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PREFACE

As far as is known, all languages have ways of expressing modality, i.e., notions of possibility, necessity, contingency, etc. But this pervasive phenomenon has so far been the object of little systematic linguistic analysis. In fact, investigators do not even agree on the scope of the term modality. Very roughly speaking, two kinds of modality have been distinguished, namely epistemic and deontic. The former involves the speaker's judgment as to the degree of certainty of an event or state of affairs being referred to. Deontic modality, on the other hand, has to do with such notions as obligation, permissibility and necessity. However, as useful as this distinction is, little is known so far concerning the linguistic patterns which express those ideas. It is clear that the modality systems of a great many languages will need to be thoroughly scrutinized and compared before any conclusions can be drawn as to their place in 'universal grammar.'

The papers included in this volume of the Kansas Working Papers in Linguistics were written by graduate students at the University of Kansas for a seminar on modality taught by Professor Choon-Kyu Oh in the spring of 1979. They deal with a variety of topics bearing on modality and with a variety of languages and language families. It is our hope that these papers will stimulate comments from colleagues at other institutions.

The Editors

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MODALITY IN MODERN HEBREW: A Preliminary Attempt
To Account for Epistemic and Deontic Interpretations

Esther Dromi

Abstract: Several aspects of the modality system in Modern Hebrew are examined. In general, Hebrew modal expressions are found to be unambiguous as to epistemic and deontic interpretations. The behavior of modal expressions with respect to a number of syntactic categories and constructions is also examined. It is proposed that future investigation focus on the complex morphological structure of the lexical forms expressing notions of Hebrew modality.

Introduction

The purpose of this paper is to examine the modality system in Modern Hebrew. Rather than attempt an exhaustive analysis of Hebrew modality, the following will focus on a number of the major characteristics of that system. Hebrew modality, as far as I know, has not been studied systematically, and for this reason, all of the examples and discussion notes to follow are based on my own intuitions as a native Israeli-Hebrew speaker.¹

Hebrew utilizes a very distinct modality system in which most modal expressions are not ambiguous between epistemic and deontic interpretations. Therefore, the epistemic and deontic categories of Hebrew will be discussed in separate sections of this paper. For each modal category various expressions will be presented ranging in intensity from possibility to certainty for epistemic modality and from permission to obligation for deontic modality. After discussion of the different devices by which Hebrew expresses modality, various syntactic categories and syntactic constructions, such as negation, questions and tense will be examined with special reference to their behavior within the modality system.

Epistemic Modals in Hebrew

Epistemic modals in Hebrew express one of three core notions: possibility, probability and certainty. As is indicated below, alternative terms are available to express the same modal notion. In the following chart epistemic modal expressions along with a literal gloss and grammatical classification are presented.

(1) <u>possibility</u>	<u>probability</u>	<u>certainty</u>
<u>uli</u> (adv) 'perhaps'	<u>kanir?e</u> (sent. pred) as seems	<u>betax</u> (adv) 'securely/certainly'
<u>yitaxen</u> (sent. pred) 'likely/feasible'	'apparently' <u>karov le-vadai</u> (adv)	<u>batuax</u> (adj) sure;secure
<u>efšar</u> (sent. pred) 'maybe/perhaps'	near to certainty 'almost certain'	'assured/certain'
<u>yaxol lihiot</u> *(VP) able to be 'perhaps/maybe'	<u>tsarix lihiot</u> *(VP) need to be 'probably'	<u>Vadai be-vadai</u> (adv) certain; in certain 'most certainly'
		<u>muxrax lihiot</u> *(AP, VP)
		<u>xaiav lihiot</u> is obliged to be 'must happen/ bound to happen'

*asterik forms are the epistemic/deontic ambiguous expression

Most expressions with an epistemic interpretation in Hebrew have no deontic interpretation, as one might expect from other languages. Only expressions that can be represented as

[verb
pred. adj. + lihiot]

are ambiguous as to a deontic or epistemic interpretation. For example, ambiguity will occur when a modal expression takes one of the following complements: NP, AP, or Locative.²

