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Hebrew Studies, Volume 51, 2010, pp. 261-285 (Article)

Published by National Association of Professors of Hebrew



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RELATIVE AND ABSOLUTE TENSE INTERPRETATION IN MODERN HEBREW*

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It is well acknowledged that Modern Israeli Hebrew has three distinctive morphological tenses—past, future, and present. The three forms may be used not only as absolute tenses, locating the event in time with respect to the speech-time, but also as relative tenses, locating situations with respect to other times in the past or the future. The main concern of this paper is to determine the semantic and syntactic conditions for the absolute and relative interpretation of the Hebrew tenses.

Applying recent semantic analyses to Hebrew, the paper first shows that a relative tense interpretation is only possible in intentional contexts; in particular, when possible worlds other than the actual one are involved. The paper then proceeds to show that tenses in the scope of intentional context must have a relative reading in the case of complement clauses, but in the case of relative and matrix clauses, a relative tense reading is only optional, where the tense may be ambiguous between absolute and relative readings. Finally, the paper discusses discourse structure and pragmatic factors that may contribute to tense interpretation.

1. INTRODUCTION

1.1 The Phenomenon

Jespersen shows that languages may have devices to distinguish between absolute and relative tenses.¹ The absolute tenses, which he calls “chief tenses,” locate the event in the past, the present or the future with respect to the speech-time, while the relative tenses “are indicated relatively with regard to some definite point (past or future) as present, past or future at that time.”² Jespersen shows Latin to have different forms for absolute and relative tenses, such as *scripsi* ‘wrote’ (absolute past) versus *scripseram* ‘had

* I am indebted to Naama Friedman for her contribution in developing the ideas presented in this paper. I am also grateful to Riny Huijbregts, Yael Sharvit, Gary Miller, Eric Potsdam, and Gülşat Aygen for discussing some of the issues with me, to Anita Mittwoch for reading a previous draft of the paper and to Idan Landau for his insights. For their helpful comments I thank the participants at the twentieth conference of IATL (Israeli Association for Theoretical Linguistics), the fifty-eighth annual Kentucky Foreign Language Conference, the Fourteenth Conference of the World Congress of Jewish Studies, and LUSH (Leiden-Utrecht Semantics Happenings). And finally I should thank the College of Liberal Arts and Sciences at the University of Florida for a research grant during the summer of 2003.

¹ O. Jespersen, *The Philosophy of Grammar* (London: Allen and Unwin, 1924), pp. 254–289.

² O. Jespersen, *The Philosophy of Grammar*, p. 254.

written' (past-in-the-past), while English makes use of periphrastic constructions to indicate the difference, for example, "wrote" versus "had written." In this paper, I will show that Modern Israeli Hebrew (henceforth: Hebrew) uses the same forms—past, present and future—for both absolute and relative tenses. In other words, the distinction in Hebrew is that of interpretation rather than forms. The examples in (1) illustrate absolute tense interpretation:

Example 1

- א. יוני עשה קפה; מרים היתה בהריון; היו לי שלושה חתולים.
 ב. יוני עושה קפה; מרים בהריון; יש לי שלושה חתולים.
 ג. יוני יעשה קפה; מרים תהיה בהריון; יהיו לי שלושה חתולים.

- a. Yoni made/had made/was making coffee; Miriam was pregnant; I had three cats.³
 b. Yoni makes/is making coffee; Miriam is pregnant; I have three cats.
 c. Yoni will make/be making coffee; Miriam will be pregnant; I will have three cats.⁴

The sentences in (2) illustrate relative tense interpretation:

Example 2

- א. יוני ראה/חשב שמישהו מחטט לו במגירות.
 ב. יוני ראה שמישהו חיטט לו במגירות.
 ג. יוני פחד שמישהו יחטט לו במגירות.
 ד. יוני יאמר לאימו שהוא מתגעגע אליה.⁵
 ה. אולי תצטרך לחכות מעט, אבל תראה שהיה כדאי.⁶

³Note that Hebrew does not encode aspectual features morphologically, as reflected by the English translations of the sentences. L. Tzivoni, "דרכי ההבעה של פרפקטיות, איטרטיביות, התמשכות וזמן בעברית" (Means of expressing perfect, iteration, continuation, and tense in written Israeli Hebrew), *Leshonenu* 56.1 (1991): 55–87, shows that Hebrew uses adverbs and other means to indicate aspectual properties. However, O. Schwarzwald, החטיבה השלישית: החטיבה העברית, פרקים בתולדות הלשון העברית, (History of the Hebrew language: The modern division, units 9–10: Contemporary Hebrew; Tel Aviv: Open University, 1994), pp. 108–115, suggests that in addition to their function to locate events in time, the Hebrew tenses are used to express aspects and modals. I will discuss Schwarzwald's observations and claims in the relevant sections.

⁴As shown by Hebraists such as O. Schwarzwald, פרקים בתולדות הלשון העברית, p. 111, M. Muchnik, "הבעת זמן, מודוס ואספקט בעברית החדשה" (Expressing tense, modus and aspect in Modern Hebrew), *Balshanut Ivrit* 27 (1989): 29–54; Y. Tobin, "The Future Tense in Modern Hebrew: From Sign to Text," *Folia Linguistica* 43.3–4 (1990): 457–512, among others, the future form in Hebrew has modal functions besides its use as a future tense. In sections 2.1.7 and 3.2.2.1, I will discuss the modal nature of the future.

⁵This is a simplified example from Y. Sharvit, "Embedded Tense and Universal Grammar," *Linguistic Inquiry* 34 (2003): 670.

⁶From a menu of the "Sheli" restaurant chain.

- a. Yoni saw/thought that somebody was searching in his drawers.
- b. Yoni saw that somebody had searched in his drawers.
- c. Yoni was afraid that somebody would search in his drawers.
- d. Yoni will tell his mother that he misses her.
- e. You might need to wait a little, but you would see it was worth it.

The matrix clauses in (2a–c) describe states that obtained before the speech-time, that is, their past tense is interpreted in absolute terms, just like the sentences in (1). However, the tense of the subordinate clauses is not interpreted with respect to the speech-time, but some other time in the past. Accordingly, in the case of the subordinate clause in (2a), we do not understand the searching in the drawers as happening right now, even though its verb is in present tense. Rather, we interpret it as present with respect to Yoni's seeing time. Similarly, the subordinate clause in (2c) reports a future event with respect to the time Yoni was concerned, that is, a future-in-the-past, and the embedded past tense in (2b) is interpreted as past-in-the-past. The sentences in (2d) and (2e) illustrate, respectively, present- and past-in-the-future.

