The Crosslinguistic Realization of -*Ever*:
Evidence from Modern Hebrew

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In this paper I argue that the negative marker *lo* in Modern Hebrew surfaces in two environments, free relatives and until-clauses, in which its contribution is not that of standard negation, but rather parallels the -*ever* morpheme familiar from English. First, I establish that existing approaches to similar cases of expletive negation in other languages cannot account for the Hebrew data. I then analyze the function of *lo* in the abovementioned environments using von Fintel's (2000) semantics for *whatever*, demonstrating that it realizes the semantic primitive von Fintel labels the "presupposition of variation" and extending the presupposition to the temporal domain. Apparent exclamatives involving the negative marker are discussed, and it is shown that these are actually negative rhetorical questions functioning as exclamatives in terms of their illocutionary force. Finally, I address the crosslinguistic validity of the analysis, as well as lingering questions regarding the distribution of expletive negation in Modern Hebrew and broader theoretical issues raised by the formalization employed in the paper.

1 Introduction

Although the phenomenon of free choice was discussed already by Vendler (1967), who coined the term in his description of English *any*, only in the past few years has research in formal semantics begun examining the questions and issues this phenomenon raises in specific languages, as well as from a crosslinguistic, comparative perspective. Moreover, despite much current work on the topic, which addresses both the lexical semantics of free choice items and their distribution, at times attempting to associate the two (e.g., Giannakidou 2001), there is no consensus regarding the proper definition of the phenomenon (see Vlachou 2007 for a recent overview; Hofmeister 2004 for one such definition).

This paper brings forth and analyzes novel data from Modern Hebrew (hereafter: Hebrew) which further broadens our knowledge of how free choice can be realized and in what environments it can appear. While I will not resolve the overarching theoretical issues noted in the literature, the type of detailed, language-specific analysis provided here is arguably a prerequisite for dealing with these issues. Specifically, I argue that the semantic primitive encoded in the English free choice morpheme -*ever* can be realized via the negative marker of a language. That is, rather than contributing negative force, the negative marker in

Hebrew free relatives (FRs) and until-clauses is a free choice item equivalent to *-ever*. The proposed analysis thus ties in another topic which has garnered much attention in the literature and which has not been associated with free choice until now, namely, expletive negation (EN)[1]: the occurrence of a negative marker without apparent negative force (see Horn 1978 and van der Wouden 1994 for crosslinguistic surveys). Work on this topic has suggested various explanations for the existence of supposedly vacuous negation, primarily taking into account its distributional properties. By associating EN and free choice, I offer a novel point of view regarding the question of whether the negative marker of a language may have a non-negative meaning, what this meaning could be, and how this state of affairs could come about. In doing so, I also address the key issue of the extent of crosslinguistic variation in the semantic component, and in particular, differences between languages in the division of labor between form and function.

The paper is organized as follows: in section 2 I introduce the relevant data and observations which the analysis aims to account for. Section 3 subsequently establishes that the phenomenon of EN in Hebrew, where the negative marker seems to lack negative force, cannot be explained through existing accounts for other languages. Given that it carries semantic content, EN in Hebrew cannot be analyzed as an identity function, while its semantic import and unique prosodic status suggest that it cannot be reduced to standard negation, as some accounts would have. In section 4 I maintain that Hebrew EN in fact corresponds to English *-ever*, and formalize this observation by applying von Fintel's (2000) analysis of English *whatever* to EN in Hebrew, both in FRs and until-clauses. The proposed approach illustrates the extent to which a given semantic primitive can vary in terms of its crosslinguistic realization, i.e., the morpheme *-ever* in English, the negative marker in Hebrew, and possibly subjunctive mood in Polish and Russian (Citko 2001). Moreover, although the distribution and behavior of EN seems to differ from language to language, and even within a given language there may be more than one subtype of EN (see, e.g., Citko 2001), this new analysis of EN justifies a reexamination of accounts provided for other cases. In section 5 I argue that the analysis is not, however, applicable to all environments in Hebrew where the negative marker seems to lack negative force. Specifically, I claim that apparent exclamatives involving the negative marker are negative rhetorical questions functioning as exclamatives in terms of their illocutionary force. Accordingly, the negative marker in these forms does in fact serve its conventional function. Finally, in section 6 I address the diachronic aspects of this account and suggest possible historical trajectories for the development of a free choice function in a negative marker. I also discuss lingering questions concerning the distribution of EN in Hebrew and broader theoretical issues raised by the formalization employed in the paper.

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[1] Other names found in the literature include pleonastic, redundant and paratactic negation. The latter term is used by van der Wouden (1994) and Zeijlstra (2004), a.o., since they consider this a special type of concord relation. However, such an analysis is not tenable for Hebrew (see below).

