze studie, omdat het doel is het werkwoordelijke systeem zoals gehanteerd door moedertaalsprekers te schetsen.

De conversaties hebben een spontaan karakter en vertegenwoordigen alledaags taalgebruik in verschillende registers. Alle werkwoordelijke vormen die gebruikt worden in de conversaties werden vastgelegd en worden meegenomen in de uiteindelijke analyses. Het totale aantal geanalyzeerde werkwoordelijke vormen is meer dan 6000. Al werkwoordelijke vormen worden gepresenteerd in de vorm waarin ze in de conversaties verschenen. De vraag of deze vormen voldoen aan de gangbare normen werd daarbij niet gesteld. Verder worden de vormen niet geconverteerd naar de normatief correcte vormen in de analyse. De aanname is dat moedertaalsprekers hun eigen regelset toepassen en zelf het beste weten hoe zij zich het meest adekwaat kunnen uitdrukken in hun taal.

De resultaten van dit onderzoek roepen een aantal belangrijke kritiekpunten op met betrekking tot de analyse van werkwoorden in GIH volgens de normatieve benadering. In de traditionele Hebreeuwse grammatica is er geen verklaring voor de vele werkwoordsvormen wanneer de tempus-gebaseerde benadering wordt toegepast. Deze vormen zouden in de normatieve benadering waarschijnlijk als 'ongrammaticaal' of 'uitzonderlijk' worden gekarakteriseerd. De alternatieve analyse van het werkwoordssysteem van het GIH als aspect-gebaseerd verklaart al deze 'ongrammaticale' gevallen, in tegenstelling tot het tempus-gebaseerde systeem, dat deze gevallen onverklaard laat.

Veder werden er nog een aantal aanvullende observaties gedaan in deze studie. De eerste betreft de afwezigheid van passieve vormen in het werkwoordssysteem. Sprekers van het Israëlisch Hebreeuws gebruiken andere strategieën dan passieve constructies om passieve noties uit te drukken in hun taal. Traditionele grammatica's definiëren twee passieve patronen in het werkwoordssysteem van het Hebreeuws (Pual and Hufal), waarvan wordt aangenomen dat deze ook in het Modern Hebreeuws bestaan. Verder stellen zij soms dat het Nifal patroon passieve noties uitdrukt. Het huidige onderzoek suggereert dat de twee passieve patronen niet bestaan in het werkwoordssysteem en alleen worden gebruikt in de vorming van nominalizaties, nomina en adjectieven. Verder drukt in de meeste gevallen het Nifal patroon geen passieve noties uit. Het percentage passieve vormen in het voorliggende onderzoek bedraagt minder dan 0.5%, een feit dat het verdient verder onderzocht te worden.

Het tweede punt betreft de vorming van imperatieve werkwoordsvormen. Voor elk werkwoordelijk patroon definiërentraditionele grammatica's een unieke imperatieve morfologische structuur die de imperatief uitdrukt. Opnieuw wordt aangenomen dat imperatieve structuren onderdeel zijn van het verbale systeem van het traditionele Hebreeuws en dat deze ook onderdeel uitmaken van het verbale systeem van het Modern Hebreeuws. De traditionele imperatieve vormen werden echter in het geheel niet gevonden in het voorliggende onderzoek. In plaats daarvan worden geprefigeerde vormen gebruikt (die in de traditionele grammatica's worden geanalyseerd als uitdrukking van de toekomende tijd), alsmede

enkele imperatieve vormen die fonologisch zijn afgeleid van hun parallele geprefigeerde tegenhangers. Daarom wordt in deze studie de suggestie gedaan dat imperatieve vormen in het GIH fonologisch gemotiveerd zijn en niet kunnen worden afgeleid volgens een morfologisch patroon.

De spreiding van verbale patronen is ook verrassend. Nieuwe werkwoorden in het Israëlisch Hebreeuws (alsook in het traditionele Hebreeuws) worden vooral afgeleid volgens het Piel patroon. Daarom wordt wel aangenomen dat het Piel patroon het meest wijdverspeide patroon is in het Hebreeuwse werkwoordelijke systreem Deze studie suggereert echter dat het Piel patroon minder vaak voorkomt in alledaagse conversaties dan zowel het Qal als het Hifil patroon. Hoewel veel gebruikt voor de vorming van werkwoorden, komt het Piel patroon veel minder vaak voor dan andere patronen.

Er zijn een aantal werkwoordelijke constructies die in traditionele beschrijvingen niet voorkomen. Zo werden er verschillende concatenaties van werkwoorden gevonden in dit onderzoek die unieke TMA betekenissen uitdrukken en die niet genoemd worden in traditionele grammatica's. Ongeveer 10% van alle werkwoordelijke vormen in het corpus zijn werkwoordsconcatenaties. Hoewel dit een minderheid is, is het percentage betekenisvol. Deze vormen zouden kunnen wijzen op een trend naar meer analytische werkwoordsvormen in het werkwoordelijke systeem van het GIH.

Het werkwoordssysteem van het GIH, zoals gedocumenteerd in deze studie, is dus anders dan het traditionele Hebreeuwse systeem. Het kent vijf, niet zeven patronen, het kent geen passieve patronen of vormen, de imperatieve vormen zijn fonologisch gemotiveerd en niet morfologisch afgeleid, de distributie van patronen is anders dan verwacht en het bestaan van werkwoordsconcatenaties roept vragen op over het syntetische karakter van het werkwoordssysteem: ondanks het wijdverspreide gebruik van derivationele morfologie en syntetische vormen, die typisch zijn voor Semitische talen, wordt het werkwoordssysteem van het GIH ook gekarakteriseerd door meer analystische structuren.