

Transparency in Modern Hebrew

Nour Efrat-Kowalsky

ACLC, University of Amsterdam

This paper looks at the transparency features in Modern Hebrew. It takes a diachronic perspective and makes the prediction that due to immense language contact Modern Hebrew is becoming more transparent over time. The results are mixed, with some features showing increase in transparency over time, while others show the opposite process. Ultimately, the results are analyzed as an overall trend in which Modern Hebrew is becoming more transparent.

1 Introduction

Languages are a means of communication and as such one would expect them to be transparent. That is, one would expect a direct correlation between what the speaker intends to say (the meaning) and what she actually produces (the form). However, this transparent one-to-one correlation between meaning and form is not attested in the world's languages. As languages evolve and change, a question arises: do languages become more opaque or more transparent over time?

This study is a diachronic study that aims at contributing to the understanding of transparency of a language over time. It examines twenty-six transparency features at three different time points of Modern Hebrew. The transparency features are features towards which languages exhibit transparent or non-transparent behavior. There are four ways in which transparency can be violated: redundancy, discontinuity, fusion, and form-based-form. The transparency features are divided among these four groups. The features were first introduced by Hengeveld (2011a) and later refined by Leufkens (2015).

Transparency is not a binary concept. There is no language which is fully transparent or fully opaque. All languages show some degree of transparency in their grammar and lexicon, and all languages violate transparency in some way. Therefore, a comparison between transparent and non-transparent languages is irrelevant. Instead, we can say whether a language is transparent relative to other languages.

Consequently, all languages show some degree of opaqueness. According to Leufkens (2015), the opaque features in highly transparent languages are all cases of redundancy. These are one-to-many cases in which a single semantic or pragmatic unit is expressed in more than one way. The opaque features that are only present in highly opaque languages, on the other hand, are features such as grammatical gender which is a form-based-form feature. Leufkens suggests that there is an implicational order in which opaque features appear, with redundancy features at the lower end. This implicational order should be attested across languages as well as in language acquisition.

In Section 2, I give a short introduction into the history of the Hebrew language and introduce the three time periods chosen for this study, namely Early Twentieth Century Hebrew, Normative Hebrew, and Spoken Hebrew. Section 3 discusses the methodology of the current study and the research question, and predictions for the outcome of the study are also made. Section 4 gives a detailed account of all 26 features in Early Twentieth Century Hebrew, Normative Hebrew, and Spoken Hebrew. Sections 5 and 6 discuss these results.

2 Hebrew

Hebrew is considered to be one of the oldest languages still spoken today. The first documentation of written Hebrew dates from the tenth century BCE. It is widely accepted that Hebrew has ceased to be used as an everyday spoken language around 200–400 CE. It was revived by the Zionist movement in late nineteenth century, and is spoken today as the main language of Israel by around eight million speakers, out of whom only about four and a half million are native speakers (Israeli Central Bureau of Statistics 2015). The degree to which Modern Hebrew is in fact a renewed version of Biblical and Mishnaic Hebrew is a matter of debate. The emergence of the new language was accompanied by debates regarding the characteristics of that language. In fact, some of the data in the current study is taken from such debates. The decision was made to base the language on the grammar of Biblical Hebrew as much as possible with elements from Mishnaic Hebrew when necessary. However, the decision makers were European and spoke Indo-European languages. The resulting language is thus a hybrid of Semitic morphology and European syntax and phonology (Zuckermann 2006).

It is clear that the relation between Biblical (and Mishnaic) Hebrew and Modern Hebrew is not a direct diachronic relation, and therefore a diachronic study including these three varieties of Hebrew is not informative to the research question of this paper. Therefore, a diachronic look at Modern Hebrew alone is adopted. As modern-day Hebrew is relatively new, a virtual timeline is established with the use of Normative Hebrew.

The first time period looked at is Early Twentieth Century Hebrew. Early Twentieth Century Hebrew is a broad term for Hebrew before the establishment of the state of Israel. The data I looked at from this time period are documents written between 1913 and 1933. The data gathered is not from spoken everyday language as there are no such recordings available, rather, the documents looked at are newspapers and banners taken from the National Library of Israel. These media were chosen as they were published (nearly) every day and they were used to communicate with the Hebrew speaking public living in Palestine at that time. Therefore, these media have the ability to change the language used in them in a rapid pace to match the changing language of the population. Moreover, as opposed to poetry or prose, these media are generally less stylistic in their use of language. Having said that, the data is from written published language, in which normative forms are retained. Many of the features might be heavily affected by the nature of the data.

The next time point looked at here is Normative Hebrew. After the Second World War, the spoken language in Palestine/Israel was standardized. This standard is based on the ideologies that were formed in the debates of early Modern Hebrew which look to Biblical and Mishnaic Hebrew to draw from. This standardized language is what is taught in Hebrew schools today. It has its own institution that deals with issues arising from the growing and evolving of the language in a normative fashion. This standardized language is referred to here as Normative Hebrew. The data for Normative Hebrew was collected from grammar books and The Academy of the Hebrew Language, the high institute for Normative Hebrew. Even though it is still taught today, it makes a virtual distinction in the evolution of the language as it stands for the preservation of forms. The issues that normative teachers need to deal with most are where the spoken language diverges from the normative language. Thus, it makes clear where the differences lie.

The last point on the timeline referred to in this study is the language spoken in Israel today. Being spoken, it is natural and spontaneous and often does not follow the Normative Hebrew rules. It will be referred to here as Spoken Hebrew. The data from Spoken Hebrew is taken from my knowledge of the language spoken in Israel today, as a native speaker of Hebrew and complemented by a corpus-based grammar of colloquial Israeli Hebrew written by Dekel (2014).

There are variants of Spoken Hebrew today which might behave differently with respect to some transparency features. These variants will not be considered here as they are spoken in closed specific groups (such as teenage speech in certain geographical areas) and are mostly used for identity purposes. I only consider here language that can be found in all aspects of life and that is understood (even if not produced) by all native speakers of Modern Hebrew.

3 Research question and predictions

Leufkens (2015) concluded from her typological study which included 25 natural languages that “languages start out transparently and acquire opacity later on” (Leufkens 2015: 1). She concluded this from observing that languages that have had extensive language contact are relatively transparent, while older languages exhibit opacity in more features (Leufkens 2013). According to Leufkens’ (2015) predictions, Hebrew, as an old language, should exhibit a fair amount of opacity today. Even though there is no direct continuity between Biblical and Modern Hebrew, Modern Hebrew has its roots in Biblical Hebrew and it inherited many of its opaque morphosyntax. Thus, it might be predicted that Modern Hebrew will show a higher degree of opacity with features regarding morphology. However, Modern Hebrew has a special status in terms of language contact. Modern Hebrew is an amalgam of Semitic and Indo-European languages, drawing from Hebrew, Yiddish, German, Russian and Arabic to name a few. This artificially created language has led to the fact that the first generation of speakers were not native speakers and all speakers of the language were multilingual. This multilingualism did not disappear over time, as many new generations of immigrants are consistently coming to Israel. Thus, even today, more than a hundred years later, half of the Hebrew speakers in Israel alone are non-native speakers. The number of bilingual speakers is estimated as even higher, due to big immigrant communities and heritage speakers living in Israel and abroad. Modern Hebrew has a high profile with regard to language contact and therefore might be expected to show a high level of transparency.

Be that as it may, this paper deals with the question of the process of transparency throughout time. The main question of this article is therefore: *Is Modern Hebrew becoming more transparent?*

This question has three possible answers. The first is that it is actually becoming less transparent. I do not predict this to be the outcome. Even though Hebrew is a very old language and languages are expected to become less transparent over time (Leufkens 2015), there is much to suggest that Modern Hebrew does not have a diachronic connection to Biblical Hebrew and that it is not merely a modern form of Biblical Hebrew. The second possible answer to the research question is that Modern Hebrew is becoming more transparent. I expect the data to support this prediction. Modern Hebrew is a language born out of language contact and a language that has been continuously affected by contact with other languages and second language learners. Both are contributing factors for a language to lose opaqueness. The third possible outcome is that Modern Hebrew is not becoming more transparent nor more opaque. I see this as a possibility as the time frame looked at in this paper is

quite short and spans over some hundred years. Therefore, it might be too soon to determine any (non-)transparency patterns over time. However, since the contact is so robust, I do expect to see some evidence that Modern Hebrew is becoming more transparent.

For every non-transparent feature that has been established by Leufkens (2015), following Hengeveld (2011), I will determine the behavior of Early Century, Normative and Spoken Hebrew. Then, I will look for features that change their behavior between the different time points. As transparency is not a binary concept, I do not expect to find a non-transparent feature in Normative Hebrew that transforms into a transparent one in Spoken Hebrew. Rather, I expect to find minor differences of degree of (non-)transparency.

4 Results

This section examines all twenty-six transparency features (Leufkens 2015) in the three time periods of Modern Hebrew: Early Century, Normative, and Spoken Hebrew. The transparency features are presented here according to the type of violation they present: redundancy, discontinuity, fusion, or form-based-form violations.