- (2) a. dan yaxol lihiot ba-bait
Dan modal to be at home
'It is possible that Dan is at home' and
'Dan is permitted to be at home'
- b. dan yaxol lihiot recini
Dan modal to be serious
'It is possible that Dan is serious' and
'Dan is permitted to be serious'
- c. dan yaxol lihiot student
Dan modal to be a student
'It is possible that Dan is a student' and
'Dan is permitted to be a student'
- d. dan tsarix lihiot ba-bait
Dan modal to be at home
'It is probably the case that Dan is at home' and

'Dan is obliged to be at home'

- e. dan muxrax lihiot student
 xaiav
 modal to be a student
 'Dan is certainly a student' and
 'Dan is under a strong obligation to be a student'

It is true for Hebrew, as for English and other Languages (Steele, (1975), that epistemic/deontic ambiguity shows a systematic and predictable relationship. As was argued by Horn (in Steele (1975)), a possibility reading relates to permission in the same way as a probability reading relates to weak obligation and a certainty reading relates to a strong requirement.

In Hebrew, adjectives, adverbs and sentential predicates function as pure epistemic modals. The distinction between adverbs and other form classes is manifested in terms of word order. The class of adverbials shows a relatively free or floating position within the simple sentence construction.

- (3) Uli dan oved ; dan vuli oved ; dan oved uli
 modal Dan work/is working modal modal modal
 'It is possible that Dan works'

Other modality terms, besides adverbs, always appear in the initial position of a construction such that the modal precedes the proposition which it modifies.

- (4) a. yitaxen še- dan oved
 yaxol lihiot
 efšar
 modal that Dan work/is working
 'It is possibly the case that Dan is working'
- b. kanir?e še- dan ba-bait²
 batuax
 modal that Dan at home
 'It is probably/certainly the case that Dan is at home'

An initially ambiguous modal expression after application of the syntactic device of sentence preposing, and subsequent treatment of the expression as a sentential predicate, is disambiguated and becomes a pure epistemic modal. For example, yaxol in noninitial position gives rise to an ambiguous construction.

- (5) a. dan yaxol lihiot ba-bait
 modal to be at home
 'It is possible that Dan is at home' and
 'Dan is permitted to be at home'

But with yaxol in initial position, the ambiguity is lost.

- b. yaxol lihiot še-dani ba-bait
 modal to be that at home
 'It is possible that Dan is at home'

Deontic Modals in Modern Hebrew

In the traditional view of Hebrew grammar two deontic modal expressions are discussed: yaxol (v) which corresponds to the English 'may' 'can' and 'able to,' and tsarix (v) which corresponds to the English 'must,' 'need,' 'should' and 'have to.' As in other languages (Lakoff (1972), these two modal verbs in Hebrew manifest syntactic and semantic irregularities. Both verbs lack an infinitive form, which in Hebrew is naturally included within the system of verb inflections. Yaxol is conjugated according to a "defective" declension, and tsarix is irregular in the sense of belonging to a group of verbs for which the morphological pattern marker and the initial consonant exchange positions.^{3,4}

The Hebrew modal verbs yaxol and tsarix express the deontic concepts of permission and obligation respectively.

- (6) a. hu yaxol lalexet
 he modal to go
 'He is permitted to go'
- b. ata yaxol likro
 you modal to read
 'You are permitted to read'
- c. ata tsarix lalexet
 you modal to go
 'You are required to go'

Note here that when a modal takes an infinitive complement other than 'to be' we get a pure deontic interpretation. Compare examples (6) and (2).

Within the deontic domain, yaxol is ambiguous between interpretations of permission and ability/capability.⁵

- (7) a. hu yaxol lilmod refu'a
 he modal to study medicine
 'He is permitted to study medicine' and
 'He is able/capable to study medicine'
- b. ata yaxol levaker otanu
 modal to visit us
 'You are permitted to visit us' and
 'You are able to visit us'

The notions of permission and ability can also be expressed by means of one of the following predicate adjectives: mesugal and mutar. Mesugal corresponds to the English expression "is able to."