Note that in the English translation, the verb of the subordinate clause in (2a), for example, is in past rather than present tense. This phenomenon has been called Sequence-of-Tenses operation, and therefore languages, like English, have been characterized as Sequence-of-Tense languages versus languages like Hebrew, which are non-Sequence-of-Tense languages.⁷

1.2 Reference- and Evaluation-Time

Doron suggests that the absolute versus relative tenses of Jespersen may be analyzed in terms of the *reference-time* notion introduced by Reichenbach.⁸ However, Reichenbach does not define the notion, and his examples suggest that he uses the term in two different ways: as orientation- or location-time. In recent semantic studies such as Abusch and von Stechow, the orientation-time is labeled *evaluation-time*.⁹ The term *reference-time* has been retained for the location-time only. Reinhart defines

⁷ Y. Sharvit, "Embedded Tense," p. 669.

⁸ E. Doron, "רוזן על הסמנטיקה של מערכת זמני הפועל בעברית" (Rosen on the semantics of the verbal tense system in Hebrew), *Ha-Ivrit Ve-Ahvyoteha* 6–7 (2006): 249–268; H. Reichenbach, *Elements of Symbolic Logic* (London: Macmillan, 1947), §51, "The Tenses of Verbs."

⁹ D. Abusch, "Sequence of Tense and Temporal De Re," *Linguistics and Philosophy* 20 (1997): 1–50; A. von Stechow, "On the Proper Treatment of Tense," in *Proceedings from Semantics and Linguistics Theory 5* (ed. M. Simons and T. Galloway; Ithaca, N.Y.: Cornell University, CLC Publications, 1995), pp. 362–386.

the latter formally as the time interval that includes the *event-time*.¹⁰ By way of illustration, consider the following sentence:

Example 3

Yesterday, John drove to Tampa.

The past tense suggests that the event of driving to Tampa took place before the speech-time. The event-time is the (two hour) interval of the actual driving, which is stated to be included within yesterday. Thus, the speech-time is the evaluation-time of (3) and the adverb *yesterday* is the reference-time.

The speech-time is the default evaluation-time, such that a tense has an absolute interpretation if its evaluation-time is the speech-time (cf. the term “chief tenses” given by Jespersen).¹¹ If the evaluation-time shifts from the default speech-time to some other time, the tense in question gets a relative interpretation. I will refer to relative tenses whose evaluation-time shifts from the speech-time to some other time (also) as *shifted tenses* and to the phenomenon as *tense shift(ing)*.

1.3 Licensing Relative Tense Interpretation

Comrie believes that the Sequence-of-Tense operation in English is a syntactic phenomenon, claiming that it applies to embedded tenses in English.¹² Similarly, Georgi and Pianessi argue that what determines if a tense be interpreted as absolute or relative is syntactic subordination.¹³ According to them, a tense in a matrix clause will be interpreted as absolute and in a subordinate one as relative.

Recent semantic studies dealing with the Sequence-of-Tense phenomenon in English¹⁴ or tense shift in non-Sequence-of-Tense languages such as Japanese¹⁵, Russian,¹⁶ and Hebrew,¹⁷ show that the syntactic explanation is inaccurate on both counts.

¹⁰ T. Reinhart, “States, Events and Reference Time,” (Handout of a lecture given at MIT, 1986).

¹¹ O. Jespersen, *The Philosophy of Grammar*, p. 254.

¹² B. Comrie, *Tense* (Cambridge: Cambridge University Press, 1985), p. 111.

¹³ A. Giorgi and F. Pianesi, *Tense and Aspect: From Semantics to Morphology* (New York: Oxford University Press, 1997), p. xiv.

¹⁴ D. Abusch, “Sequence of Tense.”

¹⁵ T. Ogihara, *Tense, Attitude, and Scope* (Dordrecht: Kluwer Academic, 1996).

¹⁶ A. Barentsen, “Shifting Points of Orientation in Modern Russian,” in *Reported Speech: Forms and Function of the Verb* (ed. T. Jassen and W. van der Wurff; Amsterdam: John Benjamins, 1996), pp. 15–55; P. Schlenker, “A Plea for Monsters,” *Linguistics and Philosophy* 26 (2003): 29–120.

On the one hand, matrix sentences may undergo the Sequence-of-Tense operation in English and be interpreted relatively in non-Sequence-of-Tense languages, as in the case of Free Indirect Discourse. (See discussion on Free Indirect Discourse in sections 2.1.6 and 3.2.2.2.)

On the other hand, embedded sentences may be interpreted in absolute terms, where in English they would not undergo the Sequence-of-Tense operation. The Hebrew sentence in (4) is a translation of the Russian sentence analyzed by Schlenker.¹⁸

Example 4

משה פגש את האישה, שמתייפחת בפינה.

Yoni met the woman who is sobbing at the corner.

As in the case of the Russian example, the tense of the embedded clause does not have a shifted reading. The present tense of the relative clause is interpreted as overlapping the speech- rather than the meeting-time. Accordingly, as demonstrated by its translation, the embedded tense does not undergo the Sequence-of-Tense operation in English.

Abusch and Schlenker claim, respectively, that what licenses (allows) Sequence-of-Tense in English and tense shift in non-Sequence-of-Tense languages, is some intentional context, which may take into consideration other possible worlds, instead of or in addition to the real world.¹⁹ In (2a), for example, there is an attitude verb “think,” which considers the world of the attitude-holder (Yoni), allowing the evaluation-time to shift from the speech-time to the attitude holder’s time of thinking, what Abusch calls the “now” of the attitude holder.²⁰ In contrast, the sentence in (4) only involves the actual world, and therefore its embedded tense is not shifted. (The historical present may suggest that intentional contexts where two time perspectives, rather than worlds, are taken into consideration may also license tense shift—see section 2.1.8 for discussion.)

Note, however, that syntactic considerations are not irrelevant. As shown by Ogihara, both Sequence-of-Tense and tense shift operations must occur when the clause is a complement of an attitude verb, but they are optional in

¹⁷ Y. Sharvit, “Embedded Tenses”; Y. Sharvit, “היבטים של הסמנטיקה של זמן הנטייה בעברית מודרנית” (Aspects of the semantics of the Modern Hebrew tenses) in *Theoretical Hebrew Linguistics* (ed. G. Hatav; Jerusalem: The Hebrew University Magnes Press, 2008), pp. 139–161.

¹⁸ P. Schlenker, “A Plea for Monsters,” example (56b) on p. 71.