4.1 *Redundancy features*

This category comprises all one-to-many relations between units at different levels.

4.1.1 *Multiple expressions of pragmatic information – IL-ML, IL-PL*

Pragmatic information is marked in more than one way. This is a one-to-many relation between pragmatic units and morphosyntactic and phonological units, and therefore redundant. For example, a question can be marked by a question particle, as well as by an intonation pattern. In this case there is a relation between one pragmatic unit (Illocution) on the one hand, and a morphosyntactic unit (a word) and a phonological unit (an intonational phrase) on the other. In Spoken Hebrew, pragmatic information such as question can be expressed in a non-transparent way by marking the information both in the morphosyntactic level (with a question word) and in the phonological level (intonation), as in (1c). However, it is possible in Spoken Hebrew to mark pragmatic information such as focus or question only in the phonological level. For example, (1a) is morphosyntactically identical to (1b) and only the intonation signals the extra pragmatic information. Hebrew does not mark other pragmatic information morphosyntactically, and with the exception of a question word, is mostly transparent in this way.

- (1) a. ata roce lishtot?
 2SG.M want.SG.PR to.drink
 ‘Do you want to drink?’
- b. ata roce lishtot.
 2SG.M want.SG.PR to.drink
 ‘You want to drink.’
- c. Ha'im ata roce lishtot?
 QUE 2SG.M want.SG.PR to.drink
 ‘Do you want to drink?’
- d. ve-lo tirce lir'ot et doctor hercel?
 and-NEG want.2SG.M.FUT see.INDEF ACC doctor Hertzel
 ‘Would you not want to see dr. Hertzel?’
- e. ha-asita et asher bikashti?
 DEF-do.2SG.M.PAST ACC CONJ ask.for.1SG.PAST
 ‘Did you do what I asked?’

Therefore, for this feature we see both a one-to-many relation, and a one-to-one relation in Spoken Hebrew. Normative Hebrew, however, does not allow for the omission of the question word, rendering (1a) as ungrammatical. Thus, Normative Hebrew ranks higher in the degree of non-transparency regarding this feature. In Early Century Hebrew, there is the use of a definite marker to mark a question, as in example (1e), or the clitic *ve* ‘and’, as in example (1d).

Early Century Hebrew	mostly transparent
Normative Hebrew	mostly transparent
Spoken Hebrew	more transparent

4.1.2 Nominal apposition – IL-RL

Nominal apposition is when two or more nominal elements refer to the same entity. One of the elements modifies the other, but it is not an adjective and no linking element is used (Keizer 2005). Close appositions are nominal appositions in which the two nominal elements form one intonational unit, such as in ‘my dear Martha’. In the nominal apposition ‘Martha, my dear’ the two nominal elements are two intonational units. There is a many-to-one relation

between referential subacts at the Interpersonal Level and a referent at the Representational Level.

Nominal appositions are possible in Spoken Hebrew. This feature is considered universal and as such, Normative Hebrew and Early Century Hebrew show the same non-transparency with regard to this feature.

- (2) a. ha-ir tel-aviv
 DET-city tel-aviv
 ‘the city Tel-Aviv’
- b. jaron ha-xaver shel-i
 Yaron DET-friend POSS-1SG
 ‘Yaron, my friend’

Early Century Hebrew	non-transparent
Normative Hebrew	non-transparent
Spoken Hebrew	non-transparent

4.1.3 Clausal agreement or cross-reference – IL-RL

Agreement is when a grammatical or semantic property of one unit is expressed on another unit (Steele 1978). Agreement can take place in various domains. In this section, only clausal agreement will be discussed. Agreement that takes place within the clause is usually an agreement between (an) argument(s) and the predicate. The argument may be overtly expressed or implicit. When the argument is obligatorily overt, it will be called clausal agreement, in which there is a morphosyntactic copying of properties of the argument onto the predicate. But when the argument is implicit, we will speak of cross-reference, in which there is one referent but multiple morphosyntactic units with semantic value. Both forms of double expression of properties are non-transparent, as double expression is redundant by definition. It is possible to talk about a matter of degree in the transparency of this feature. In this way, pro-drop languages are fundamentally more transparent than languages in which arguments cannot be dropped since redundancy is only present overtly in some clauses, rather than in all of them.

Spoken Hebrew has both overt mandatory clausal agreement, and in some cases cross-reference with an implicit argument. When the agreement verbal suffix is unambiguous, the subject can be explicitly or implicitly realized. The former is considered redundant and therefore less preferred by speakers. When the agreement verbal suffix is ambiguous, as in the present tense simple

template which does not make a distinction in person, the subject is expressed with an overt noun phrase (3ab).

- (3) a. hi xoshev-et.
 3SG.F think-SG.F
 ‘She thinks.’
- b. atem xoshv-im.
 2PL.M think-PL.M
 ‘You are thinking.’
- c. hen xoshv-ot.
 3SG.F think-SG.F
 ‘They are thinking.’
- d. hem xoshv-ot.
 3SG.M think-SG.F
 ‘They are thinking.’
- e. xashav-ti lavo el-ayx.
 think-1SG to.come to-2SG.F
 ‘I was thinking of coming to you.’

In (3ab), the number and gender specifications of the subject argument are expressed in the verbal suffix. The person is not expressed by the suffix, and therefore an independent NP is obligatory. In this case, there is a redundancy since the number and gender specifications of the subject argument are obligatorily expressed by an independent NP and on the predicate.

In Spoken Hebrew, forms like (3d) in which the pronoun gender does not match the gender agreement suffix on the predicate are abundant (compare to (3c)). This only happens with plurals, and it is a part of a larger trend of referring to animate female referents with male pronouns when plural. These forms are ungrammatical in Normative Hebrew. Moreover, in Normative Hebrew and Early Century Hebrew there is an agreement suffix *-na* that has disappeared completely in Spoken Hebrew. This suffix distinguishes the gender in the third person plural past. Compare Normative Hebrew in (3f) which has a feminine suffix, to Spoken Hebrew in (3g) which does not.

- (3) f. hen xoshv-u-na.
 3PL.F think-3PL.PAST-F
 ‘They thought.’

- g. hen xoshv-u.
 3PL.F think-3PL.F.PAST
 ‘They thought.’

The two phenomena together point to a process in which Hebrew is becoming more transparent with regard to clausal agreement, as it is making less and less distinctions in the agreement affixes, some even disappearing all together.

Early Century Hebrew	completely non-transparent
Normative Hebrew	completely non-transparent
Spoken Hebrew	mostly non-transparent

With regard to cross-reference, as in pro-drop languages, Spoken Hebrew allows for the argument to be implicit if it is understood from the context (the topic of the conversation or if it was mentioned in a previous sentence) or if the agreement suffix is unambiguous. When the suffix is unambiguous and contains the person and number of the subject, it is considered redundant by speakers to overtly express the subject with an independent noun.

- (3) h. etmol halax-nu le-seret.
 yesterday go.PAST-1PL to-movie
 ‘Yesterday we went to a movie.’
- i. etmol anaxnu halax-un le-seret.
 yesterday 1PL go.PAST-1PL to-movie
 ‘Yesterday we went to a movie.’

In (3h) the argument is not overtly expressed as an independent NP. It is only expressed as agreement on the predicate. The form in (3i) is also acceptable but is stylistically less preferred. It is only preferred by native speakers when it marks a grammatical function such as focus. Even though (3i) is less preferred, its use is abundant in Spoken Hebrew. This indicates that Hebrew is not a complete pro-drop language but is maybe in the process of becoming one. The form in (3i) is allowed in Normative Hebrew and Early Century Hebrew, however I have not found any examples of it as it is less preferred.

Early Century Hebrew	N/A
Normative Hebrew	N/A
Spoken Hebrew	mostly non-transparent

4.1.4 Phrasal agreement – RL-ML

Phrasal agreement is agreement between a noun and its modifier. It is the expression of a formal property of a noun on its modifier(s), whether that property is overtly expressed on the noun itself or not. In Spoken Hebrew there is phrasal agreement between the noun and its adjectives and demonstratives (4a-b), but not with case, definiteness and relativizers.

- (4) a. ha-na'ar-a ha-jaf-a
 DEF-young.lady-F DEF-beautiful-F
 'the beautiful girl'
- b. ha-na'ar ha-jaf-e
 DEF-young.man DEF-beautiful-M
 'the beautiful boy'

But, look at the next examples, both found in Spoken Hebrew:

- (4) c. xamish-a shkal-im
 five-M Shekel-PL.M
 'five Shekels'
- d. xamesh shekel
 five.F Shekel
 'five Shekels'

In (4c) there is agreement between the head noun 'Shekel' and its modifier in number and gender, where the gender of the noun is marked on the modifier and the number which comes from the modifier is marked with a plural suffix on the head noun. However, as shown in (4d), the same phrase can be expressed without any agreement between the head noun and its modifier. The presence of both forms indicates that Hebrew is in the midst of change to becoming more transparent. In Normative Hebrew (4d) is completely ungrammatical. It does not allow a mismatch in the agreement between the head noun and its modifiers. Notice that this is not possible with every modifier, though (4ef). It is most common with number modifiers. I did not find any evidence for such behavior as in (4d) in Early Century Hebrew.