2 Expletive negation in Hebrew

The phenomenon of EN, in which a negative marker occurs without apparent negative force, is quite common across the languages of the world. However, the set of environments in which it is possible is nonetheless restricted, and different languages choose different subsets thereof. Thus, we can find EN after "negative verbs" (e.g., *fear*, *prevent*, *doubt*), *barely*, *almost*, *before*, *until*, *without* and *unless*, in comparative constructions, exclamatives and FRs, both as arguments and adjuncts (see Horn 1978, van der Wouden 1994, a.o.). However, there is no attested case of a language allowing EN following *after*, for example.

In Hebrew, the negative marker *lo* surfaces in three environments where it does not seem to contribute negative force to the sentence, and thus may prima facie be labeled EN[2]. Crucially, however, in all these cases and contra claims regarding other languages, *lo* does contribute semantic content. In this section I describe two of these environments, while the third environment will be addressed separately in section 5. For each environment, I consider the two types of readings which EN can give rise to, corresponding to what we find with English *-ever*: an indifference reading and an ignorance reading. Details are provided below.

First, *lo* occurs in both argument and adjunct FRs[3]: (1a) and (2a) illustrate argument FRs without the negative marker, the former an NP FR and the latter a PP, while (1b) and (2b) are their counterparts with *lo*; (3) is an example of an adjunct FR including *lo*.

(1) a. ma   še-dani   katav hitparsem   ba-iton.
         what that-Danny   wrote was.published   in.the-newspaper
         'What Danny wrote was published in the newspaper.'
     b. ma   še-dani   **lo**   katav hitparsem   ba-iton.
         what that-Danny **NEG** wrote was.published in.the-newspaper
         'Whatever Danny wrote was published in the newspaper.'

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[2] There is a fourth environment in which the negative marker does not contribute negative force (Ivy Sichel, p.c.): in the complement of certain exclamative predicates, such as *lehitpale* 'to be surprised', as exemplified in (i).

(i) "ani   lo   etpale   im   **lo**   asu   et   ha-tevax   ha-ze
     I   NEG   will.be.suprised   if   **NEG**   they.did   ACC   the-massacre the-this
     be-bet hanun rak   kedei levatel   et   mic'ad   ha-ge'ava…"
     in-Bet Hanun only   to   call.off   ACC   parade   the-pride
     "I wouldn't be surprised if this massacre in Bet Hanun was **NEG** committed only in order to call off the pride parade..."

(www.walla.co.il, 11/8/06)

Unlike the other cases addressed below, here negation is necessary in the matrix clause; thus, this is a different phenomenon, possibly a production error on the part of the speaker of the type labeled overnegation in Liberman (2004).

[3] The latter are also known as "universal concessive conditionals" in the literature (e.g., Leuschner 1998).

(2) a. halaxnu   le'an   še-amru   lanu.
        we.went   to.where   that-they.told   to.us
        'We went where we were told to.'

    b. halaxnu   le'an   še-**lo**   amru   lanu.
        what   to.where   that-**NEG**   they.told   to.us
        'We went wherever we were told to.'

(3) ma   še-**lo**   ta'ase,   ata   tikašel   ba-bxina.
     what that-**NEG** you.will.do you   will.fail   in.the-test
     'Whatever you do, you'll fail the test.'

As can be gleaned from the translation, the difference between (1a) and (2a) vs. (1b) and (2b), respectively, corresponds to that between plain *wh* FRs and *wh-ever* FRs in English with an indifference reading (e.g., Dayal 1997): (1a) and (2a) are plain definite descriptions, while (1b) and (2b) indicate indiscriminateness with respect to the identity of the FR referent. In (1b), for example, the identity of what Danny wrote was irrelevant for its publication in the newspaper; put differently, the sentence licenses the counterfactual entailment *Danny could have written anything else and it would have been published*. Given this implication of indiscriminateness, these sentences also convey the existence of an "essential link" (Choi 2007) between the properties denoted by the FR and the matrix clause: in (1b) the property of being written by Danny is intrinsically tied in to the property of being published in the newspaper. A final observation which will be relevant later is the fact that *lo* with the *-ever* reading in these examples cannot take stress, unlike standard negation[4].

Ignorance readings involving *lo* in an FR, conveying that the speaker does not know the identity of the FR referent, are also possible, albeit less common and more difficult to devise. In (4), for instance, one can imagine a situation in which the speaker is in another room and hence does not know what Danny cooked. I return to the issue of indifference vs. ignorance readings in section 4.2.

(4) (lo   yode'a ma   ze,   aval) ma   še-dani
     (NEG   I.know what   it   but)   what   that-Danny
     lo   bišel   meriax tov.
     NEG   cooked smells good
     '(I don't know what it is, but) whatever Danny cooked smells good.'

A second environment in which EN *lo* occurs is until-clauses: *lo* may be added to the plain until-clause in (5a), resulting in (5b).