- (8) a. hu mesugal lalexet
 he modal to go
 'He is able to go'
- b. hu mesugal lilmod refu?a
 modal to study medicine
 'He is able/capable to study medicine'

The two examples in (8) seem superficially identical to the examples in (6) and (7), but they do appear to have distinct underlying representations. The sentences in (6) and (7) are "complete" sentences (S-V-O) while the sentences in (8) are copula constructions. A construction indicating the future will demonstrate the distinction.

- (9) a. hu yuxal lalexet
 he modal future to go
 'He will be able to go'
- b. hu yihie mesugal lelexet
 he to be future modal to go
 'He will be able to go'

The other predicate adjective, mutar, corresponds to the English expression 'is permitted'.

- (10) a. mutar le-dani lalexet
 modal to dani to go
 'Dani is permitted to go'
- b. mutar lo lilmod refu?a
 modal him(dat) to study medicine
 'He is permitted to study medicine'

The examples in (10) are syntactically similar to the epistemic modal constructions discussed in the previous section. But here, the deontic modal expression appears in initial position and precedes the proposition it modifies. In (10) the originator of the permission is not identified as the subject of the main clause.

The deontic notion of obligation, as already shown, is expressed by the verb form tsarix. The notion of obligation in addition is expressed in Modern Hebrew by the predicate adjectives xayar and muxrax each conveying different degrees of strong obligation. These two expressions of obligation, in combination with the verb tsarix, can be ordered with respect to the internal intensity of their obligation.

(11)	<u>modal</u>	<u>deontic interpretation</u>
	<u>tsarix</u>	requirement
	<u>muxrax</u>	weak obligation
	<u>xayav</u>	strong obligation

- (12) a. hu tsarix lakum mukdam
 he modal to wake up early
 'He needs to get up early'
- b. hu muxrax lakum mukdam
 modal to wake up early
 'He is forced to get up early'
- c. hu xayar lakum mukdam
 modal to wake up early
 'He is under a strong obligation to get up early'

Independent evidence for this ordering is the use of the three obligation expressions in contexts where they function as main verbs.

- (13) a. ani tsarix kesef
 'I need money'
- b. ani muxrax kesef
 'I (desperately) need money'
- c. ani xayav kesef⁶
 'I owe money'

Grammatical Categories

The modal system in Modern Hebrew consists of verbal as well as nominal constructions. In comparison to English, which uses quite a number of verbal auxiliaries to express modality notions, (Lakoff, 1972), Hebrew utilizes only two verbal expressions that in traditional grammar are considered to be auxiliary verbs. Most epistemic concepts are expressed by adverbs, some modify the main verb and some modify the whole sentence. In addition, though, predicate adjectives are used to express both epistemic and deontic concepts. Two frequent complements of modal terms in Hebrew take the form of infinitival phrases and embedded sentences marked by še- 'that'.

- (14) a. dani yaxol (v) la'avod ba-bait
 modal to work at home
- b. dani xayav (adj) lilmod ?ivrit
 modal to study Hebrew
- c. dani xuyav (v) lilmod ?ivrit
 modal to study Hebrew

- d. yitaxen [✓]še- dani xole
 modal that Dani is sick
- e. mutar le-dani likro sefer?⁷
 modal to Dani to read (a) book

Negation

Sentence negation in Hebrew is formed by the adjunction of a negative marker lo before the main verb of a dominating or an embedded sentence. With present tense sentences, sometimes a special negative marker ?eyn is used both in an initial position or following the subject of the sentence. When ?eyn follows the subject it is always pronominalized.

- (15) a. dan lo oved po
 negative marker work(M) here
 'Dan is not working here'
- b. ?eyn dan oved po
 negative marker work(M) here
 'Dan is not working here'
- c. dan ?eyno oved po
 negative +pro work(M) here
 'Dan is not working here'
- d. rina ?eyna ovedet po
 negative marker work(F) here
 + pro
 'Rina is not working here'

In copula constructions in present tense ("nominal sentences"), lo or ?eyn [+pro] are inserted between the subject and the predicate.