- (4) e. ha-uga ha-te'im-a
 DEF-cake.F DEF-tasty-F
 'the tasty cake'

- f. * ha-uga ha-ta'im
 DEF-cake.F DEF-tasty.M
 'the tasty cake'

Early Century Hebrew	completely non-transparent
Normative Hebrew	completely non-transparent
Spoken Hebrew	mostly non-transparent

4.1.5 Plural concord in noun phrases containing a numeral – RL-ML

When a noun is modified by a numeral higher than one, it is redundant to mark the plurality in a grammatical form as well. Therefore, there is a non-transparent one-to-many relation between the semantic number operator and its morphosyntactic expression as an adjective and as an affix.

Spoken Hebrew, as well as Normative and Early Century Hebrew, all have plural concord (5a).

- (5) a. arba'im ganav-im
 forty thief-PL.M
 'forty thieves'

However, it is also possible in some cases to not express the grammatical plural marking (compare (5b) to (5c), for example). In numbers higher than nine the noun does not have to be marked with the plural affix. This occurs when the noun is non-animate, but there are rare cases in Spoken Hebrew where it is possible with animate nouns as well (5e). Therefore, (5e) is not grammatical in Normative Hebrew. The opposite example is also found in Spoken Hebrew but is ungrammatical in Normative Hebrew. In (5f) the number is lower than nine. Spoken Hebrew allows the use without the plural concord while Normative Hebrew does not. I did not find cases such as (5e) and (5f) in Early Century Hebrew. Spoken Hebrew is therefore more transparent with regard to this feature than Normative Hebrew and Early Century Hebrew.

- (5) b. esrim axuz-im
 twenty percent-PL.M
 'twenty percent'
- c. esrim axuz
 twenty percent.M
 'twenty percent'

- d. shmonim shekel
 eighty shekel.M
 ‘eighty Shekels’
- e. shloshim yeled
 thirty child
 ‘thirty children’
- f. shlosh-a axuz
 three-M percent.M
 ‘three percent’

Early Century Hebrew	mostly non-transparent
Normative Hebrew	mostly non-transparent
Spoken Hebrew	half non-transparent

4.1.6 *Negative concord – RL-ML*

Negative concord occurs when the combination of sentential negation and a negative indefinite creates a negative reading (Zeijlstra 2007a). This is non-transparent since one semantic negation corresponds to multiple morphosyntactic negative elements. Spoken Hebrew, as well as Normative and Early Century Hebrew exhibit negative concord (6a-c) and in that sense non-transparent.

- (6) a. af-exad lo ba.
 no-one no come.SG.M.PAST
 ‘No one came.’
- b. af-pa’am lo raxavti al susim.
 no-once no ride.1SG.PAST on horse.PL.M
 ‘I had never ridden a horse.’
- c. ani lo roca klum.
 IPR no want.SG.F.PRE nothing
 ‘I don’t want anything.’

Early Century Hebrew	non-transparent
Normative Hebrew	non-transparent
Spoken Hebrew	non-transparent

4.1.7 Modal concord – RL-ML

In modal concord, two modal expressions correspond to one semantic modal unit (Zeijlstra 2007b). Spoken, Normative and Early Century Hebrew do not allow modal concord as far as I know.

Early Century Hebrew	transparent
Normative Hebrew	transparent
Spoken Hebrew	transparent

4.1.8 Temporal concord and tense copying – RL-ML

Temporal information can be expressed lexically, as adverbial phrases, and grammatically, as tense marking on the predicate. When a language combines both means, there is a non-transparent one-to-many relation between a semantic temporal operator and its morphosyntactic expression. This feature is considered to be near universal, and Hebrew is no exception. In (8a), there is temporal marking on the verb, accompanied by the NP ‘yesterday’.

- (8) a. etmol halaxti la-makolet.
 yesterday walk.1SG.PAST PREP.DET-grocery.store
 ‘Yesterday I went to the grocery store.’

Early Century Hebrew	non-transparent
Normative Hebrew	non-transparent
Spoken Hebrew	non-transparent

Another type of multiple marking of time reference is tense copying. In languages that have tense copying the tense of the main clause is copied onto the embedded clause. In languages without tense copying, the embedded clause carries a relative tense to the tense of the main clause. The copy in the embedded clause has no semantic or pragmatic counterpart, and therefore it is redundant and non-transparent. Spoken, Normative and Early Century Hebrew do not have tense copying and are all transparent in this respect.

- (8) b. yael amra she-hi rokedet.
 yael say.SG.F.PAST that-she dance.SG.F.PRES
 ‘Yael said she was dancing.’

Early Century Hebrew	transparent
Normative Hebrew	transparent
Spoken Hebrew	transparent

4.1.9 *Spatial concord – RL-ML*

Spatial information can be expressed lexically by an adverb, adverbial phrase, adposition or by an adpositional phrase, or grammatically by means of case marking or a grammatical adposition. Using both means in one utterance results in redundancy. Spoken, Normative and Early Century Hebrew do not exhibit spatial concord and are all transparent in this respect.

Early Century Hebrew	transparent
Normative Hebrew	transparent
Spoken Hebrew	transparent

4.2 *Discontinuity features*

Discontinuity is a violation of domain integrity. I.e. morphosyntactic or phonological units that cannot stand independently but require the presence of another unit. This creates a non-transparent one-to-many relation as one semantic unit is split into multiple morphosyntactic units.

4.2.1 *Extraction and/or extraposition – RL-ML*

Extraposition is the realization of a modifying phrase or clause at the end of a sentence, rather than adjacent to its head. This process is commonly referred to as ‘heavy shift’ since the modifier that belongs together with its head at the semantic-pragmatic level, is ‘shifted’ from its original place next to the head to the end of the sentence. The complementary process to extraposition is extraction in which the modifier appears to the left of its head.

Hebrew is quite flexible in argument structure, and it allows for modifiers to appear either adjacent to their head or not. Spoken, Normative and Early Century Hebrew all allow this.

- (10) a. yesh la-un ba-mlaj sfar-im xashuv-im al
 there.is POSS-1PL in.DET-stock book-PL.M important-PL.M on
 itxamemut globali-t.
 warming.F global-F
 ‘We have in stock important books about global warming.’

- b. yesh la-un sfar-im xashuv-im al itxamemut
 there.is POSS-1PL book-PL.M important-PL.M on warming.F
 globali-t ba-mlaj.
 global-F in.DET-stock
 ‘We have important books about global warming in stock.’
- c. yesh la-un sfar-im xashuv-im ba-mlaj
 there.is POSS-1PL book-PL.M important-PL.M in.DET-stock
 [al itxamemut globali-t].
 on warming.F global-F
 ‘We have important books in stock about global warming.’
- d. [al itxamemut globali-t] yesh la-un sfar-im
 on warming.F global-F there.is POSS-1PL book-PL.M
 xashuv-im ba-mlaj.
 important-PL.M in.DET-stock
 ‘About global warming we have important books in stock.’

Early Century Hebrew	non-transparent
Normative Hebrew	non-transparent
Spoken Hebrew	non-transparent

4.2.2 Raising – RL-ML

Arguments that semantically belong to an embedded clause may be raised to a syntactic position of an argument of the main clause. Argument raising is possible in Spoken Hebrew, as well as in Normative Hebrew and Early Century Hebrew.

- (11) a. nir'a she-ha-dag-im xol-im.
 look.MIDD that-DEF-fish-PL.M sick-PL.M
 ‘It seems that the fish are sick.’
- b. ha-dag-im nir-im xol-im.
 DEF-fish-PL.M look-PL.M sick-PL.M
 ‘The fish seem sick.’

Early Century Hebrew	non-transparent
Normative Hebrew	non-transparent
Spoken Hebrew	non-transparent

4.2.3 *Circumfixes – RL-ML*

Circumfixes are discontinuous affixes consisting of two parts phonologically but relating to one unit at the semantic and pragmatic levels. Spoken Hebrew does not have circumfixes, as well as Normative Hebrew and Early Century Hebrew.

Early Century Hebrew	transparent
Normative Hebrew	transparent
Spoken Hebrew	transparent

4.2.4 *Infixes and transfixes – RL-ML*

Infixes are morphosyntactic units that are inserted inside morphosyntactic words. They create a situation of discontinuity in their hosts, however they are not discontinuous elements themselves. As they create discontinuity, infixes are considered non-transparent. Hebrew does not have infixes, however, it does have morphosyntactic templates of vowels which come between the consonants of the root and create discontinuity between them. These templates are not affixes firstly because they are discontinuous elements themselves, and secondly because they are not inserted into a morphosyntactic word. These are morphosyntactic templates which hold grammatical information into which a root is inserted. The root carries the encyclopedic information only, and together, the root and the template form a morphosyntactic word. A more suitable name for these templates then would be transfixes, which are discontinuous elements. As transfixes create discontinuity of the root, they are non-transparent elements as well. Table (13) shows the transfixes in Hebrew. As these transfixes compose the morphological structure of Modern Hebrew, Spoken, Normative and Early Century Hebrew share this property.