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[4] If the negative marker is stressed in an argument FR, it can only be interpreted as standard negation. In the specific example of (1b) this would result in an awkward, if not infelicitous, sentence, while in (2b) it would derive the meaning 'We went where we were not told to'. Adjunct FRs are generally infelicitous if *lo* is stressed.

(5) a. dani lo   yišan   ad   še-ha-mesiba   tatxil.
       Danny NEG will.sleep until that-the-party   will.start
       'Danny won't sleep until the party starts.'
    b. dani lo   yišan   ad   še-ha-mesiba **lo**   tatxil.
       Danny NEG will.sleep until that-the-party **NEG** will.start
       'Danny won't sleep until the party starts.'

Intuitively, what *lo* adds in (5b) is an implication of indifference or ignorance on the part of the speaker. This, then, is consistent with what we just observed in FRs, the difference being that here the indifference/ignorance refers to the time at which the event described by the until-clause occurs. Teasing apart the two possible readings is, however, a nontrivial matter, and in most cases ignorance and indifference readings seem to coexist; (5b) is a case in point. Nonetheless, consider (6): assuming that the speaker knows when the guests arrived, we can rule out an ignorance reading and the indifference reading is thus singled out. I have been unable to construct a similar example isolating the ignorance reading.

(6) lo   hifsakti   lenakot ad   še-ha-orxim   **lo**   higi'u.
    NEG   I.stopped to.clean until that-the-guests **NEG** arrived
    'I didn't stop cleaning until the guests arrived.'

Beyond the intuitive judgments regarding the semantics of *lo* in until-clauses, which is perhaps less transparent than in the case of FRs, two observations serve to illustrate it and support the claim that it is parallel to that found in FRs. First, specifying the time of the actualization of the until-clause when EN *lo* is present renders the sentence infelicitous, as in (7):

(7) dani   yamšix   lišon   ad   še-ha-mesiba (***lo***)   tatxil
    Danny will.continue to.sleep until that-the-party (***NEG***) will.start
    be-od ša'ataim.
    in   two.hours
    'Danny will continue sleeping until the party starts in two hours.'

Second, the addition of the negative marker to an example like (8a) causes infelicity, as observed in (8b). In (8a), a purely temporal reading is possible: Danny was alive for a certain period of time and did not get married within this period. This interpretation is not available, however, in (8b); rather, the sentence roughly means that Danny's death was the cause for his marriage, which entails that he married when (or after) he died, an obviously irrational scenario. The sentences in (9a) and (9b) illustrate the same point, but in this case the result is not infelicity, since it is possible to accommodate the interpretation in (9b), whereby Danny's marriage will allow him to receive his driver's license (e.g., his parents set marriage as a precondition for getting a license). In addition, (9) shows

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that the infelicity in (8) is not something specifically related to the past tense or to the ordering of the clauses in the examples.

(8) a. ad   še-hu   met   dani   lo   hitxaten.
       until   that-he died Danny NEG   married
       'Until he died, Danny didn't get married.'

   b. #ad   še-hu   **lo**   met   dani   lo   hitxaten.
       until   that-he **NEG** died Danny NEG   married
       'Until he died, Danny didn't get married.'

(9) a. le-dani   lo   iye   rišyon nehiga   ad   še-hu   yitxaten.
       to-Danny NEG   will.be   license driving until that-he will.marry
       'Danny won't have a driver's license until he gets married.'

   b. le-dani   lo   iye   rišyon nehiga   ad   še-hu   **lo**   yitxaten.
       to-Danny NEG   will.be   license driving until that-he **NEG**   will.marry
       'Danny won't have a driver's license until he gets married.'

An additional, naturally occurring example which illustrates the semantic import of EN *lo* is provided in (10), where the translator chose to include *lo* in the until-clause. This marker does not exist in the English source and its absence in Hebrew would not make the translation ungrammatical. Nevertheless, speakers agree that the use of *lo* in (10) renders it slightly different from the identical sentence without *lo*: their intuition is that (10) makes a stronger statement about the relationship between being presumed innocent and proof of guilt.

(10) "adam   še-ne'ešam   be-avera   plilit   xezkato
      person   that-charged   in-offence   penal   his.presumption
      še-hu   zakai   ad   še-**lo**   huxexa   ašmato
      that-he innocent   until   that-**NEG** proven   his.guilt
      ka-xok   be-mišpat   pumbi."
      as-law   in-trial   public
      "Everyone charged with a penal offence has the right to be presumed innocent until proven guilty according to law in a public trial."
                    (Article 11 of the Universal Declaration of Human Rights;
                                   http://www.unhchr.ch/udhr/lang/hbr.htm)

The explanation for these observations will follow from the semantic content of the negative marker in such cases, to be postulated below. For now, it is important to note that standard negation in the matrix clause is not necessary to license EN in the until-clause, as shown in (11), thus ruling out a concord-type

analysis (see also the example in (10))[5]. In addition, as was observed in the case of FRs, if *lo* is assigned stress only the standard negation reading is available, assuming it is plausible for the specific sentence.