- (16) a. dan lo po
 negative here
 'Dan is not here'
- b. dan ?eyno po
 negative +pro here
 'Dan is not here'

The basic negative marker lo alternates with al in imperative sentences and with ?iy- in "derived" nominal constructions.

- (17) a. al tilmad ?ivrit
 negative study Hebrew
 'Don't study Hebrew!'

- b. ?yi- kabalat hamixtav hirciza et dan
 negative acceptance the letter irritate(past) acc. Dan
 'The fact that the letter never arrived irritated Dan'

Berman (1978) argued that the prefix ?iy- indicates an underlying negative sentence for the "derived" nominal.

Two types of semantic negation are possible for all modal expressions in Hebrew:

- (i) External negation - here the modal operator itself is negated ($\sim \square P$ or $\sim \square \sim P$).
 (ii) Internal negation - here the proposition is negated ($\square \sim P$ or $\square \sim \sim P$).

External negation in Hebrew takes the form (negative + modal)

- (18) a. lo yitaxen še- dani xole
 negative modal that dani (is) sick
 b. dani lo yaxol lihiot xole
 negative modal (is) sick
 'Dani can not be sick'
 c. hu lo mesugal lalexet
 he negative modal to go
 'He is not able to go'
 d. hu lo xayav lilmod ?ivrit
 negative modal to study Hebrew
 'He is not obliged to study Hebrew'

Only the epistemic modal efšar is negated by the prefix ?iy-.

- (19) ?iy- efšar še hayom yom šiši
 negative modal that the day day six
 'It is impossible that today is Friday'
?iy- efšar lalexet ?axšav
 negative modal to go now
 'It is impossible to go now'

The epistemic modal uli 'perhaps' does not accept the common syntactic form of negation. The term uli can only be negated semantically by the epistemic modal betax 'certainly'.

- (20) a. uli hu oved
 modal he work/is working
 'Is it possible that he works'

*b. lo uli hu oved

- c. betax hu oved
 modal he work/working
 'It is certain that he works'

Not accepting the common form of negation is also true for the deontic modal mutar 'is permitted', which is semantically negated by the negative modal asur 'is forbidden.'

- (21) a. mutar le- dani likro
 modal to dani to read
 'Dan is permitted to read'
 *b. lo mutar le-dani likro
 c. asur ledani likro
 modal to dani to read
 'Dani is not permitted to read'

Internal negation, negating the proposition, takes the general syntactic form of [modal + neg + VP] within the modality system.

- (22) a. uli hu lo oved
 modal negative work/is working
 'Perhaps he is not working'
 b. dani vadai lo ba-bait
 modal negative at home
 'Dani probably is not at home'
 c. mutar le-dani lo likro
 to dani negative to read
 'Dani is permitted not to read'

Formation of Questions

Yes-No questions in Hebrew are formed by changing the intonation pattern (rising intonation implies a question). Wh-questions are formed by introducing a question word in the initial position of a simple declarative sentence (no change in word-order is necessary).

- (23) a. hu lomed ba-bait
 'he studies at home'
 b. hu lomed ba-bait?
 'does he study at home'
 c. eifo hu lomed?
 'Where does he study?'
 d. mi lomed ba-bait?
 'Who is studying at home?'

Information seeking questions in Modern Hebrew are formed with all of the epistemic and deontic modals.

- (24) a. uli hu oved?
 modal he work
 'Perhaps he is working'
- b. batuax se rina yešena?
 modal that rina is sleeping
 'Is it certain that Rina is sleeping?'
- c. Ha'im tsarix la'avod axsav?
 quest modal to work now
 'Is it necessary to work now?'
- d. mutar le'ašen po?
 modal to smoke here
 'Is it permitted to smoke here?'