(13) Hebrew templates:

	<i>Active</i>	<i>Middle</i>	<i>Passive</i>
<i>Simple</i>	[C]a[C]a[C]	ni[C][C]a[C]	--
<i>Intensive</i>	[C]i[C]e[C]	hit[C]a[C]e[C]	[C]u[C]a[C]
<i>Causative</i>	hi[C][C]i[C]	--	hu[C][C]a[C]

Early Century Hebrew	non-transparent
Normative Hebrew	non-transparent
Spoken Hebrew	non-transparent

4.2.5 Non-parallel alignment – ML-PL

Non-parallel alignment happens when the phonological level does not match the morphosyntactic level. There is no one-to-one relation between the levels and therefore it is a non-transparent relation. Spoken Hebrew, being spoken, is full of non-parallel alignments between the morphosyntactic level and the phonological level. This non-parallelism is so abundant that it is seen in written form as well. In fact, one can argue that some forms of this are so common that the lexical entries have changed and are fixed in the new form. This of course means that these forms no longer represent a non-parallel alignment. An example of that is:

- (14) a. [ani atkasher] el-a'ix maxar.
 I call.1SG.FUT to-2SG.F tomorrow
 'I will call you tomorrow.'
- b. [ani itkasher] el-a'ix maxar.
 I call.1SG.FUT to-2SG.F tomorrow
 'I will call you tomorrow.'
- c. /anitkasher/ el-a'ix maxar.
 I.call.1SG.FUT to-2SG.F tomorrow
 'I will call you tomorrow.'

It is hard to establish a comparison to Normative Hebrew with regard to this feature as this feature pertains to the phonological level. Normative Hebrew here is not a live spoken language, but a set of language rules, and by definition has a parallel alignment between the morphosyntactic and the phonological levels. With regard to Early Century Hebrew, the data used in this article is from written language and therefore it is impossible to establish the relation to the phonological level.

Early Century Hebrew	N/A
Normative Hebrew	N/A
Spoken Hebrew	non-transparent

4.3 Fusion features

Fusion refers to relations between more than one pragmatic or semantic unit and one formal unit.

4.3.1 Cumulation of TAME and case – RL-ML

Cumulation is the expression of multiple semantic categories in one grammatical unit. This is non-transparent because there is a many-to-one relation between the pragmatic and semantic level and the morphosyntactic level. In other words, multiple semantic or pragmatic operators are cumulated in one grammatical unit (i.e. affixes and grammatical words). Bauer (2003: 19) defines these as morphs that realize more than one morpheme.

The TAME properties are assigned by the binyan (template) whereas the gender, person and number agreement with the subject all appear together on the affixes. The same is true for Normative Hebrew and Early Century Hebrew. For example:

- (15) a. hi halx-a la-shuk.
 She go.PAST-3SG.F to.the-market
 ‘She went to the market.’
- b. hu halax la-shuk.
 he go.PAST-3SG.M to.the-market
 ‘He went to the market.’
- c. hi holex-et la-shuk.
 she go.PRES-3SG.F to.the-market
 ‘She is going to the market.’
- d. hu holex la-shuk.
 he go.PRES-3SG.M to.the-market
 ‘He is going to the market.’

It is very common across languages that person and number appear together on the same unit. Therefore, it is not a distinguishing factor in the transparency of a language. A more defining cumulation is when TAME properties appear together with other semantic units on the same morphosyntactic unit. In Hebrew the TAME properties are distinguished from number, gender and person properties and case. Therefore, Hebrew is considered transparent with regard to this feature.

Early Century Hebrew	transparent
Normative Hebrew	transparent
Spoken Hebrew	transparent

4.3.2 Morphologically conditioned stem alternation: suppletion – RL-ML

Suppletion is a morphological process to mark grammatical information whereby the stem is altered in a way that creates a stem form which is non-derivable from other stems of the same lexeme. Hebrew is highly morphological and highly regular in its morphological processes. As shown in table (13), there are seven morphosyntactic templates in Hebrew, to which a root may be inserted. This process eliminates any irregular morphological alternations of a stem.

Early Century Hebrew	transparent
Normative Hebrew	transparent
Spoken Hebrew	transparent

4.3.3 Morphologically conditioned stem alternation: irregular stem formation – RL-ML

Bauer (2003) distinguishes four types of morphologically conditioned stem alternations that result in a many-to-one relation between meaning and form.

The first is vowel mutation. When grammatical information is added through vowel mutation in an unpredictable way, i.e. in some verbs but not others, it is considered irregular and non-transparent. In Hebrew, as mentioned before, grammatical information is often expressed through vowel mutation (17a-b). However, this process is highly regular and predictable and therefore not considered opaque. Spoken, Normative and Early Century Hebrew behave the same with respect to this feature.

- (17) a. *katav*
wrote.3SG.M
'He wrote.'
- b. *kotev*
write.3SG.M
'He is writing.'

Early Century Hebrew	transparent
Normative Hebrew	transparent
Spoken Hebrew	transparent

The second type of morphologically conditioned stem alternation Bauer discusses is consonant mutation. In this process a consonant in the stems alters in order to express grammatical information. When this process is unpredictable, it is considered opaque. Consonant mutation is a process that is relevant to Hebrew. While this process is predictable in Normative Hebrew, it became quite irregular in Spoken Hebrew. Be that as it may, the motivation of this process is

phonological rather than morphosyntactic and hence it is not considered in this section. Since morphologically conditioned stem alternations are not found in Hebrew, it is transparent in this sense, for Spoken, Normative and Early Century Hebrew.

Early Century Hebrew	transparent
Normative Hebrew	transparent
Spoken Hebrew	transparent

The third type of irregular stem formation process is segmental modification. This process alters a segment in order to convey grammatical information. This property is absent from Spoken, Normative and Early Century Hebrew.

Early Century Hebrew	transparent
Normative Hebrew	transparent
Spoken Hebrew	transparent

The last type of irregular stem formation is suprasegmental modification. This process too results in a stem which expresses multiple meanings: the semantic meaning and grammatical information. This feature as well is absent in Spoken, Normative and Early Century Hebrew and is considered transparent.

Early Century Hebrew	transparent
Normative Hebrew	transparent
Spoken Hebrew	transparent

4.4 *Form-based form features*

A number of operations may take place within the Morphosyntactic or the Phonological Level that add elements to the structures passed on from earlier levels. As these operations have no Interpersonal or Representational counterpart, they have a form but no meaning. This creates a null-to-one relation between meaning and form and is hence non-transparent. All such relations will be referred to here as form-based form.

4.4.1 *Grammatical gender – RL-ML*

Languages may make a morphosyntactic distinction between nouns. This creates noun classes. This division may be semantically motivated or lexically motivated. When the distinction is lexical, it is in effect made on the basis of morphosyntactic features or behaviors. A lexical distinction is hence non-

transparent. The morphosyntactic marking is done on the basis of morphosyntactic features, rather than on the basis of a semantic or pragmatic motivation. This phenomenon is referred to as grammatical gender.

Hebrew has a grammatical gender system. However, in Spoken Hebrew it is starting to deteriorate. The deterioration is most robust in numbers, as shown in Section 5, where some speakers lost the gender distinction all together and others exhibit a mismatch between the gender marking on the number and the head noun only in rare cases. The loss of gender distinction is robust in nouns that come in pairs and end with the suffix *-a'im*. This suffix marks a pair and is very similar in form to the male plural suffix *-im*. It is clear for most speakers then that the suffix marks the gender Male, but also that this marking is in agreement with the head of the NP 'pair', which is not overtly expressed. Since the head of the NP of pair nouns is nearly never expressed, speakers refer to the pair noun as the head of the noun phrase and the gender marking then agrees with the noun itself. However, speakers are confused of the gender of this noun as they never hear it outside the context of being a pair. This created a situation in which the forms in (18a) and (18c) are acceptable in Spoken Hebrew, but also (18b) and (18d).

- (18) a. *mixnas-a'im kcar-im*
 pant-COUP.M short-PL.M
 'short pants'
- b. *mixnas-a'im meluxlax-ot*
 pant-COUP.M dirty-PL.F
 'dirty pants'
- c. *mispar-a'im xad-im*
 scissors-COUP.M sharp-PL.M
 'sharp scissors'
- d. *mispar-a'im adum-ot*
 scissors-COUP.M red-PL.F
 'red scissors'

This deterioration in the gender distinction can also be found in some singular nouns that are in frequent use. In (18ef), the noun 'pen' morphologically seems to be male but accepts both male and female gender marking on its modifier. In (18gh) the noun 'intersection' seems to be morphologically female, as it ends with the segment *et*, which is predominantly used in female marking, however, both female and male marking on the modifier are accepted in Spoken Hebrew.