(11)   dani   yamšix   lišon   ad   še-ha-mesiba **lo** tatxil.
              Danny will.continue to.sleep until   that-the-party **NEG** will.start
              'Danny will continue sleeping until the party starts.'

3   Existing analyses of expletive negation

Within the formal literature, there exist two main approaches to cases of EN akin to the Hebrew examples provided above. On the one hand, there are researchers who argue that EN is truly vacuous in the sense that it contributes nothing to the semantics. An example of this type of approach is Espinal (2000), who puts forward a uniform account of EN in Spanish and Catalan. She claims that the vacuity of the negative marker in specific environments is the result of covert feature movement from the negative marker to a nonveridical head, which is always found in EN environments: *before*, *until*, some negative and adversative predicates, comparative operators and specific high degree operators in *wh*-exclamatives. The nonveridical head then checks and deletes the marker's negative features at LF, leaving it with no semantic content.

An advantage of Espinal's syntactic approach is that it correctly models the locality constraint on EN, found in Spanish and Catalan: the "licensor" of EN (the nonveridical head in Espinal's terms) must be in the same clause as the negative marker; otherwise, only a standard negation reading is available. Thus, the Catalan example in (12a) allows only a standard negation reading if a clause is added between the licensing verb and EN, as in (12b) (Espinal indicates this with '*'). The Hebrew sentence in (13), where the negative marker in the lowest clause can only be interpreted as standard negation and an *-ever* reading is not available, shows that the same is true of Hebrew.

(12)   a.   Em   temo   que   **no** escullin   nou   director.
              me$_{CL}$ am-afraid that   **not** elect+SUBJ.3PL new   director
              'I'm afraid that a new director would be elected.'
      b.   *Em   temo   [que   diguin   [que **no**
              me$_{CL}$ afraid   that   say+SUBJ.3PL   that **not**
              escolliran   nou   director]]
              elect+FUT.3PL new   director

                                                              (Espinal 2000:54)

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[5] The absence of negation in the matrix clause does render the sentence more marginal, while using the verb 'continue' when negation is absent, as in (11), seems to improve it. I will not address this issue here.

(13) dani   lo   yašan   ad   še-yossi   amar   lo
     Danny   NEG   slept   until   that-Yossi told   to.him
     še-ha-mesiba **lo**   hitxila.
     that-the-party **NEG**   started
     'Danny didn't sleep until Yossi told him that the party had *(not) started.'

However, there are also multiple problems with a type of analysis which assumes that EN is vacuous and with Espinal's specific implementation. For Hebrew it is clearly inappropriate given the semantic contribution of *lo* described in section 2. In fact, even Spanish EN does not seem to be a pure identity function, as illustrated by Español-Echevarría and Vegnaduzzo (2000) in their work on Italian *finché* and Spanish *hasta*, 'until'. In addition, the claim that the licensor is necessarily nonveridical is also inaccurate; Sánchez-Valencia et al. (1994), for example, note that *until* is veridical with respect to its second argument. Accordingly, the properties of the licensor supposedly needed to check and delete the negative marker's features seem to be unsubstantiated[6].

An approach similar to Espinal's is advocated in van der Wouden (1994), where EN is claimed to be an identity function, and its distribution derived by the assumption that it is a negative polarity item (NPI). Like Espinal's analysis, this theory runs into problems in light of data showing that EN is not semantically vacuous. Furthermore, the account of EN's distribution is both too strong and too weak: it overgenerates, since EN is not found crosslinguistically under the universal quantifier, and undergenerates, because EN is found in non-downward-entailing contexts, such as after "negative verbs" (see Portner and Zanuttini 2000).

Assuming we abandon Espinal's type of analysis, a question that remains is how to explain the locality effects exemplified in (12) and (13). A solution following from simple compositionality seems possible: EN *lo* must be interpreted locally, on a par with other elements found on the VP spine, in Hebrew as in other languages[7]. That is, EN *lo* is computed like the adverb *tamid* 'always' in (14), which can only mean that there were occasions at which Danny refused to go to school ($\neg > \forall$), not that Danny refused to go to school at all times ($*\forall > \neg$), with *tamid* scoping out of the infinitival clause.

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[6] An additional argument against this type of approach is given by Abels (2005), who states that "it is implausible that the realization of two vastly different logical operators, the identity function and negation, should map onto the same morpheme" (Abels 2005:12). However, the present paper demonstrates that two very distinct meanings can be realized in the same morpheme, so that the merits of this argument are debatable at best. Another line of reasoning Abels raises, whereby a framework without the theoretical concept of EN is simpler than one which includes it, is not relevant here, since I use EN only as a descriptive label.

[7] This was suggested to me by Maribel Romero.

(14) dani   serev   lalexet   tamid   le-bet sefer.
      Danny   refused   to.go   always   to-school
      'Danny refused to always go to school.'