¹⁹ D. Abusch, “Sequence of Tense”; P. Schlenker, “A Plea for Monsters.”

²⁰ D. Abusch, “Sequence of Tense,” p. 14.

case of relative clauses.²¹ I will show that tense shift in non-embedded clauses, too, is optional.

The paper is organized as follows. In section 2, I will discuss a number of intentional contexts, showing them to license tense shift in Hebrew. To strengthen my findings, I will show that when an extensional (meaning, non-intentional) context seems to suggest a relative reading, it is only due to some invited implicature.²² Section 3 discusses the syntactic constraints on obligatory and optional tense shifting. Section 4 deals with counterexamples, suggesting some possible explanations. And section 5 concludes the findings of the previous sections.

2. TENSE-SHIFT LICENSING

2.1 Tense Shift Operators

In this section, I will discuss a number of semantic operators that license tense shifting, showing them all to involve intentional contexts. I would not want to claim, however, that this is an exhaustive list; it is possible that I overlooked an operator or two.

2.1.1 Attitude Expressions

The sentences in (2) above show that attitude verbs license Sequence-of-Tense in English and tense shift in non-Sequence-of-Tense languages, relativizing the embedded tense of the complement clause to the time of the attitude holder. As discussed by Abusch, an attitude-noun phrase such as *desire* in the following sentence (attributed to Irene Heim) may license a Sequence-of-Tense in English:²³

Example 5

I know Mary was a strange child. But her desire to marry a man who **resembled** her still surprises me.

Mary's desire is understood to have hold in the past, and therefore, the time of the past tense in the relative clause is understood to overlap the de-

²¹ T. Ogihara, *Tense, Attitude, and Scope*.

²² I will not discuss systematically or in detail the tenses in English or the Sequence-of-Tense phenomenon, but only as they are relevant for this or that point I am trying to make for the Hebrew tenses.

²³ D. Abusch, "Sequence of Tense," p. 29.

sire time. The equivalent sentence in Hebrew would have a relative present tense:

Example 6

אני יודעת שמרים היתה ילדה מוזרה. אבל התשוקה שלה להתחתן עם בחור שדומה לה לא מפסיקה להפתיע אותי.

The attitude holder is usually specific, as in (2) and (6). But interestingly, the “attitude holder” may even be impersonal, as demonstrated in (7) and (8) below:

Example 7

א. בשנות החמישים התפרסמה/התגלתה העובדה שמרססים עולים בדידיטי.

In the fifties, it became known/they found out about the fact that they sprayed new comers with D.D.T.

ב. היום לא חוששים יותר ממחלות וכבר לא עושים זאת.

Nowadays they no longer fear diseases, so they no longer do that.

Example 8

הסתובבה שמועה שמרים בהריון.

There was a rumor going around that Miriam was pregnant.

The noun *uvda* ‘fact’ in (7a) is within the scope of the attitude verbs *hitparsema* ‘became known’ or *hitgalta* ‘was discovered’ with a “unified attitude holder.” Thus, the present tense in the noun complement is interpreted in relative terms, as demonstrated by the fact that (7a) may be continued by (7b). Similarly, the attitude-noun phrase *Smu’a* ‘rumor’ in (8) licenses the tense shift of its complement, although there is no explicit attitude-holder in the sentence.

2.1.2 *Generics and Habituals*

Recent semantic studies analyze generic sentences such as *Beavers build dams* and habituals such as *John goes to the beach every Friday*, as modal,

involving quantification over possible worlds.²⁴ Adopting this line of analysis, I can account for the present tense shift in (9a) and (10a) below:²⁵

Example 9

א. היה נוהג שהאחות חותמת על תעודות הפטירה.

It was customary that the nurse signed the death certificates.

ב. נוהג זה עבר מן העולם.

That custom is no longer acceptable.

Example 10

א. פעם קרה הרבה שהמפקד משאיר פקידה ללילה במשרד.

It used to happen a lot that the commander made a female-soldier stay overnight in the office.²⁶

ב. היום הנוהלים לא מאפשרים את זה.

The regulations nowadays do not allow it.

²⁴ G. Chierchia, "Individual-Level Predicates as Inherent Generics," in *The Generic Book* (ed. G. N. Carlson and F. J. Pelletier; Chicago: The University of Chicago Press, 1995), pp.176–223; M. Krifka, "Focus and the Interpretation of Generic Sentences," in *The Generic Book* (ed. G. N. Carlson and F. J. Pelletier; Chicago: The University of Chicago Press, 1995), pp.238–264.

Note, however, that D. Delfitto, "On the Morphosyntactic Roots of Genericity," in *Interface Strategies* (ed. H. Bennis, M. Everaert, and E. Reuland; Amsterdam: Royal Netherlands Academy of Arts and Sciences, 2000), pp. 71–94, argues against the modal analysis of generics, suggesting an aspectual theory.

An analysis that integrates both views is suggested in E. Doron, "רוזן על הסמנטיקה של מערכת זמני הפועל," §4; N. Boneh and E. Doron, "Modal and Temporal Aspects of Habituality," in *Lexical Semantics, Syntax and Event Structure* (ed. M. Rappaport Hovav, E. Doron, and I. Sichel; Oxford: Oxford University Press, 2010). According to this analysis, there are two kinds of generic: modal, which involves quantification over possible worlds, and aspectual, which does not.

²⁵ According to Takako Egi (personal communication), the equivalent Japanese sentences will also have a relative present tense. However, Irena Botwinik-Rotem consulted two native speakers of Russian, who did not like the embedded present tense in the equivalent Russian sentences. It is possible that Russian is not a strictly non-Sequence-of-Tense language, as claimed by Y. Sharvit, "The Puzzle of Free Indirect Discourse," *Linguistics and Philosophy* 31 (2008): 353–395, n. 9. Note also, that the Hebrew sentences were not equally acceptable by Hebrew speakers. The sentence in (10a) was less acceptable by some speakers than (9a). This may be explained by the theory of Boneh and Doron, "Modal and Temporal Aspects of Habituality." It is possible that (9a) is understood unambiguously as modal generic by all speakers, while (10a) is interpreted as aspectual generic by those who are reluctant to accept it. I leave this point for future investigation.

²⁶ Thanks to Nini Manoah-Gotesfeld for this example.

Due to the noun phrase *custom* in (9a) we understand the sentence to express a habit. In (10a), *the commander* is understood as a generic noun phrase with generic reference, and therefore (10a), too, is understood to express a habit, or a generic situation. This is why, I argue, the present tense of the embedded clauses in (9a) and (10a) is shifted, such that the habitual situations are understood to have taken place in the past. This can be demonstrated by the fact that the (a) sentences may be continued by the (b) ones.