- (18) e. et dak
 pen thin.M
 ‘thin pen’
- g. comet amus-a
 intersection busy-F
 ‘busy intersection’
- f. et kxul-a
 pen blue-F
 ‘blue pen’
- h. comet rek
 intersection empty.M
 ‘empty intersection’

The mismatch in (18gh) might be explained by the fact that this noun, along with others, is an exception. Some nouns possess the morphological form of the opposite gender and lead to a confusion about their lexical gender. This cannot explain the noun in (18ef), and others like it, which morphologically matches its gender, but speakers are still confused about its lexical gender. This unmotivated confusion, along with the loss of gender distinction in numbers, is a clear sign that Spoken Hebrew represents a process of becoming more transparent with regard to lexical gender properties.

While Normative Hebrew does not allow the forms in (18b), (18d), (18f), and (18g), it does have some exceptions itself. There is a class of lexical nouns that allow both male and female gender agreement, like the nouns (18a-h) in Spoken Hebrew. The noun in (18ij) is an example of such a noun. This particular noun appears in Mishnaic Hebrew in both forms, and therefore both forms are accepted in Normative Hebrew.

- (18) i. sakin xad
 knife sharp.M
 ‘sharp knife’
- j. sakin gdola
 knife big.F
 ‘big knife’

Other nouns show different genders throughout different times in the development of the language. For example, ‘wind’, ‘sun’ and ‘abyss’ present male gender agreement in Biblical Hebrew but are considered as mostly female in Spoken Hebrew. Other nouns show different patterns. The noun ‘field’ was male in Biblical Hebrew, female in Mishnaic Hebrew and is again referred to as male in Spoken Hebrew – to mention just a few.

With regard to Early Century Hebrew, it shows a similar pattern to Normative Hebrew. However, this might only be an effect of the nature of the data in this study.

Early Century Hebrew	completely non-transparent
Normative Hebrew	completely non-transparent
Spoken Hebrew	mostly non-transparent

4.4.2 Nominal expletives – RL-ML

Nominal expletives are units that do not have a pragmatic or semantic counterpart. They solely fulfill a morphosyntactic function and therefore are also known as dummy subjects or empty arguments. A common place for nominal expletives to appear is with weather predicates. Weather predicates in Hebrew do not evoke nominal expletive. In (19a) ‘rain’ is the argument of the predicate ‘falls’. In the English translation of this sentence, *it* is a pronominal expletive. It has no referent in the world and functions as a dummy subject.

- (19) a. yored geshem.
 falls rain
 ‘It is raining’

It is also common for languages to use locational adverbs as expletives, for example, the English *there* in sentences such as *there is someone in the room*. Hebrew does not make use of locational adverbs for such purposes, instead it has existence predicates (19bc).

- (19) b. yes mishehu ba-xeder.
 EX someone in.DET-room
 ‘There is someone in the room.’
 c. ein mishehu ba-xeder.
 EX.NEG someone in.DET-room
 ‘There is no-one in the room.’

Languages may use a pronominal expletive in cases where the expletive does not refer to a pragmatic or semantic entity, but it does refer to the embedded clause. Since the embedded clause is a morphosyntactic unit, the expletive does not have a higher level counterpart and it is in fact a form-based-form. A morphosyntactic unit that refers to a morphosyntactic unit. Spoken Hebrew allows this type of expletive in the form of the male singular demonstrative *ze* (19d). Even though Spoken Hebrew allows the use of this type of expletive, it is not required (19e).

- (19) d. ze xashuv lecaxce’ax shinaim kol yom.
 EXP important.SG.M to.brush teeth every day
 ‘It is important to brush your teeth every day.’

- e. xashuv lecaxce'ax shinaim kol yom.
 important.SG.M to.brush teeth every day
 'It is important to brush your teeth every day.'

As far as I can tell, this use of the demonstrative is not found in Biblical Hebrew, and therefore should not be allowed in Normative Hebrew. However, I have not found a direct source that refers to expletives in Normative Hebrew. Early Century Hebrew does exhibit this type of expletive. (19f) is taken from the newspaper *Hazvi* from the issue of July 10th, 1914.

- (19) f. ze nose amok ve-yafe le-mexkar: ...
 EXP subject deep.SG.M and-beautiful.SG.M for-reseach.SG
 'It is a deep and beautiful subject for research: ...'

This last type of expletive is considered non-transparent as it does not have a pragmatic or semantic counterpart only a morphosyntactic one, i.e. the embedded clause. However, the two former types of expletives discussed here do not have counterparts at all. They do not refer to any unit, not even a morphosyntactic one. Thus, these are considered even more non-transparent. There seems to be a degree of transparency in this feature, and different languages may lie on different points of the scale.

An implicational hierarchy for types of expletives has been proposed by Travis (1984). She claims that if a language has nominal expletives, they will appear with weather predicates first. This hierarchy does not seem to hold for Hebrew, as well as for other languages such as Fongbe that exhibits the same pattern as Hebrew (Lefebvre & Brousseau 2002). These languages pattern in a way that is predictable from the transparency point of view. They only exhibit expletives which are less opaque. Languages such as English support a transparency motivated hierarchy as well, as they exhibit the more opaque expletives as well as the less opaque ones. Languages that exhibit the more opaque expletives but not the less opaque ones will disprove this transparency based implicational hierarchy.

There is another type of unit that does not hold any semantic information – copulas. These are morphosyntactic elements that are inserted when non-verbal predicates cannot bear verb markers. The copulas then become the semantically void markers' bearers of the predicate. Thus, copulas may be seen as dummy verbs or verbal expletives. Hebrew does not have copulas as it allows non-verbal predicates which hold the grammatical markers.

Early Century Hebrew	more transparent
Normative Hebrew	N/A
Spoken Hebrew	mostly transparent

4.4.3 Syntactic functions – IL-ML

There are several types of alignment that are possible in languages. The first is interpersonal alignment. Interpersonal alignment occurs when a language morphosyntactically marks pragmatic functions such as topic, focus, background, contrast and overlap. The second type of alignment is representational alignment. When a language morphosyntactically marks the predicate (through case marking or the form of the predicate) according to the semantic role of the arguments (actor, undergoer or locative). The third type of alignment would be when the marking of the arguments on the predicate follows a hierarchy of animacy. This is hierarchical alignment. All three are transparent alignments since there is a single morphosyntactic form that corresponds semantic or pragmatic function. Spoken, Normative and Early Century Hebrew do not mark any of these alignments.

However, there is one type of alignment that is non-transparent and represents syntactic function. This is morphosyntactic alignment. In morphosyntactic alignment the relations are purely syntactic, or grammatical, not pragmatic or semantic. In morphosyntactic alignment there is a relation between the arguments and the predicate that disregards pragmatic or semantic principles and relies only on the morphosyntactic level. Spoken, Normative and Early Century Hebrew have this non-transparent alignment. The agreement between the predicate and the argument is determined by the argument's syntactic role, i.e. subject, and not through any semantic or pragmatic role it might take. The subject argument in example (20a) has the semantic role of Agent, whereas the subject in (20b) has the semantic role of Experiencer. They are both marked the same way on the predicate.

- (20) a. yelad-ot holx-ot.
 child-PL.F walk-PL.F
 'Children (F) walk.'
- b. yelad-ot nofl-ot.
 child-PL.F fall-PL.F
 'Children (F) fall.'

Another example for the morphosyntactic alignment in Hebrew comes from the passive form (20c). The subject of a passive sentence is the internal argument and thus has a different semantic relation to the predicate than the subject in an active sentence. However, it still receives the same marking on the predicate. The morphosyntactic role, i.e. subject, is what determines the agreement in Hebrew, and therefore non-transparent.

- (20) c. ha-perax hu-shka.
 DET-flower PASSIVE.PAST-water
 ‘The flower was watered.’

Even though the agreement is determined by the syntactic role in Spoken, Normative and Early Century Hebrew, Normative Hebrew also shows sensitivity to the semantic role of the argument. Hebrew is an SVO language, however Normative Hebrew allows for post-verbal subjects with unaccusative verbs, but not with unergative verbs (Doron 2003; Borer & Grodzinsky 1986). Thus, in (20d) the verb is unaccusative and the subject is allowed after the verb, but the parallel in (20e) with an unergative predicate is not allowed. Spoken Hebrew has lost this semantic based distinction and either form is not produced (even though it may be acceptable).

- (20) d. hitparek ha-kise.
 fell.apart.MID DET-chair
 ‘The chair fell apart.’

- e. *hitraxec ha-yeled.
 washed.MID DET-child
 ‘The boy took a shower.’

Examples of post-verbal subjects are found in Early Century Hebrew, however, they appear with unergative verbs (20f) as well.

- (20) f. laxsh-a em Yehudi-a ...
 whisper-F mother Jewish-F
 ‘A Jewish mother whispered ...’ (from *Hazvi*, July 1914)

This phenomenon points to a process in which Hebrew is becoming less transparent as it is losing the ability to distinguish verbs according to their semantic behavior.