Beyond the fact that the interpretation of EN *lo* is subject to a constraint of semantic locality, it also appears to be sensitive to processing factors. Thus, inserting a large NP between the *wh*-word and *lo*, as in (15), leads to greater difficulty in obtaining the *-ever* reading.

(15) efo   še-nehagei   ha-moniyot ha-miskenim   me-ezor
      where   that-drivers the-taxis   the-poor   from-area
      tel aviv **lo**   bikru…
      tel aviv **NEG**   visited
      a. ?'Wherever the poor taxi drivers from the Tel Aviv area visited…'
      b. 'Where the poor taxi drivers from the Tel Aviv area didn't visit…'

The costs involved in processing such examples are associated with some notion of locality, resulting in difficulties when they rise beyond a given value. Whether this locality should be defined in terms of the number of words between the *wh*-word (or *ad* 'until') and *lo*, the amount of phonological material separating them, or perhaps the number of novel discourse referents in the relevant domain, is unclear. I leave this issue for future research.

The second camp in the literature dealing with EN argues that it has the ordinary semantics of negation, which is "masked" by some other factor. In other words, the negative marker may surface in certain environments in which it interacts with another element, causing it to appear as if it has no semantic content. Various implementations of this idea are provided in Abels (2002), Español-Echevarría and Vegnaduzzo (2000), Meibauer (1990), Muller (1991) and Portner and Zanuttini (2000).

To take a simple example, Abels (2002) claims that EN under Russian *poka* 'until' is not vacuous, since *poka* has the semantics of *while*, as can be observed in affirmative contexts, which together with standard negation derives the meaning of *until*. What "masks" the contribution of negation, then, is simply our misinterpretation of *poka*. Unfortunately, it is not obvious whether Abels' explanation indeed accounts for the Russian data, and in any case, it is not applicable to Hebrew. First and foremost, there is no justification for assuming that the semantics of *ad* 'until' is anything other than that of 'until': it has the same meaning in affirmative contexts, and does not exhibit the semantics of *while* and negation, regardless of whether or not we include EN *lo* in the until-clause. For example, (16a) is true if Danny stopped watching the movie before Dina was in the house, whereas (16b) is not[8,9].

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[8] I do not address the detailed semantics of *until*, nor of EN *lo*, here. See section 4.2 for relevant discussion.

(16) a. Dani   cafa   ba-seret
          Danny   watched   in.the-movie
          bezman še-dina   lo   haita   ba-bait.
          while   that-Dina NEG   was   in.the-house
          'Danny watched the movie while Dina wasn't home.'
      b. Dani   cafa   ba-seret
          Danny   watched   in.the-movie
          ad   še-dina   **(lo)**   haita   ba-bait.
          until   that-Dina **(NEG)** was   in.the-house
          'Danny watched the movie until Dina was home.'

Second, the fact that the negation and *-ever* readings differ in terms of their prosodic status, as noted in the previous section, with only the former being able to take stress, at least suggests that the two are fundamentally different. In general, it is highly doubtful that the observations in section 2 could be reduced to standard negation, rendering any approach of this kind an unlikely explanation for the Hebrew data.

Given the problems associated with each of the existing approaches to EN and the fact that they cannot be extended to Hebrew, it seems that a third type of theory is required, in which EN is neither vacuous nor truly negative. Rather, it has a semantics of its own, which I will describe in the following sections. I begin by reviewing von Fintel's (2000) proposed semantics for English *whatever*, which is transparently the same element realized in Hebrew FRs through a *wh*-word and *lo*. I then argue that the same *-ever* element is manifested in until-clauses through *lo*, and show how this explains the observations noted in section 2.

4 Expletive negation = *-ever* in Modern Hebrew
4.1 von Fintel's (2000) semantics for *whatever*

Having concluded in the previous section that a different approach to EN in Hebrew is needed, the ensuing question is whether it is necessary to devise a

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[9] The Russian equivalent of (16), with *poka* and negation, apparently has the truth conditions of (16a) rather than (16b) (Vita Markman, p.c.), but there seems to be some variability in interpretation depending on the specific verb used. This already casts doubt on Abels' analysis of Russian EN. A second problem with Abels' account for Russian is raised by a study on the acquisition of EN (Gavruseva and Grinstead 2004), which found age differences in the interpretation of EN under *poka* but no difference with *poka* alone. If the negative marker had its standard meaning and it combined compositionally with *poka* 'while', as Abels maintains, it is unclear why children who have acquired both components would be unable to correctly interpret the sentences presented to them, unlike the adults. In any case, I plan to test this hypothesis with respect to Hebrew in an experiment similar to that run by Gavruseva and Grinstead (2004) in Russian. The results of this experiment will allow us to determine whether Hebrew-speaking children treat EN in FRs and until-clauses like they do standard negation, as predicted by Abels' type of approach.

novel semantics for EN in Hebrew, or if it is possible to employ a formalization proposed for a similar case in another language. The latter option seems, ceteris paribus, to be preferable, since it constrains the range of crosslinguistic variation we must assume. Accordingly, I adopt von Fintel's (2000) semantics for English *wh-ever* FRs, according to which the FR is a definite description, and *-ever* introduces a presupposition of variation over the denotation of the FR across possible worlds. While some modifications to this formalization will be necessary to extend it to EN in until-clauses, I argue that the core of the proposal is correct for Hebrew: EN manifests the semantic primitive we observe in English *-ever* in both environments, FRs and until-clauses.