Past and Future - Interaction with Tense

Modern Hebrew manifests a three-way tense system. The morphological forms for past tense in Modern Hebrew are similar to the Biblical Hebrew perfective aspect. Future tense forms are similar to the Imperfect aspect in Biblical Hebrew. Present tense or Beynoni 'intermediate' forms refer to an indetermined time span, which is neither past nor future. Additionally, aspectual categories such as durative or perfective have no clear manifestation in verbal forms and they are expressed by the use of time adverbials, (Berman, 1978). In order to indicate past or future tense for a sentence, regular main verbs are inflected. The verb (g-m-r + morphological pattern "kal") has the following forms:

- (25) a. (ani) gamarti lilmod
 I finish(past) study
- b. ani gomer lilmod
 I finish(present) to study
- c. (ani) ?egmor lilmod
 I finish(future)to study

Note that obligatory marking of person is needed only for present tense forms, since past and future forms are inflected according to number, gender and person.

In addition to main verb constructions, tense is manifested in copula constructions. Copula constructions share the surface property of having no overt manifestation of the verb in present tense (nominal sentences), and of having some form of the copula h-Y-Y 'to be' in past

or future.

- (26) a. hu yeled tov
 he boy good
 'He is a good boy'
- b. hu haya yeled tov
 was
 'He was a good boy'
- c. hu yihye yeled tov
 'He will be a good boy'

In Hebrew, as in other languages, epistemic expressions which are based on the current knowledge of the speaker do not have past or future forms. Thus the only interaction between epistemic modals and tense takes the form of making the proposition itself past or future.

- (27) a. kanir?e ^vse dani oved
 modal that Dan work/is working
- b. kanir?e ^vse dani ya'avod
 modal that Dan work(future)
- c. hu betax xole
 he modal sick
- d. hu betax haya xole
 he modal be(past) sick

Deontic modals in Modern Hebrew, on the other hand, do have past and future forms. In Modern Hebrew, the future marker functions as a pure tense marker; it does not convey any modality notions. Here consideration must be given to the class of verbs and other form classes as well. Verb forms accept explicit past and future forms, while nominals accept the form [copula + modal]. In nominal constructions the copula is conjugated to indicate tense.

- (28) a. ani yaxol lilmod
 I modal to study
- b. (ani) yaxolti lilmod
 I modal past to study
- c. (ani) ?uxal lilmod
 I modal(future) to study
 'I am/was/will be permitted to study'

- d. ani tsarix lalexet
I modal to go
- e. (ani) hitstaraxti lalexet
I modal (past) to go
- f. (ani) ?tstarex lalexet
modal(future)
'I have to/had to/ will have to go'
- g. ani mesugal likro
I modal to read
- h. (ani) hayiti mesugal likro
I be past modal to read
- i. (ani) ?eheye mesugal likro
be(future) modal
'I am/was/will be able to read'
- j. (ani) xayav lišon
I modal to sleep
- k. (ani) hayiti xayar lišon
I be past modal to sleep
- l. (ani) ?eheye xayav lišon
be(future) modal
'I have/had/will have a strong obligation to sleep'

So far no irregularities in the tense system have been encountered, but more investigation is needed in order to test the role of tense in the modality system. In colloquial Hebrew regular past and future conjugations of modal verbs are used interchangeably with [Cop + present] verb forms.

- (29) a. (ani) hitstaraxti lalexet
I modal past to go
- b. (ani) hayiti tsarix lalexet
be past modal to go
'I have had to go'
- c. yaxolta lilmod ?ivrit
modal(past) to study Hebrew
- d. hayita yaxol lilmod ?vrit
be(past) modal
'You could have studied Hebrew'

Both forms are used widely and considered to be grammatical and identical in meaning. Berman(1978) has argued that there is a general tendency among Hebrew speakers to prefer periphrastic analytic forms to the older more normative verbal forms. This might explain the high frequency of [Cop + present] in the modality system. Moreover, the fact that non-verbal forms such as mutar, mesugal, muxrax, xayav, can accept verbal forms such as matir, maxriax, mexuyav, makes it possible to use verbal forms in past and future constructions rather than in [Cop + modal] constructions.