Early Century Hebrew	more non-transparent
Normative Hebrew	non-transparent
Spoken Hebrew	more non-transparent

4.4.4 Influence of complexity on word order – IL-ML, RL-ML

A common phenomenon in languages is the influence of complexity on word order. I.e., constituents that are morphosyntactically complex are preferred to

appear at the end of a sentence, whereas light constituents, i.e. not morphosyntactically complex units, are preferred at the beginning of a sentence. This phenomenon might be a result of planning and processing restrictions. Where light elements can be articulated immediately, heavy elements require more time to plan and execute (Hawkins 1990).

This phenomenon is non-transparent since the morphosyntactic complexity of a constituent determines its morphosyntactic placement. There is a null-to-one relation between the pragmatic and semantic information of the constituent and its morphosyntactic placement. Therefore, this is a case of a form-based form, and languages that allow complexity to influence the morphosyntactic placement of an element are non-transparent with regard to this feature.

Many elements may appear at the end of the sentence when the language default rules place them elsewhere. Most common are heavy noun phrases, complement clauses, relative clauses, adpositional phrases, and possessive phrases.

Hebrew is an SVO language where complement clauses and adpositional phrases appear at the end of the sentence according to the default rules of the language. It is therefore impossible to determine if their complexity has any influence in Hebrew. Relative clauses (21ab) and possessive phrases (21cd), however, appear adjacent to their NP and complexity does not seem to influence their placement.

- (21) a. ha-ish [she-gar ba-ba'it ha-kaxol]
 DEF-man that-live.3SG.M in.DEF-house DEF-blue.M
 hegi'a.
 arrive.3SG.M.PAST
 'The man who lives in the blue house arrived.'
- b. * ha-ish hegi'a [she-gar ba-ba'it
 DEF-man arrive.3SG.M.PAST that-live.3SG.M in.DEF-house
 ha-kaxol].
 DEF-blue.M
 'The man arrived who lives in the blue house.'
- c. ha-yeled [shel ruti] ohev mexoni-yot.
 DEF-boy POSS ruti love.3SG.M.PRES car-PL.F
 'Ruti's boy likes cars.'

- d. * ha-yeled ohev mexoni-yot [shel ruti].
 DEF-boy love.3SG.M.PRES car-PL.F POSS ruti
 ‘The boy likes cars of Ruti’s.’

Even though the complexity of an NP does not seem to influence the placement of the NP, a more complex phrase, such as Verbal Phrase, does move to the right of the predicate from the subject position, regardless of its complexity (21e).

- (21) e. na'im le-hakir.
 nice to-meet
 ‘Nice to meet you.’

Spoken Hebrew, Normative Hebrew, and Early Century Hebrew all behave the same with respect to this feature and do not allow the complexity of a constituent to influence its morphosyntactic placement in most cases. Spoken, Normative and Early Century Hebrew are therefore mostly transparent with respect to this feature.

Early Century Hebrew	mostly transparent
Normative Hebrew	mostly transparent
Spoken Hebrew	mostly transparent

4.4.5 Function marking is predominantly head-marking – RL-ML

Affixal function marking is considered head marking because they must attach to a host. The host of an inflectional affix is typically a Root, a stem or a stem plus other affixes, but never a phrase or a clause. This host is from a specific morphological class (Leufkens 2015). For example, the English plural suffix *-s* may attach only to stems from the morphological class of nouns. Affixal function marking is non-transparent as morphosyntactic information, i.e. the morphological class and/or the complexity of the host is what determines the nature of the marking. This creates a null-to-one relation between pragmatic or semantic information and the morphosyntactic information.

Grammatical information may be overtly marked through clitics and grammatical words as well as by affixes. Contrary to affixal marking which is head marking, these are phrasal marking. They are able to scope over phrases and clauses, rather than just words, and the morphological class of their host is essentially irrelevant to them. Therefore, these function markings are not opaque as head marking.

Hebrew has head marking in the form of inflectional suffixes, such as the plural (male and female) suffixes *-im* and *-ot*, as can be seen in (22a) and (22b), respectively.

- (22) a. ha-klav-**im** ha-xamud-**im** mesaxk-**im**.
 DEF-dog-PL.M DEF-cute-PL.M play-PL.M
 ‘The cute dogs are playing.’
- b. ha-yelad-**ot** ha-gdol-**ot** medabr-**ot**.
 DEF-child-PL.F DEF-big-PL.F talk-PL.F
 ‘The big girls are talking.’

The noun is marked through head marking and the verb and adjective agree with the noun in their marking. Even though they are all marked, this is still considered head marking as there is influence of morphosyntactic properties on a morphosyntactic process. There is a null-to-one relation between the representational level and the morphosyntactic level. Spoken Hebrew is similar to Normative and Early Century Hebrew in this respect. They all display head marking.

Early Century Hebrew	non-transparent
Normative Hebrew	non-transparent
Spoken Hebrew	non-transparent

4.4.6 Morphophonologically conditioned stem alternation – RL-PL

Morphophonologically conditioned stem alternations are phonological alternations to the stem that only apply to particular morphemes and are not phonologically predictable. Morphophonologically conditioned stem alternations are absent from Spoken, Normative and Early Century Hebrew.

Early Century Hebrew	transparent
Normative Hebrew	transparent
Spoken Hebrew	transparent

4.4.7 Morphologically and/or morphophonologically conditioned affix alternation – RL-PL

Like stems, affixes may change by a morphological or morphophonological motivation. Such alternations are non-transparent, since they do not follow from

a pragmatic or semantic motivation but are purely morpho(phono)logically determined. Morphophonologically conditioned affix alternations may occur in situations of conjugation. This happens when affixes change their form depending on the morphological class of the verb stem they attach to. This is non-transparent as the selection of a particular affix is morphologically motivated. Morphophonologically conditioned affix alternations are also possible in situations of declension. Declension is the nominal equivalent of conjugation. Declension is the alternation of an affix on the basis of the morphological class the noun it attaches to belongs to.

Hebrew is a Semitic language and has seven different templates a verb root may be inserted into. These templates are formed from vowel formations and in some also prefixes. The roots contain (typically) three consonants. The templates bear grammatical derivational information, while the root carries the encyclopedic information of the verb. When a root is combined with a morphosyntactic template it becomes a stem. The inflectional information is then added to the stem through suffixation. There are therefore seven different morphological classes a verb stem may take. The inflectional suffixes do not change according to the morphological class (24a). Therefore, Hebrew is transparent with respect to conjugation. Spoken, Normative and Early Century Hebrew all behave in the same manner.

(24) a.

Template	Stem+1SG.PAST affix	Template	Stem+1SG.PAST affix
<i>pa'al</i>	<i>halax-ti</i> walk-1SG.PAST 'I walked/ I went'	<i>hitpa'el</i>	<i>hishta'al-ti</i> cough-1SG.PAST 'I coughed'
<i>pi'el</i>	<i>bikash-ti</i> ask.for-1SG.PAST 'I asked for'	<i>pu'al</i>	<i>bulbal-ti</i> confuse.PASS-1SG.PAST 'I was confused'
<i>hif'il</i>	<i>hirkash-ti</i> feel-1SG.PAST 'I felt'	<i>huf'al</i>	<i>hulbash-ti</i> dress.PASS-1SG.PAST 'I was dressed'
<i>nif'al</i>	<i>nifca-ti</i> injure-1SG.PAST 'I got injured'		

Early Century Hebrew	transparent
Normative Hebrew	transparent
Spoken Hebrew	transparent

Spoken, Normative and Early Century Hebrew do have declension. Hebrew has a grammatical gender system (Section 4.4.1). Each gender class receives a different inflectional affix. For example, male nouns receive the plural suffix –*im* (24b) and female nouns receive the plural marking –*ot* (24c). This is non-transparent as the different classes are not semantically or pragmatically motivated. There is a null-to-one relation between the representational level and the morphosyntactic level.

(24) b. vered → vrad-im
 ‘rose’ ‘roses’

c. xulca → xulc-ot
 ‘shirt’ ‘shirts’

Early Century Hebrew	non-transparent
Normative Hebrew	non-transparent
Spoken Hebrew	non-transparent

Finally, affix alternations may occur only with particular affixes. In such case, different classes of affixes are implied. Hebrew does not have affix classes.

Early Century Hebrew	transparent
Normative Hebrew	transparent
Spoken Hebrew	transparent

4.4.8 Phonologically or phonetically conditioned stem alternation – RL-PL

Phonologically conditioned stem alternation occurs when at least one stem phoneme is altered do to adjacency or near adjacency of a different phoneme. This alternation may be in the form of change of place or manner of articulation, voicing or devoicing, or even deletion or insertion. When the resulting output is a phoneme in the relevant language, we will speak of phonologically conditioned alternation, and when the resulting output is not a phoneme in the language, it will be referred to as a phonetic alternation. Both alternations are non-transparent as they involve formal alternations, i.e. the shape of a phoneme, without having any pragmatic or semantic motivation.