In describing the semantics of *wh-ever* FRs, two main issues must be considered, namely, their quantificational force and modal dimension. With regard to the former aspect, the common view in the current literature is that *wh-ever* FRs are definite descriptions, like their counterparts lacking the *-ever* component (Jacobson 1995, Dayal 1997, a.o.), and von Fintel (2000) assumes this to be correct. As for their modal implications, the basic intuition von Fintel aims to capture is that in using *whatever*, the speaker indicates that all the different entities possibly described by the FR have the property denoted by the matrix clause, and she does not know or care what this entity is. In other words, *wh-ever* FRs can have two types of modal implication: an ignorance reading, whereby the speaker indicates her epistemic uncertainty regarding the identity of the FR referent, and an indifference reading, in which the speaker signals her indiscriminateness (or a more general indiscriminateness; see Tredinnick 2005) with respect to the identity of the FR referent. The examples in (17) and (18), from von Fintel, illustrate these two readings, respectively. In (17), the speaker does not know what Arlo is cooking, while in (18) she does not care what she grabbed.

(17)   There's a lot of garlic in whatever Arlo is cooking.

(18)   I grabbed whatever tool was handy.

In his analysis of the modal flavor of *wh-ever* FRs, von Fintel builds on the work of Dayal (1997), in which *whatever* introduces universal quantification over epistemic alternatives, in Dayal's terms i(dentity)-alternatives—worlds which differ only in the denotation of the FR, in accordance with the speaker's beliefs. Given that Dayal, however, considers only ignorance readings, and a variety of other considerations which are beyond the scope of this paper, von Fintel revises her analysis, eventually settling on the conditional semantics in (19), meant to account for both ignorance and indifference readings.

(19)   *whatever (w) (F) (P) (Q)*
           a.   presupposes: $\forall w' \in \min_w [F \cap (\lambda w''.\iota x.P(w'')(x) \neq \iota x.P(w)(x))]$:
                 $Q(w')(\iota x.P(w')(x)) = Q(w)(\iota x.P(w)(x))$

b. asserts: Q(w)(ιx.P(w)(x))

In this formalization, the assertion of a *wh-ever* FR is identical to that of a plain FR and both are definite descriptions, as noted above. The conditional presupposition, however, is uniquely added by *-ever*. It states the following: in all the worlds w' in the modal base F differing from w, the world of evaluation, in the identity of x, the proposition Q(P(x)) has in w' whatever truth value it has in w. In other words, a change in the identity of the FR referent does not change the truth of the sentence, with the worlds held as constant as possible in all other respects. The latter is guaranteed by the operator min, which constrains the worlds quantified over to those that are minimally different from one another. von Fintel also assumes that the operator presupposes that there are worlds in its argument, a point which will become relevant later. Finally, von Fintel reduces the two types of modal implication noted above to the nature of the modal base; that is, if the contextually given modal base is epistemic, we obtain an ignorance reading, while a counterfactual modal base derives an indifference reading. To illustrate von Fintel's analysis, I apply (19) to the examples in (17)-(18), and as desired, we find that the difference between the two is only in the nature of the worlds given by the modal base, epistemic vs. counterfactual, for the ignorance and indifference reading, respectively.

(20) There's a lot of garlic in whatever Arlo is cooking.
Assertion: There's a lot of garlic in the thing Arlo is cooking.
Ignorance Presupposition: In all of speaker's minimally different epistemically accessible worlds where Arlo is cooking something different, there's a lot of garlic in what he's cooking.

(21) I grabbed whatever tool was handy.
Assertion: I grabbed the tool that was handy.
Indifference Presupposition: In all of the minimally different counterfactual worlds in which a different thing was handy, I grabbed what was handy.

There are, of course, many details of the theory I have left out; the reader is referred to von Fintel (2000) and Tredinnick (2005) for further discussion; see also Condoravdi (2005a,b) and von Fintel (2005) for problems with the model and possible modifications, and Giannakidou (1997, 2001) and Giannakidou and Cheng (2006) for an alternative approach, to be discussed below.