- (30) a. 1. hu haya muxrax la'avod
 be(past) modal to work
 'He needed to work'
2. hu huxrax (V) la'avod
 modal(past) to work
 '(somebody) forced him to work'
- b. 1. ani hayiti xayav li^vson
 I be(past) modal to sleep
 'I needed to sleep'
2. ani xuyavti (V) li^vson
 I modal(pass) to sleep
 '(somebody) forced me to sleep'
- c. 1. haya mutar lexa lehikanes
 be(past) modal to you to come in
 'You could come in'
2. hutar (V) lexa lehikanes
 modal(pass) to you to come in
 '(somebody) let you in'

The (1) and (2) sentences above are not identical in meaning. For each pair the verbal form in (2) makes it clear that the permission or the obligation is extrinsic and has been imposed by someone on the speaker. (Compare Newmeyer, 1970). The fact that all Hebrew "open class" lexical items share the same general form, [consonantal root + morphological pattern], makes any analysis much more complicated. In Hebrew very often verbs, nouns, and adjectives are derived from the same consonantal root and so convey a very similar meaning. This aspect of the Hebrew modality system deserves further investigation.

In sum, several aspects of the modality system in Modern Hebrew have been discussed. It has been suggested that both epistemic and deontic categories of meaning are in general unambiguously expressed. The instances of ambiguity that do occur have been explained on the basis of structural evidence. An attempt also has been made to look at the syntactic constructions of negation, questions and tense within the

modality system. Further analysis of the lexical forms expressing modality in Hebrew is hampered by a complex morphological structure and it is therefore proposed that future investigation accept this complex structure as a starting point.

Footnotes

1 As argued in Givon (1976), it is quite difficult to define what is a native Israeli dialect. Most Hebrew speakers have been raised in a multi-dialect environment, and then have been exposed to a wide variety of Biblical, Mishnaic, Talmudic, Aramic and East European Hebrew texts. A lot of formal teaching of Hebrew morphology and syntax is taking place in school programs. For these reasons it is extremely difficult to elicit reliable information concerning native intuition (Berman, 1978). As for my own dialect both my parents were native Israelis, and Hebrew was the only language spoken at home. Hebrew also was the first language of instruction at school from first grade through graduate level education.

2 When the modal + to be takes a V complement we get an ungrammatical expression. *dan tsarix lihiot oved
 Dan modal to be work/working
 'It is probably the case that Dan is working'

However, there are some verbs that take NP, AP, locative and VP in present tense as complements. For example: dan haya Omed
 be/past stand/standing

For a comprehensive discussion of copula constructions see Berman (1978), chapters 5 and 6.

3 All Hebrew verbs manifest a rich system of inflectional affixes. Verbs are conjugated according to Tense, Number, Gender, and Person. Any verb is classified as belonging to a "full" or "defective" declension. The "defective" verbs go through several irregularities in terms of their consonantal structure. These irregularities are usually explained by morphophonemic rules. All Hebrew verbs are based on a combination of (Consonantal Root + Morphological Pattern). The function of the morphological patterns 'bynianim constructions,' is to express for each verbal root syntactic processes such as transitivity, causativeness, inchoativeness, ingression, reflexivity and reciprocity (a detailed analysis of the Hebrew verbal system is in Berman (1978), chapter 3).

4 For simplicity all the verbs in this paper will take the form (Present, singular, masculine, 3rd person) unless there is a point in looking at other forms. For each verb only one 'construction' will be presented, usually the basic bynian, unless otherwise specified.

5 Ability and capacity both in physical and mental senses.

6 In several contexts xayav is used to denote guilt. For example:

(i) hu xayav badim
'He is guilty'

(ii) hu xayav mita
he guilty death
'He deserves death'

xayav has a strong implication that 'there is no other way'...

7 Examples (15) and (15e) are irregular in terms of being (S)VO sentences. This aspect of Hebrew syntax is currently being studied by Berman (personal communication). As noted by her, in colloquial use some speakers supply the demonstrative ze 'this' as a substitute for the "missing" subject. Thus:

(i) yitaxen še- dani xole ~ ze yitaxen še- dani xole
modal that Dan(is) sick this modal that Dan is sick

The investigation of this process is beyond the scope of this paper and requires further exploration.

8 Note here that regular main verbs do not take [Cop + V] forms

(i) ani halaxti lišon but
I went to sleep

*(ii) ani hayiti holex lišon
I be past go to sleep

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