Phonologically or phonetically conditioned stem alternations are abundant in spoken language as the pronunciation of the morphosyntactic representation changes as a result of the need to pronounce different places of articulations and different manners of articulations adjacent to each other in great speed. Hence,

non-surprisingly Spoken Hebrew exhibits both phonologically or phonetically conditioned stem alternations (25ab). As mentioned before, the data from Early Century Hebrew in this study are taken from a written database. Therefore, it is hard to establish if the same alternations we find today in Spoken Hebrew were apparent a hundred years ago.

Phonologically and phonetically conditioned stem alternation do occur in Normative Hebrew. Normative Hebrew shows a pattern of spirantization. The stops /b/, /p/ and /k/ alternate with their fricative counterparts [v], [f] and [x] respectively. They show an allophonic distribution, even though /v/ and /x/ are found as phonemes in the language as well. The fricatives occur postvocally whereas the stops occur elsewhere (Adam 2002). Examples (25ab) show the distribution between the allophones [k] and [x].

- (25) a. **kibes**
do.laundry.3SG.M.PAST
'He did laundry/washed.'
- b. **lexabes**
do.laundry.PERF
'to do laundry/wash.'

There are many exceptions to this distribution due to merges, degemination and borrowing. Hence, the stops may occur in post-vocalic positions and the fricatives in non-post-vocalic positions, unpredictably. Examples (25c) and (25d) show the same realization of the segment regardless of its position in the phonological word. In (25c) the allophone [k] appears at the beginning of the word, not post-vocalically, with accordance to the spirantization distribution. In (25d) the allophone [k] appears unpredictably in a post-vocalic position after the vowel /i/. Notice that all of these non-predictable cases are predictable from the orthography.

- | | |
|--|---|
| (25) c. kara
read.3SG.M.PAST
'He read.' | d. likro
read.PERF
'to read' |
|--|---|

Loan words prove to be exceptions to this distribution as well. For example, the allophone [f] appears in a non-post-vocalic position in the loan noun 'festival' (25e).

- (25) e. festival
'festival'

Spoken and Early Century Hebrew have the same spirantization rule. However, the phonological rule in Spoken Hebrew has become less transparent to speakers and is showing some massive deterioration. Thus, outputs in which [b], [p] and [k] appear in post-vocalic positions and [v], [f] and [x] appear in non-post-vocalic positions are superfluous. For example, the form in (25b) is found in Spoken Hebrew alongside the one in (25f). Different speakers may use different forms, or the variation could also occur less or more frequently within one speaker.

- (25) f. le**k**abes
do.laundry.PERF
'to do laundry/wash'

Not only deterioration of the rule is found in Spoken Hebrew. Hypercorrection is abundant as well. Thus, the form in (25e) is found in Spoken Hebrew alongside the form in (25g). This type of variation is usually found between speakers rather than within one speaker.

- (25) g. pestival
'festival'

Again, as the data in this study of Early Century Hebrew is taken from written, published language, it is hard to establish if the forms found in Spoken Hebrew today were also shared by spoken Early Century Hebrew. Even though many of the examples given above for Spoken Hebrew can be found in written language online or in personal use, it is still not found in established published arenas.

Normative and Early Century Hebrew show non-transparency in this feature, however, Spoken Hebrew shows an even greater degree of non-transparency as a result of the irregular nature of the alternations it allows. Thus, this feature hints to a process that goes in the direction of non-transparency.

Early Century Hebrew	non-transparent
Normative Hebrew	non-transparent
Spoken Hebrew	more non-transparent

4.4.9 *Phonologically conditioned affix alternation – RL-PL*

A complementary phenomenon to phonologically or phonetically conditioned stem alternation is phonologically conditioned affix alternation. These are alternations of grammatical units due to a disallowed adjacency of segments in the language. Such phonologically conditioned alternations are opaque because the output form is determined on the basis of phonological information and does not have any pragmatic or semantic motivation.

Spoken, Normative and Early Century Hebrew do not show any phonologically conditioned affix alternations and are transparent with respect to this feature.

Early Century Hebrew	transparent
Normative Hebrew	transparent
Spoken Hebrew	transparent

5 Summary

This study looked into the question of whether Modern Hebrew is becoming more transparent over time. The results of the study are summarized in Table 1. Normative, Early Century and Spoken Hebrew behave the same way for the vast majority of the features. In a few of the redundancy features and one form-based-form feature a process of increasing in transparency is underway. This process can be seen in the features: multiple expressions of pragmatic information, clausal agreement, phrasal agreement, plural concord in noun phrases containing a numeral, and grammatical gender. In discontinuity and fusion features no change has been noted. Three of the form-based-form features show a process of becoming less transparent. These are nominal expletives, grammatical relations, and phonologically conditioned stem alternation.

Table 1: Comparison of transparency features in Normative Hebrew, Early Century Hebrew, and Spoken Hebrew

<i>Feature</i>	<i>Normative Hebrew</i>	<i>Early Century Hebrew</i>	<i>Spoken Hebrew</i>
Redundancy			
<i>Multiple expression of pragmatic information</i>	mostly transparent	mostly transparent	more transparent
<i>Nominal apposition</i>	non-transparent	non-transparent	non-transparent
<i>Clausal agreement</i>	non-transparent	non-transparent	mostly non-transparent
<i>Cross-reference</i>	N/A	N/A	mostly non-transparent
<i>Phrasal agreement</i>	non-transparent	non-transparent	mostly non-transparent
<i>Plural concord in noun phrases containing a numeral</i>	mostly non-transparent	mostly non-transparent	half non-transparent
<i>Negative concord</i>	non-transparent	non-transparent	non-transparent
<i>Modal concord</i>	transparent	transparent	transparent
<i>Temporal concord</i>	non-transparent	non-transparent	non-transparent
<i>Tense copying</i>	transparent	transparent	transparent
<i>Spatial concord</i>	transparent	transparent	transparent
Discontinuity			
<i>Extraction/extraposition</i>	non-transparent	non-transparent	non-transparent
<i>Raising</i>	non-transparent	non-transparent	non-transparent
<i>Circumfixes</i>	transparent	transparent	transparent
<i>Infixes/ transfixes</i>	non-transparent	non-transparent	non-transparent
<i>Non-parallel alignment</i>	N/A	N/A	non-transparent
Fusion			
<i>Cumulation of TAME and case</i>	transparent	transparent	transparent
<i>Morphologically based stem alternation: suppletion</i>	transparent	transparent	transparent
<i>Morphologically based stem alternation: irregular stem formation</i>	transparent	transparent	transparent

<i>Feature</i>	<i>Normative Hebrew</i>	<i>Early Century Hebrew</i>	<i>Spoken Hebrew</i>
Form-based form			
<i>Grammatical gender</i>	non-transparent	non-transparent	mostly non-transparent
<i>Nominal expletives</i>	N/A	more transparent	mostly transparent
<i>Grammatical relations</i>	non-transparent	more non-transparent	more non-transparent
<i>Complexity determines constituent order / heavy shift</i>	mostly transparent	mostly transparent	mostly transparent
<i>Predominant headmarking</i>	non-transparent	non-transparent	non-transparent
<i>Morphophonologically conditioned stem alternation</i>	transparent	transparent	transparent
<i>Morphologically conditioned affix alternation (conjugation)</i>	transparent	transparent	transparent
<i>Morphologically conditioned affix alternation (declension)</i>	non-transparent	non-transparent	non-transparent
<i>Phonologically conditioned stem alternation</i>	non-transparent	non-transparent	more non-transparent
<i>Phonologically conditioned affix alternation</i>	transparent	transparent	transparent

6 Discussion

The three time periods exhibit similar behavior with regard to most of the transparency features. However, the results also show some differences in behavior between the three time periods. Most of the differences are found for Spoken Hebrew. This could be a result of the nature of the data. The data collected from Early Century Hebrew is from written published language, in which normative forms are retained. All changes in transparency are not absolute, i.e. from opaque to transparent or from transparent to opaque, but rather the change is a matter of the degree of the transparency exhibited.

Leufkens (2015: 141) puts her typological study results in an implicational hierarchy in which the transparency features are aligned. Redundancy features are found at the bottom of the hierarchy, whereas form-based-form features are found at the top. This means that all languages exhibit some form of redundancy, but form-based-form features are only found in languages with higher degree of opacity. The implication of this hierarchy for the current study is that the features at the top of the hierarchy, i.e. form-based-form features, are the most likely to become more transparent if a language is undergoing a process of transparency.

As predicted, a process of Modern Hebrew becoming more transparent was found in some of the transparency features. All but one of these features were redundancy features. This is surprising if we consider that redundancy features appear to be the most resistant to processes of transparency according to the implicational hierarchy that is found cross-linguistically (Leufkens 2015). This implicational hierarchy shows that highly transparent languages typically exhibit opaqueness only in cases of redundancy. Therefore, we would expect those to be the last to undergo a process of transparency, unlike what the study has found for Modern Hebrew.