4.2 Applying von Fintel (2000) to Modern Hebrew
I begin extending von Fintel's analysis of English *wh-ever* FRs to Hebrew with the simpler, more transparent case of FRs. As was noted in section 2, adding the negative marker *lo* to a plain FR in Hebrew derives a form parallel in its

interpretation to that of an English *wh-ever* FR. We can thus conclude that *lo* is equivalent to English *-ever* in this case, contributing the modal presupposition, and von Fintel's formalization in (19) can be directly applied to the Hebrew examples; I illustrate with (1b), repeated below as (22).

(22)   ma   še-dani   **lo**   katav   hitparsem   ba-iton.
       what that-Danny **EN** wrote was.published in.the-newspaper
       'Whatever Danny wrote was published in the newspaper.'
       Assertion: The things Danny wrote were published in the newspaper.
       Indifference Presupposition: In all of the minimally different counterfactual worlds in which Danny wrote different things, they were published in the newspaper.

One might wonder at this point whether I have overlooked the possibility that some other element in (22) is responsible for the presupposition. In fact, in an analysis of Polish and Russian adjunct FRs, Citko (2001) proposes just this: the subjunctive particle, rather than the negative marker, both of which appear in FRs in these languages, is their equivalent of *-ever*. Regardless of its validity for other languages, this hypothesis does not seem plausible for Hebrew. Since Hebrew does not have any morphological reflex of subjunctive mood, we would have to assume that it is covertly realized in FRs[10], and that it contributes the presupposition. Moreover, the negative marker would have to be analyzed either as truly vacuous, or as playing some other role. While it is possible to adopt Citko's suggestion for the Slavic languages that the negative marker in such forms is a focus particle, considerations of simplicity favor the approach chosen here: the sole overt element distinguishing *wh-ever* FRs from plain FRs in Hebrew is the one corresponding to English *-ever*.

Adjunct FRs, exemplified in (23) (=3), parallel argument FRs in their modal implications. Accordingly, I assume that *lo* has the same function in these forms and that the same account is appropriate. The specifics of the formalization, which must take into account the semantic and syntactic properties unique to adjunct FRs (Izvorski 2000), are beyond the scope of this paper.

(23)   ma   še-**lo**   ta'ase,   ata   tikašel   ba-bxina.
       what that-**EN** you.will.do you   will.fail   in.the-test
       'Whatever you do, you'll fail the test.'

Recall that in section 1 I noted the possibility of obtaining ignorance readings in FRs involving EN *lo*, as in (4), repeated below as (24).

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[10] Landau (2004) argues that Hebrew does have a distinct syntactic type of subjunctive, without designated subjunctive morphology. However, the subjunctive mood is mapped onto the future tense, and since FRs are not limited to this tense (e.g., (22)), this hypothesis is not relevant here.

(24) (lo   yode'a   ma   ze,   aval) ma   še-dani
      (NEG   I.know   what   it   but)   what   that-Danny
      lo   bišel   meriax   tov.
      EN   cooked   smells   good
      '(I don't know what it is, but) whatever Danny cooked smells good.'

As mentioned before, indifference readings are easier to come by, and given a null context, the indifference reading will be the one preferred by speakers, if the ignorance reading is at all available. However, the fact that ignorance readings are available, together with the empirical justification for a uniform analysis of both readings (Condoravdi 2005a), disfavors the alternative approach proposed by Giannakidou and Cheng (2006). In light of the absence of ignorance readings in Greek FRs with a free choice element, Giannakidou and Cheng contend that they should be treated separately from indifference readings. Accordingly, ignorance readings are given the semantics of plain, non-modal FRs, whereas Greek FRs involving a free choice element are intensional and hence incompatible with the deictic reference imposed by the context of ignorance readings. This theory differs in other aspects from von Fintel (2000), but given that von Fintel's account seems more suitable for the Hebrew data I do not go into the details. In any case, future research should address the preference for indifference readings observed in Hebrew.

An additional noteworthy observation regarding argument FRs in Hebrew is that they can lack the marker *lo* and still have the *-ever* component in their interpretation, rather than the semantics of a plain definite description[11]. Thus, (1a), repeated here as (25), has either the interpretation of a plain FR, as already noted, or that of a *wh-ever* FR. Furthermore, the Hebrew equivalent of discourse marker 'whatever' is *ma še-tagid*, literally, 'what that you will say', without *lo* (Eilam 2005).

(25) ma   še-dani   katav hitparsem   ba-iton.
      what   that-Danny   wrote was.published   in.the-newspaper
      'What**(ever)** Danny wrote was published in the newspaper.'

However, this is not extraordinary; English plain *wh* FRs can also function as *wh-ever* FRs (Horn 2000), as shown in (26). It seems, then, that the semantic primitive simply has different reflexes, including a phonologically null variant.

(26) I'm free, to choose whom I please, any old time.
      I'm free, to please who I choose, any old time.
                                        ("I'm free", M. Jagger & K. Richards 1965)

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[11] This is contingent on the *wh*-word bearing prosodic prominence and/or an appropriate context. Similarly, adjunct FRs do not require EN *lo*, pace Izvorski (2000).