The following example, which is an excerpt from a documented recipe, illustrates a shifted past tense:

Example 11

מטגנים את הבצלים והקישואים, **ולאחר שהבצלים השחימו** מוסיפים את החציל.

Sauté the onions and the squashes, **and after the onions go brown** add the eggplant.

Cooking (or other kinds of) instructions may be considered as habitual events. Since the text depicts a habitual series of events, the relative reading of the past tense in the boldfaced clause is licensed.

2.1.3 Directives

In several occasions, I have shown that directives such as commands and requests are a special kind of deontic modals, which involve quantification over possible worlds (in addition to other traits).²⁷ We predict, therefore, that speech-acts performing directives license tense-shift.

It is common in Hebrew to phrase recipe instructions in a generic way, as shown in the previous section, but it is also possible to use the imperative, as the instructions are actually directive speech-acts. The following is a modification of the recipe given in (11); this time the clauses are in the imperative:

Example 12

טגנו את הבצלים והקישואים, **ולאחר שהבצלים השחימו** הוסיפו את החציל.

As predicted, the tense in the adverbial clause is interpreted as a relative past.

²⁷ G. Hatav, *The Semantics of Aspect and Modality: Evidence from English and Biblical Hebrew* (Amsterdam: John Benjamins, 1997), pp. 139–140; G. Hatav, “The Modal Nature of TRM,” *HS* 47 (2006): 32–33.

2.1.4 Possibility

As noted, the example in (10a) above is usually understood to express some habit/generic behavior. It has been pointed out to me by Simcha Kogut that it may also have the reading “it could happen (now and then),” especially if the adverb “a lot” is removed and the verb “happened” is stressed, as in (13a) below (I mark stress by a bigger font). On such reading, it may be continued by (13b):

Example 13

א. פעם קרה שהמפקד משאיר פקידה ללילה במשרד.

Once it occasionally happened that the commander made a female soldier stay overnight at the office.

ב. היום זו הנורמה.

Nowadays, this is the norm.

The modal nature of the matrix in (13a) can explain why the evaluation-time of the embedded present tense is shifted from the speech-time to the time (in the past) denoted by the matrix.

2.1.5 Modals

Sentences containing modals such as *must* and *may* are classical cases of intentional contexts that involve possible worlds. Thus, we expect such sentences to license tense shifting. Example (14) below, construed after an example from von Stechow, shows that it is, indeed, the case.²⁸

Example 14

המארגנים רצו/ היו צריכים מזכירה שמדברת אמהרית.

The organizers wanted/needed a secretary that spoke Amharic.

The present tense of the relative clause is interpreted in relative terms, with respect to the “now” of the organizers.

²⁸ A. von Stechow, *Feature Deletion under Semantic Binding: Tense, Person, and Mood under Verbal Quantifiers* (Tübingen: Eberhard-Karls-Universität, 2003), example (8) on p. 4.

2.1.6 Free Indirect Discourse

It has been shown that the operations of Sequence-of-Tense in English and tense-shifting in non-Sequence-of-Tense languages apply to tenses of Free Indirect Discourse texts. It is easy to see that Free Indirect Discourse involves possible worlds, as by definition it is a report from the point-of-view of some character in the story. Free Indirect Discourse will be discussed in section (3.2.2.2).

2.1.7 Future

Muchnik, Tobin, and Schwarzwald, among others, show that the Hebrew future has modal uses (Schwarzwald believes that it is its main function).²⁹ Section 3.2.2.1 will discuss the future in more detail. For the purpose of the current discussion, I would like to mention that recent analyses, notably Copley, have shown that future tense clauses in language involve quantification over possible worlds.³⁰ Accordingly, we predict that when a future tense clause appears in the context, tense-shift may occur. This prediction is borne out by examples such as (15) below:

Example 15

בשנה הבאה הוא יקנה את הבית ששופץ (שבוע קודם).

Next year, he will buy the house that was renovated (a week earlier).

As demonstrated by the fact that it may be modified by an adverb such as “a week earlier,” the tense of the relative clause in (15) may be understood as a relative past, that is, past-in-the-future.

2.1.8 Historical Present

Consider the following example from Rosen, analyzed in Doron:³¹

Example 16

אתמול אני מטייל ברחוב. את מי אני פוגש? את רינה.

Yesterday, I am walking on the street. Who do I see? Rina.

²⁹ M. Muchnik, “הבעות זמן, מודוס ואספקט בעברית החדשה,” pp. 40–46; Y. Tobin, “The Future Tense in Modern Hebrew”; O. Schwarzwald בתולדות הלשון העברית, p. 111.

³⁰ B. Copley, *The Semantics of the Future* (New York: Routledge, 2004).

³¹ B. H. Rosén, *Contemporary Hebrew* (The Hague: Mouton, 1977), p. 195; E. Doron, “רוזן על הסמנטיקה,” p. 255.

The adverb “yesterday” suggests that the situations reported in (16) took place in the past; yet the verbs are in the form of the present. Based on examples like (16), Schwarzwald claims that the present tense in Hebrew is not restricted to the present time, and may be used to report events in the past as well, while Rosen sees it as an unmarked form.³² However, as correctly claimed by Doron, this behavior of the present tense has been attested in many languages, including English.³³

This use of the present tense in language is known as the *historical present* in the literature. Schlenker explains the historical present as due to two competing contexts—the context of the speaker’s thought and the context at which the thought is expressed.³⁴ To produce the impression of vividness, which is the hallmark of the historical present, and present her/himself as directly witnessing the events s/he is describing, the speaker uses the present tense. Similarly, Doron explains the use of the historical present in texts like (16) in terms of two competing temporal perspectives: the speech-time and some other time in the past.³⁵ This line of analysis explains Doron’s observation that the historical present is only used as background to another story, which explains why examples such as (17) sound weird:³⁶

Example 17

#מה חדש? אתמול אני מטייל ברחוב.

#What’s new? Yesterday I’m walking on the street.

To conclude, the present tense in texts like (16) is a shifted tense due to the involvement of two temporal perspectives, which suggests that not only competing worlds but also competing times may license tense shift.

2.2 Pragmatic Inferences

The claim that tense shift is not possible in extensional (i.e., non-intentional) context may be challenged by sentences such as (18) below:

³² O. Schwarzwald, פרקים בתולדות הלשון העברית, p. 110; B. H. Rosén, *Contemporary Hebrew*, p. 195.

