A matter of time: tense, mood and aspect in spontaneous Spoken Israeli Hebrew
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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
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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
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](image)

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.

![Diagram of absolute-relative tense](image)

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

(7) naḥamu naḥamu 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**.

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

- 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.

\[
(f_1: 1 \text{ Lexical item}_b) (x_1: \text{Lexical item}_b)_n
\]

where \( f_1 \) is the main predicate; as the predicate can be a verb, a noun, an adjective or an adverb, \( b \) 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:

\[ e_1: [(\text{Lexical item})_1 (\text{Lexical item})_2] \]

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:

\[ \text{ep}_1: [(e_1)....(e_{1+n}) [\varphi]] \]

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


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:

\[ p_1: [e p_1: [e_1: [(f_1: \text{Pred}_n) (x_1)_n]]] \]

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.

<table>
<thead>
<tr>
<th>f (predicate)</th>
<th>e (predication)</th>
<th>ep (episodes)</th>
<th>p (proposition)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property (+arguments)</td>
<td>event</td>
<td>sets of events</td>
<td>propositional content</td>
</tr>
<tr>
<td>describe a property</td>
<td>situate the property</td>
<td>organize a set of events</td>
<td>express attitudes</td>
</tr>
</tbody>
</table>

*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:
• $\pi^f$ and $\sigma^f$ represent the first layer and stand for grammatical and lexical modifiers of the predicate, respectively;

• $\pi^e$ and $\sigma^e$ represent the second layer and stand for modifiers of the predication;

• $\pi^{ep}$ and $\sigma^{ep}$ represent the third layer and stand for modifiers of the episode.

• $\pi^p$ and $\sigma^p$ 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 $\pi^f$ 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 ($\pi^e$) refer to situating the predication in a real or imaginary world (Boland 2006:32-33, Hengeveld 1989:134). Episode operators ($\pi^{ep}$) refer to the set of events; they can be expressed as temporal locations of the events. Proposition operators ($\pi^p$) 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 ($\pi_f$) 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 $\pi_f$-operators is important for an appropriate description and understanding of the event. $\pi_f$-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:

$$\pi_f\text{-operator} \subset \pi_e\text{-operator} \subset \pi^{ep}\text{-operator} \subset \pi^p\text{-operator}$$

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(*)

<table>
<thead>
<tr>
<th>TMA category</th>
<th>Aspect</th>
<th>Tense</th>
<th>Mood</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Aspect</td>
<td>Tense</td>
<td>Mood</td>
</tr>
<tr>
<td></td>
<td>Event quantitation</td>
<td>Relative tense</td>
<td>Event-oriented modality; event perception (3.3.3(b))</td>
</tr>
<tr>
<td></td>
<td>Qualification; continuity</td>
<td></td>
<td>Participant-oriented modality (3.3.3(a))</td>
</tr>
</tbody>
</table>

(*) 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 (tshH-Hifil-PTCP-F-SG) get rid (pttr-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)

\[
\text{XaSavti Se} \text{Staneti letova} \mid \quad (N-1314a:32)
\]

Think (*hšb*-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)

\[
\text{aiti jaXol lilmod} \quad (N-4-2a:101)
\]

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.

\[(16)\]
\[
\text{ma at ma at } \text{XoSevet} / (\text{N-3-22:25-26})
\]
\[\text{what you what you think (hšb-Piel-PTCP-F-SG)}\]
\[\text{‘what do you what do you think?’}\]
\[
\text{Seani os- mejatseR dvaRim lo besedeR} / (\text{jtsr-Piel-PTCP-M-SG})
\]
\[\text{that I d- produce no ok}\]
\[\text{‘that I produce wrong things?’}\]

### 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.
A matter of time: tense, mood and aspect in spontaneous spoken Israeli Hebrew

(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 (mrh-Nifal-PTCP-F-SG)
‘used to be smeared’
so therefore start (thl-Hifil-SUF-3-PL) [direct object marker] this from side left

‘so this is why they started it from left’