The one remaining feature that showed increase in transparency was a form-based-form feature, namely, grammatical gender. Unlike redundancy features, this feature is expected to become more transparent with contact, as it is cross-linguistically found only in highly opaque languages. If a language is undergoing a process of increase in transparency, features so high up in the implicational hierarchy, such as this, are expected to be the first to lead the way.

I will now explain in detail all the features that show a higher degree of transparency in Spoken Hebrew. The first is multiple expression of pragmatic information. Normative Hebrew is already quite transparent with respect to this feature, with the exception of a question word. Whereas this question word is obligatory in Normative Hebrew, it is mostly omitted in Spoken Hebrew and questions are marked purely with intonation. The question word is mostly used in Spoken Hebrew for the addition of pragmatic information, such as emphasis of a question. Thus, this feature behaves in accordance with the prediction of Spoken Hebrew being more transparent than Normative Hebrew.

The next feature that shows a higher degree of transparency in Spoken Hebrew is clausal agreement. Whereas it is completely non-transparent in Normative Hebrew and Early Century Hebrew, Spoken Hebrew shows a slightly different pattern. Spoken Hebrew is still mostly non-transparent since it is not more lax in its agreement requirements. However, it is slightly more transparent than Normative and Early Century Hebrew. The transparency comes from a residue from the grammatical gender distinction becoming more transparent.

The loss of the grammatical gender is what creates a mismatch in the clausal agreement.

The next two features that increase in transparency are phrasal agreement and plural concord in noun phrases containing a numeral. Again, Spoken Hebrew mostly retains the demand for phrasal agreement with the exception of number phrases. In both features, number phrases can be uttered with no agreement between the head noun and the numeral. The phrase may also have partial agreement, only in number or only in gender.

The next feature is grammatical gender. It is a form-based-form feature and is considered to appear only in the most opaque languages (Leufkens 2015). There is ample evidence for the learnability difficulty of this feature (Slobin 1977; Blom et al. 2008; Omar 1973; among others). As Modern Hebrew is a language with many L2 learners, it is not surprising that such a highly syntacticized feature is becoming more transparent. Many of the other features that are becoming more transparent can be said to follow this feature. Clausal agreement is becoming more transparent only as a result of the loss of grammatical gender, and the other two features, i.e. phrasal agreement and plural concord in number phrases, are losing the agreement in gender (as well as in number). Thus, the redundancy features' increase in transparency can be attributed to the increase in transparency of the grammatical gender.

There are also a few features that show the opposing pattern and are becoming less transparent in Spoken Hebrew. The first is nominal expletives. Spoken Hebrew and Early Century Hebrew are both relatively transparent with regard to this feature. They both allow for expletives that have a morphosyntactic referent in the form of a relative clause. Spoken Hebrew is less-transparent than Early Century Hebrew, however, as it also optionally allows for an expletive with no morphosyntactic referent. This is surprising as languages that are under contact are expected to become more transparent. However, it is worth to look at this feature in the languages that come in contact with Spoken Hebrew. It might be the case that big groups of learners overgeneralize the morphosyntactic referential expletive due to transfer from their L1.

The next feature that shows a process of opacity is grammatical relations, or syntactic function subject. Spoken and Early Century Hebrew are non-transparent as the relations between the predicate and the argument stem from the argument's syntactic function, i.e. subject, and not from its semantic role. However, Normative Hebrew can make a distinction between unaccusative predicates and unergative predicates, allowing for post-verbal subjects with unaccusative verbs. This distinction seems to be lost in Early Century Hebrew, with examples of post-verbal subjects with unergative predicates as well, and Spoken Hebrew where post-verbal predicates are almost or completely missing.

This could be a result of simplification – only using the default order in the language, SVO. Therefore, because the feature is mostly non-transparent to begin with, the loss of the distinction can be considered as a regularization due to contact.

The last feature that shows a higher degree of opacity in Spoken Hebrew is phonologically conditioned stem alternations. This process can be explained historically. Normative Hebrew is opaque with regard to this feature. There is a clear predictable rule for phonologically conditioned stem alternations in Hebrew that comes from Biblical Hebrew. Biblical Hebrew has a larger consonant pool than Modern Hebrew. In Modern Hebrew, many of the consonant distinctions have been lost, leaving a situation of overlap between phonemes. Thus, the phonetically conditioned rule in Biblical Hebrew became a phonologically conditioned rule in Normative Hebrew. As this rule is not predictable from the phonetics, only from the orthography, the regularity of the rule became non-transparent to learners (both L2 and L1 learners). Therefore, even though Spoken Hebrew retains the rule to some extent (as apparent from speakers' overgeneralizations of it and hypercorrections), it is highly degraded and irregular, and therefore more opaque. This process of becoming more opaque could be a middle step in the way of the rule collapsing altogether. It is plausible that this phonological rule is in the midst of disappearing from Modern Hebrew and thus becoming more transparent. Therefore, even though there is a process of loss of transparency now, the overall trend is for this feature to become more transparent with time.

In conclusion, it seems that Modern Hebrew is becoming more transparent over time due to the influence of language contact, as predicted. Some features show an opposite trend, but that might be only a mid-way step for those non-transparent features' disappearance from the language all together. These are all features that are non-transparent in Normative Hebrew. Leufkens (2015: 46) claims that there might be a limit to the degree of non-transparency after which the feature is no longer learnable and a process of transparency will take place. I predict the same future for these three features in Modern Hebrew.

References

- Adam, G. 2002. *From Variable to Optimal Grammar*. PhD dissertation, Tel-Aviv University.
- Bauer, L. 2003. *Introducing Linguistic Morphology* (2nd edition). Edinburgh: Edinburgh University Press.
- Blom, E., D. Polińska & F. Weerman. 2008. Articles, adjectives and age of onset: The acquisition of Dutch grammatical gender. *Second Language Research* 24: 297–331.

- Borer, H. & Y. Grodzinsky. 1986. Syntactic cliticization and lexical cliticization: the case of Hebrew dative clitics. In H. Borer (ed.), *The Syntax of Pronominal Clitics: Syntax and Semantics* 19. New York: Academic Press, 175–217.
- Dekel, N. 2014. *Colloquial Israeli Hebrew. A Corpus-based Survey*. Berlin: De Gruyter Mouton.
- Doron, E. 2003. Agency and Voice: the semantics of the Semitic templates. *Natural Language Semantics* 11: 1–67.
- Hawkins, J.A. 1990. A parsing theory of word order universals. *Linguistic Inquiry* 21(2): 223–261.
- Hengeveld, K. 2011a. Introduction: Transparency in Functional Discourse Grammar. *Linguistics in Amsterdam* 4(2): 1–22.
- Hengeveld, K. 2011b. Epilogue: Degrees of transparency. *Linguistics in Amsterdam* 4(2): 110–114.
- Keizer, E. 2005. The discourse function of close appositions. *Neophilologus* 89: 447–467.
- Lefebvre, C. 2001. On the semantic opacity of creole languages. *Journal of Pidgin and Creole Languages* 16: 321–353.
- Leufkens, S. 2015. *Transparency in Language: A Typological Study*. PhD dissertation, University of Amsterdam. Utrecht: LOT.
- Leufkens, S. 2013. The transparency of creoles. *Journal of Pidgin and Creole Languages* 28(2): 323–362.
- Omar, M. 1973. *The Acquisition of Egyptian Arabic as a Native Language*. The Hague: Mouton.
- Slobin, D.I. 1977. Language change in childhood and history. In J. Macnamara (ed.), *Language Learning and Language Thought*. New York: Academic Press, 185–214.
- Steele, S. 1978. Word order variation: a typological study. In J.H. Greenberg, C.A. Ferguson & E.A. Moravcsik (eds.), *Universals of Human Language. Vol. IV: Syntax*. Stanford: Stanford University Press, 585–624.
- Zeijlstra, H. 2007a. Negation in natural language: On the form and meaning of negative elements. *Language and Linguistics Compass* 1(5): 498–518.
- Zeijlstra, H. 2007b. Modal concord. In T. Friedman & M. Gibson (eds.), *Proceedings of SALT XVII*. Ithaca, NY: Cornell University, 317–332.
- Zuckermann, G. 2006. A new vision for Israeli Hebrew: Theoretical and practical implications of analysing Israel's main language as a semi-engineered Semito-European hybrid language. *Journal of Modern Jewish Studies* 5(1): 57–71.

Web resources:

ICBS: Statistical Abstract of Israel 2015 (accessed June 2016):
www.cbs.gov.il/reader/shnaton/shnatone_new.htm

The Academy of the Hebrew Language (accessed June 2016):
hebrew-academy.huji.ac.il/English/AboutTheAcademy/Pages/default.aspx

The National Library of Israel (accessed June 2016):

jpress.org.il/Olive/APA/NLI_heb/?action=tab&tab=browse&pub=HZV#panel=browse

Nour Efrat-Kowalsky
University of Amsterdam
noorefrat@gmail.com