³³ E. Doron, “רוזן על הסמנטיקה של מערכת זמני הפועל בעברית,” p. 256.

³⁴ P. Schlenker, “Context of Thought and Context of Utterance: A Note on Free Indirect Discourse and the Historical Present,” *Mind and Language* 19.3 (2004): 279–304.

³⁵ E. Doron, “רוזן על הסמנטיקה,” p. 256.

³⁶ E. Doron, “רוזן על הסמנטיקה,” p. 256.

Example 18

המשטרה תפסה את האיש שגנב את האוטו.

The police captured the man who stole the automobile.

Although there is no intentional expression in (18), we are most likely to understand its restrictive relative clause to depict an event preceding the event reported by the matrix. Note, however, that this is only an invited implicature. The past tense of the relative clause in (19) below is not likely to be understood as a relative past:

Example 19

אוטובוס דרס אישה שנפצעה קשה.

A bus ran over a woman, who was severely injured.

It is more likely to understand the event of the relative clause to follow the one depicted by the matrix, and thus the relative clause to be non-restrictive.

My contention is that the temporal relationship we understand holding between the relative clause and the matrix, both in (18) and (19), is due to pragmatic considerations. As a matter of fact, we can find contexts where the event of the relative clause in (18) is better interpreted to follow the event depicted by the matrix. Suppose the police captured a murder suspect, who managed to escape, stealing a car and driving off. In this case, we understand the relative clause to be non-restrictive and its situation to follow in time the situation depicted by the matrix. An adverb such as “one hour later” may bring out this meaning, as illustrated in (20):

Example 20

המשטרה תפסה את האיש, ששעה לאחר מכן גנב את האוטו.

The police captured the man, who one hour later stole the automobile.

Similarly, we can find contexts where the event of the relative clause in (19) precedes the event of the matrix. Suppose there was a suicide bombing attack and a woman got severely injured, but before they managed to take her to the hospital a bus came by and ran her over. In such case, we would be dealing with a restrictive relative clause with the presupposed event preceding the matrix, as shown in (21):

Example 21

אוטובוס דרס אישה ש(קודם לכן) נפצעה קשה בפיגוע.

A bus ran over a woman who had been severely injured at the terror attack.

This intuitive explanation can be given a formal account within the framework of Segmented Discourse Representation Theory developed by Asher.³⁷ This theory suggests an analysis of determining the discourse relations between propositions introduced in a (coherent) text and the relations between the events they describe, taking into consideration not only linguistic knowledge, with logical entailments, but also world knowledge, whose inferences may be defeasible. Crucially for the present discussion, the temporal structure of a discourse may be determined by the kind of discourse relations, such as result, explanation, and narration, holding between its propositions. The following examples illustrate:³⁸

Example 22

- a. Max fell. John helped him up.
- b. Max fell. John pushed him.

Discourses (22a) and (22b) have the same tense forms and aspectual classes, yet they seem to imply different temporal structures. In (22a), the sentences are interpreted as relating a story in which a certain sequence of events is described; hence they are understood to be temporally ordered. In (22b), the second clause serves to explain the first, and this discourse connection has a different temporal effect: the falling happens after (and as a consequence of) the pushing.

Since the discourse relations are based in part on world knowledge they are defeasible, and “one and the same proposition can have different discourse roles in different contexts.”³⁹ The relationship between *Max fell* and *John pushed him*, for example, is explanation in (22b) above but narration in (23) below:⁴⁰

³⁷ N. Asher, *Reference to Abstract Objects in Discourse* (Dordrecht: Kluwer Academic Publishers, 1993); N. Asher and A. Lascarides, *Logic of Conversation* (Cambridge: Cambridge University Press, 2003); A. Lascarides and N. Asher, “Temporal Interpretation, Discourse Relations and Commonsense Entailment,” *Linguistic and Philosophy* 16 (1993): 437–493.

³⁸ N. Asher and A. Lascarides, *Logics of Conversation*, p. 6.

³⁹ N. Asher and A. Lascarides, *Logics of Conversation*, p. 136.

⁴⁰ N. Asher and A. Lascarides, *Logics of Conversation*, p. 136; A. Lascarides and N. Asher, “Temporal Interpretation,” p. 465.

Example 23

John and Max were at the edge of a cliff. Max felt a sharp blow to the back of his neck. Max fell. John pushed him. Max rolled over the edge of the cliff.

The different relationships in (22b) and (23) have an effect on the temporal order of the events. While in (22b), Max's falling follows John's pushing, in (23) it is the other way around.

This analysis can explain the different temporal structures of the Hebrew examples (18) and (19) as opposed to their counterparts (20) and (21), respectively. For example, while the relationship in (18) of the relative clause and its matrix is explanation, in (20) it is narration. Accordingly, in (18) the event reported in the relative clause is interpreted as preceding the event reported in the matrix, but in (20) the two events are understood to have a reverse order.

My conclusion is that the past tense in extensional contexts only denotes that the event precedes the speech-time. That it may be interpreted as preceding the time of the event reported in the previous clause as in (18, 21) or following it as in (19, 20), is due to the discourse structure or some pragmatic factors.

The same is to be said, *mutatis mutandis*, about future and present tense sentences.

3. OBLIGATORY AND OPTIONAL TENSE-SHIFT

3.1 Obligatory Tense-Shift: Complement Clauses

Ogihara suggests that tense shift in complement clauses of attitude expressions (as well as the sequence-of-tense operation in English) is due to the syntactic relationship of constituent-command holding between the matrix and the complement clause.⁴¹ The relation of constituent-command was defined by Reinhart in terms of hierarchical terms, originally to account for nominal anaphora.⁴² Following Partee, who considers tenses to be temporal anaphors, Ogihara expands Reinhart's account of nominal anaphora to ac-

⁴¹ T. Ogihara, *Tense, Attitude, and Scope*, pp. 101–148.

⁴² T. Reinhart, "The Syntax Domain of Anaphora" (Ph.D. diss., Cambridge, Mass.: MIT, 1976); T. Reinhart, *Anaphora and Semantic Interpretation* (Chicago: University of Chicago Press, 1983).

count for tense interpretation.⁴³ Accordingly, in the case of complement clauses, Ogihara argues that since the matrix tense constituent-commands the embedded one, the latter must be interpreted with respect to the former, resulting in tense shift in non-sequence-of-tense languages and triggering the sequence-of-tense operation in English.

3.2 Optional Tense Shift

3.2.1 *Relative Clauses*

It has been observed that if its matrix contains an attitude verb, the tense of a relative clause may or may not be shifted. Consider the following example from Hebrew:

Example 24

רינה חשבה שהאיש שמתחבא מאחורי הארון רוצה להרוג אותה.

Rina thought that the man who was/is hiding behind the closet wanted to kill her.

As analyzed by Ogihara for equivalent Japanese sentences, the tense of the relative clause in (24) has two readings.⁴⁴ On one reading, the time of the situation depicted in the relative clause is the “now” of Rina. To get this reading, English generates a past tense clause, applying the sequence-of-tense operation (Rina thought that the man who **was** hiding...). The relative reading is expected, since the present-tense of the relative clause is embedded under the past tense of the attitude verb and constituent-commanded by it. On the second reading, though, the time of the relative clause surrounds the speech-time, excluding the thinking time. In this case, the tense does not shift in Hebrew and does not undergo the sequence-of-tense operation in English (hence the present-tense in the English translation: Rina thought that the man who **is** hiding ...). This reading is problematic, as the tense of the matrix constituent-commands the embedded tense.⁴⁵

⁴³ B. Partee, “Some Analogies between Tenses and Pronouns in English,” *Journal of Philosophy* 70 (1973): 601–609; B. Partee, “Nominal and Temporal Anaphora,” *Linguistics and Philosophy* 7 (1984): 243–286; T. Ogihara, *Tense, Attitude, and Scope*, pp. 101–148.

⁴⁴ T. Ogihara, *Tense, Attitude, and Scope*, pp. 156, 177.

⁴⁵ Actually, there is a third reading, where the time of the reported situation in the relative clause surrounds both Rina’s “now” and the speech-time. This reading, which is dubbed in the literature *the double access reading*, following C. Smith, “The Syntax and Interpretation of Temporal Expressions in English,” *Linguistics and Philosophy* 2.1 (1978): 43–100, will not be discussed here. The interested reader is referred to D. Abusch, “Sequence of Tense,” §12.

To account for the phenomenon, Abusch and Ogihara argue that the relative clause may be scoped out during its syntactic derivation, namely at the logical form level, where the sentence in (24) gets the following structure:⁴⁶

The man who is hiding behind the closet, Rina thought that (the man) wanted to kill her.

When it is scoped out, the relative clause is no longer constituent-commanded by the matrix, and therefore does not undergo the sequence-of-tense operation in English or tense shift in Japanese and Hebrew.

3.2.2 *Matrix Clauses*

Since matrix clauses are not embedded (by definition), we should expect that (in intensional contexts) a relative reading of their tenses be only optional. This prediction is borne out by texts with future clauses, free indirect discourse, and historical present, each discussed in sections (3.2.2.1–3.2.2.3), respectively.

3.2.2.1 *Future*

Comrie shows that in expressing future time reference, some languages have clear-cut future tenses while some use a modal form, and yet others use a form that is ambiguous between tense and modality.⁴⁷ Hebrew seems to be an example of the latter.⁴⁸

The ability of the future form in Hebrew to trigger a tense shift, as shown in section (2.1.7) above, suggests that in addition to the overt tense morpheme that expresses posteriority, a future tense clause in Hebrew may also have a covert modal component.⁴⁹ Note, however, that one of these components can be stripped off.

⁴⁶ D. Abusch, "Sequence of Tense," §12; T. Ogihara, *Tense, Attitude, and Scope*, pp. 171–178.

⁴⁷ B. Comrie, *Tense*, pp. 43–46.

⁴⁸ As for the English *will*, Comrie claims that it derives diachronically from a modal expression and has modal uses, but it is also used to refer to the future time (B. Comrie, *Tense*, p. 45). J. McCawley, *Everything that Linguists have Always Wanted to Know about Logic But were Ashamed to Ask*, (Chicago: University of Chicago Press, 1981; 2nd edition 1993), chap. 11, suggests arguments that seem to support Comrie's approach, while M. Enç, "Tense and Modality," in *The Handbook of Contemporary Semantic Theory* (ed. S. Lappin; Oxford: Blackwell Publishers, 1996), pp. 345–358, believes that *will* is only modal.

⁴⁹ One could argue that the modal component was the overt one. Recall, however, that Hebrew has overt past and present forms but no overt modal morphemes, except for the imperative that is not usually used in colloquial speech (see below). Thus, it seems more likely that the tense- rather than the modal component is the overt one.

Hebrew does not have non-indicative modal forms, except for the imperative, which as noted by Aronoff, is becoming rare.⁵⁰ The future form is usually used in contexts where a modal form is expected, as in the case of speech acts such as demands and requests.⁵¹ In such cases, we can conclude that the temporal component is stripped off. Example (25) below is a further illustration of the phenomenon:

Example 25

היא תאכל רק במסעדות יקרות.

She will only eat in expensive restaurants.

The future tense clause in (25) expresses some modality referring to the present rather than to some situation in the future time.

In some environments, the future tense seems to be stripped off its modal component.⁵² However, in most cases, it seems that the future form has a double function, where both the overt tense and the covert modal operator apply. The texts in (26) and (27) illustrate:⁵³

Example 26

א. דוד המלך התחתן עם האישה, שלימים תלד לו את יורש העצר.

King David married that woman, who in due time would give birth to his heir.

ב. יורש העצר שלמה נמשח למלך עוד לפני מותו של דוד.

The heir, Solomon, was anointed as king even before David's death.

As shown by the possibility of continuing (a) by (b) (as well as by the extra-linguistic context), the future tense in the relative clause is interpreted

⁵⁰ M. Aronoff, "In the Beginning was the Word," *Language* 83.4 (2007): 823. As a matter of fact, we do not usually find it in every day colloquial speech but only in marked contexts such as military orders and driving instructions.

⁵¹ S. Bolozky, "Colloquial Hebrew Imperatives Revisited," *Language Sciences* 31 (2009): 136–143. Notice that this is not a peculiar behavior of the Hebrew future. For examples from other languages see J. Bybee, R. Perkins, and W. Paliguca, *The Evolution of Grammar: Tense, Aspect, and Modality in the Languages of the World* (Chicago: The University of Chicago press, 1994).

⁵² I do not know under what conditions the future form would lose one of its components. A rule of thumb, though, is that when it is bound by some intentional expression, as in the case of attitude verbs, it loses its modal component (see example 1c), and in cases where it replaces the imperative, it loses its tense component. (But I do not have any intuitions regarding its losing the tense component in sentences like 25.)

⁵³ Note, however, that examples like (26) and (27) are only found in formal registers of Hebrew.

as future-in-the-past with respect to the time of the wedding. In other words, the modal operator applies to the embedded future tense clause itself, relativizing its time to the matrix. The future tense in matrix clauses may behave similarly:

Example 27

משה פגש את רינה במסיבת פורים שערכתי לפני ארבע שנים. במשך הזמן הוא
יתאהב בה.

Moshe met Rina at a party I organized four years ago. In time he will/would fall in love with her.

The future tense of the second sentence in (27) may be given a relative interpretation. However, since the sentence is not embedded, its relative reading is only optional, resulting in ambiguity. As reflected by the English translation, the second sentence can be interpreted either as depicting a future situation with respect to the time of the party, which may mean that Moshe is already in love, or with respect to the speech-time, which means that he is still to fall in love. The ambiguity can be resolved by the context, as illustrated in (28) below:

Example 28

רינה פגשה את משה במסיבת פורים שערכתי לפני ארבע שנים.
א. בעוד שנה היא תינשא לו. (קריאה מוחלטת)
ב. כעבור שנה היא תינשא לו. (קריאה יחסית)

Moshe met Rina at a party I organized four years ago.

a. Next year she will marry him. (Absolute reading)

b. A year later she would marry him. (Relative reading)

The adverb *be-od Sana* ‘next year’ in (28a) brings about the absolute, or non-shifted, reading, while the adverb *ka’avor Sana* ‘a year later’ brings about the shifted one.

3.2.2.2 Free Indirect Discourse

The term Free Indirect Discourse, or FID, refers to a particular literary technique in which the point of view of a character in a story is conveyed

neither by direct nor by indirect discourse.⁵⁴ The text in (29) illustrates the phenomenon:

Example 29

“Do you love me?” asked Mary. **Yes, he did. And he would definitely marry her. If not today then a year from today.** His voice trembled as he spoke, but it was true, John did love Mary.⁵⁵

The boldfaced sentences in (29) are an instance of free indirect discourse, where John’s point of view is conveyed. Crucially, as analyzed by Banfield, the reader is situated, so to speak, “inside” the world and time of the character.⁵⁶ Thus the “now” of the character serves as the evaluation-time, which accounts for the tense shift in Hebrew noted in the literature. The text in (30) below is the Hebrew translation suggested by Sharvit for the English example (29):⁵⁷

Example 30

“אתה אוהב אותי?” מרים שאלה את יוני. כן, הוא אוהב אותה, והוא בהחלט יתחתן איתה. אם לא עכשיו אז בעוד שנה.

As shown by Sharvit, the present and future tense sentences, which comprise the free indirect discourse, are part of Yoni’s thoughts, brought according to the time they were expressed.⁵⁸

However, since it is not syntactically embedded, a text cannot be assumed automatically to be a free indirect discourse; in many cases the very same text may be understood as a regular narrative rather than a free indirect discourse. In particular, Borer shows that one cannot rely on tenses (and other temporal expressions) to determine whether or not a certain text is a

⁵⁴ Free indirect discourse was discussed vastly by literary critics. See, for example, A. Banfield, *Unspeakable Sentences: Narration and Representation in the Language of Fiction* (Boston: Routledge & Kegan Paul, 1982); B. McHale, “Free Indirect Discourse: A Survey of Recent Accounts,” *PTL* 3.2 (1978): 249–287. Lately it has stimulated linguistic analyses, too, for example, E. Doron, “Point of View as a Factor of Content,” in *Proceedings from Semantics and Linguistics Theory I* (ed. S. Moore and A. Wyner; Ithaca, N.Y.: Cornell University, CLC Publications, 1991), pp. 51–64, suggests an analysis within the framework of situation semantics and S. Oltean, “Free Indirect Discourse: Some Referential Aspects,” *Journal of Literary Semantics* 24.1 (1995): 21–41, suggests an analysis within possible worlds semantics.

⁵⁵ From Y. Sharvit, “Embedded Tenses,” p. 677.

⁵⁶ A. Banfield, “Narrative Style and the Grammar of Direct and Indirect Speech,” *Foundations of Language* 10 (1973): 1–39.

⁵⁷ Y. Sharvit, “Embedded Tenses,” p. 678.

⁵⁸ Y. Sharvit, “Embedded Tenses,” p. 678.

free indirect discourse in Hebrew.⁵⁹ Analyzing a few excerpts of Hebrew novels, she shows that many texts may be ambiguous between a free indirect discourse and a regular narrative, where other indicators such as rhetorical questions, psychological indicators, consistency, and the like, may resolve the ambiguity. To simplify my discussion, I will use the made-up example (31a) (instead of the “real” examples analyzed by Borer) to illustrate this:

Example 31

א. רינה שכבה על הדרגש והרהרה. **משה אוהב אותה.**

Rina lied on the couch pensive. **Moshe loved/loves her.**

ב. היא בטוחה בזה.

She was sure of it.

ג. מאוד חבל שהיא לא היתה מודעת לזה.

Too bad she was not aware of it.

The boldfaced clause text in (31a) is ambiguous between a free indirect discourse and a regular narrative (as manifested by the fact that in English it may or may not undergo the sequence-of-tense operation). On its free indirect discourse reading, it may be continued by (31b), where the present tense both in (31a) and in (31b) is interpreted relatively to Rina’s “now.” On its regular narrative reading, (31a) may be continued by (31c), in which case their present and past tense clauses, respectively, are evaluated with respect to the speech time (of the narrator), as absolute present and past.

4. PROBLEMS AND POSSIBLE SOLUTIONS

4.1 Futurate: Present Tense Referring to the Future

It has been observed that the present tense in Hebrew may be used to report (predicted) events in the future. The following is an example from Rosen, analyzed by Doron:⁶⁰

⁵⁹ H. Borer, “היבטים לשוניים של המבצע המשולב” (Linguistic aspects of the free indirect discourse), *Hasifrut* 30–31 (1981): 35–57.

⁶⁰ B. H. Rosén, *Contemporary Hebrew* (The Hague: Mouton, 1977), p. 195; E. Doron, “רוזן על הסמנטיקה,” p. 256.

Example 32

(מחר) אני נוסעת לאילת.

(Tomorrow) I am going to Eilat.

However, as noted by Doron, this phenomenon is not found only in Hebrew but in other languages as well (cf. the English translation). The phenomenon in language is explained by both Copley and Doron as having to do with the fact that there is some plan involved.⁶¹ In particular, Doron claims that the event expressed in sentences like (32) includes the preparation phase, which overlaps the speech-time. Accordingly, she explains that the sentence in (33) sounds odd due to the fact that the speaker does not plan to be angry.⁶²

Example 33

(מחר) אני בטח כועסת.

(Tomorrow) I am angry.

4.2 Past Tense Referring to the Future

The past tense is commonly used by talk show hosts in Israel when announcing commercial breaks, as illustrated in the following example:

Example 34

שלוש פרסומות וחזרנו.

Three commercials and we are back.

In (34), the past tense does not refer to the past but to the (near) future. Most examples I have found involve motion verbs as in (34). But I also heard *kaninu?* ‘did we buy?’, urging the interlocutor to buy something and Schwarzwald provides the example *sharnu?* ‘did we sing?’, urging the addressee to sing along (which I personally find odd).⁶³ A similar phenomenon is attested in Greek, as noted to me by Brian Joseph, with just a few verbs. For example, *eftasa*, literally ‘I arrived’ but used by someone coming to see or help you (e.g., a waiter), or *fi’ame*, literally ‘we left’ but usable to mean “we are about to leave,” “we’re outta here.” Both Hebrew and Greek

⁶¹ B. Copley, *The Semantics of the Future*, §2; E. Doron, “רוזן על הסמנטיקה,” p. 256.

⁶² E. Doron, “רוזן על הסמנטיקה,” p. 257.

⁶³ O. Schwarzwald, פרקים בתולדות הלשון העברית, p. 111.

seem to restrict the use of the past tense for future reference to verbs of motion. Hebrew, furthermore, requires the verbs to be inflected in first person plural. I am not sure how to account for these data but the fact that the phenomenon is restricted to certain verbs both in Hebrew and Greek and to the first person plural in Hebrew suggests that the past tense cannot be used freely to refer to the future.

Avrutin shows that interface conditions between syntax and pragmatics may make it possible to circumvent syntactic violations of the tenses in Russian.⁶⁴ In the same spirit, we can conclude that interface conditions between semantics and pragmatics may make it possible, in certain cases, to circumvent semantic violations of the tenses in Hebrew. I believe that a semantics-pragmatics interface theory may account for the phenomenon of past tense sentences referring to the future.⁶⁵

4.3 Existentials

An anonymous reviewer of IATL (Israeli Association for Theoretical Linguistics) claims that (9a), repeated below as (35a), may have a grammatical version with no tense-shift, such as (35b):

Example 35

א. היה נוהג שהאחות חותמת על תעודות הפטירה.

It was customary that the nurse signed the death certificates.

ב. ?? היה נוהג שהאחות חתמה על תעודות הפטירה.

Our rule that the tense of a complement clause (in intentional context) must shift seems to be violated by examples like (35b), as the situation depicted by the embedded past tense clause is not understood to precede the one reported by the matrix; actually, it seems to have the same interpretation as (35a), with the present tense.

However, note that native speakers diverse in their judgment. Unlike the reviewer who accepts both (a) and (b), most speakers accept only (a) and

⁶⁴ S. Avrutin, "The Syntax-Discourse Interface and the Root Infinitives," in *Interface Strategies* (ed. H. Bennis, M. Everaert, and E. Reuland; Amsterdam: Royal Netherlands Academy of Arts and Sciences, 2000), pp. 1–20.

⁶⁵ Intuitively, (34) may be understood as saying something like "consider us back."

very few only (b).⁶⁶ Notwithstanding, I would like to suggest a possible explanation for those who accept (35b).

Note that *haya* ‘was’ is the matrix verb in (35a, b). As discussed by Berman, the verb “be” in Hebrew only functions as an auxiliary in the past and the future of nominal and existential sentences.⁶⁷ The examples in (36a) and (37a) below illustrate a present tense nominal and existential sentences, respectively, where (36b) and (37b) are their past tense equivalents:

Example 36

א. משה בבית.

Moshe is at home.

ב. משה היה בבית.

Moshe was at home.

Example 37

א. יש חלב במקרר.

There is milk in the refrigerator.

ב. היה חלב במקרר.

There was milk in the refrigerator.

Inspired by Miriam Engelhart (personal communication), I suggest that speakers who accept (35a) understand the matrix with the auxiliary “be” as the past tense of a nominal clause, where the complement of the noun is interpreted as expressing a generic habit (of nurses signing death certificates). In contrast, speakers who accept (35b) seem to understand the verb “be” to function as an existential auxiliary. According to such interpretation, the expression *haya nohag* should be glossed as “there was a custom,” indicating the existence of (many occurrences of) a certain event in the past, rather than a generic habit.

⁶⁶ I thank Benny Hary for conducting a “survey” for me.

⁶⁷ R. Berman, *Modern Hebrew Structure* (Tel-Aviv: University Publishing Projects, 1978), pp. 141, 212, and 221.

5. CONCLUSIONS

In this paper, I have discussed tense interpretation in Hebrew. In particular, I discussed the conditions under which the Hebrew tenses get an absolute interpretation, where their evaluation-time is the speech-time, and when they get a relative reading, where their evaluation-time is shifted from the speech-time to another time.

Applying recent semantic analyses, I have shown that a tense in Hebrew may shift and get a relative reading if it is within the scope of intentional contexts, such as texts containing an attitude verb, a generic operator, a future tense clause, or any other expression that involves two or more competing worlds, contexts, or perspectives.

In accord with what has been claimed in the literature for other languages, I have shown that the Hebrew tenses must shift (in the scope of intentional context) if they are embedded under other tenses and constituent-commanded by them, as in the case of attitude verb complements. However, relative clauses embedded under intentional expressions may be scoped out and get an absolute reading.

If the tense is not embedded, tense shift is only optional. Three cases were discussed: free indirect discourse, future, and historical present. Although its clauses may not be syntactically embedded, the tenses in a free indirect discourse text are still shifted, interpreted in relative terms with respect to some character's perspective. The future form has been shown to include a modal component, which licenses a shift of any tense within its scope, including its own. And the historical present, which involves two competing temporal perspectives, is understood to depict situations in the past although its clauses have the present form.

Finally, I have shown that pragmatics, too, plays a role in tense interpretation. The framework of segmented discourse representation theory (SDRT) has been adopted to account for temporal relations between clauses in a discourse, showing that pragmatics and discourse considerations may have an effect on the interpretation of tenses. In particular, absolute tenses of extensional clauses may be interpreted with respect to some other time introduced in their respective discourse, depending on the coherent relations holding between the propositions of the discourse.