What distinguishes Hebrew FRs with *lo* from English *wh-ever* FRs, and perhaps makes them unique crosslinguistically, is the possibility of modifying them with the universal quantifier *kol* 'all'; 'every': cf. Hebrew (27) with English (28).

(27)   **kol** ma še-**lo** ta'ase   be-medinat yisra'el lokeax zman.
      all what that-**EN** you.will.do in-state   Israel takes time
      'Whatever you do in the state of Israel takes time.'

<div align="right">(www.ynet.co.il, 7/9/07)</div>

(28)   *All/every whatever you do takes time.

In this respect, they parallel plain FRs in Hebrew, which can also include the universal quantifier (29), unlike English (30).

(29)   **kol** ma še-ta'ase   be-medinat yisra'el lokeax zman.
      all what that-you.will.do in-state   Israel takes time
      'Everything you do in the state of Israel takes time.'

(30)   *All/every what you do takes time.

It has long been recognized in the literature that *wh-ever* FRs (or at least those with an indifference reading; cf. Tredinnick 2005) behave in many respects as if they are universally quantified. As Tredinnick (2005) notes, they can often be paraphrased with *every*, accept *almost* modifiers, take universal scope under negation, and license NPIs. Under accounts which treat *wh-ever* FRs as definites and derive the universal effects from the presence of a generic operator (Dayal 1997, Tredinnick 2005), the possibility of using the universal quantifier is not surprising. Rather, this observation parallels the fact that in sentences involving lexical NPs, different quantificational elements (e.g., determiners, adverbs, tense/aspect) apply to various types of expressions, yielding similar effects. Analyses which treat *wh-ever* FRs as ordinary universals, however, would have to explain how in Hebrew a universal could be redundantly modified by another universal quantifier.

Having reviewed the relevant facts from FRs, the issue turns to until-clauses, where the equivalence with English is not transparent, given that English does not allow *ever* under *until*. Nevertheless, I claim that *lo* contributes the same semantic content in both environments, namely, that of a free choice element equivalent to *-ever*. The only difference between its realization in until-clauses and in FRs is that in the latter the minimal change across worlds in the modal base applies to the identity of the FR referent (see section 4.1), while in the former this change is in the time at which the event described by the until-clause takes place.

To begin the analysis, I follow Karttunen (1974) and much subsequent work in assuming the existence of two lexical items for *until*, punctual vs. durative. As

we will see below, EN *lo* combines with both *until*s in Hebrew. Punctual *until* is an NPI, hence also labeled "NPI-*until*", compatible with both eventive and stative predicates, and crucially, entailing a change of state at the point denoted by the until-clause. Durative *until* only appears with statives, and does not entail, but rather implicates, actualization at the endtime. Accordingly, attempting to cancel the entailment for punctual *until* in (31) results in infelicity, while this is possible with the implicature of durative *until* in (32) (see Giannakidou 2002 for further discussion):

(31) dani lo   yišan ad   še-ha-mesiba tatxil.
    Danny NEG will.sleep until that-the-party will.start
    #kše-hi   tatxil, hu yakum, yitlabeš ve-yelex le-tiul.
     when-she will.start he will.get.up will.dress and-will.go for-trip
    'Danny won't sleep until the party starts. #When it starts, he'll get up, get dressed and go out for a walk.'

(32) dani   yišan   ad   še-ha-mesiba tatxil.
    Danny will.sleep until that-the-party will.start
    lema'ase, hu yišan   ad še-hi   tigamer.
    in.fact he will.sleep until that-she   will.end
    'Danny will sleep until the party starts. In fact, he'll sleep until it ends.'

For the basic semantics of punctual *until*, I adopt Giannakidou's (2002) idea in (33), whereby punctual *until* contributes a scale of contextually relevant times t' leading to an endtime t, at which an event occurs. I slightly modify Giannakidou's formalization in (34), assigning the time at which the until-clause holds the status of a definite description and switching the variables used, so that it is compatible with von Fintel's (2000) formalization for the presupposition of *-ever*.

(33) Scalar semantics for punctual *until*
    $[[\text{not P until Q}]] = \lambda e \exists t [Q(t) \wedge P(e,t) \wedge \neg \exists t' \exists e'\ [t' \in C \wedge t' < t\ \wedge P(e',t')]]$
                                 (Giannakidou 2002)

(34) Revised semantics for punctual *until*
    $[[\text{not Q until P}]] = \lambda w_0 . Q(\iota t[t \in C \wedge P(t)(w_0)])(w_0) \wedge \neg \exists t'[t' \in C \wedge$
    $t' < \iota t[t \in C \wedge P(t)(w_0)]\ \wedge Q(t')(w_0)]$

(35) combines the assertion in (34) with the presupposition provided by *lo*, which is similar in essence to that provided for FRs: in all the worlds w' in the modal base F differing from w_0 in the time t at which the until-clause holds, the proposition that the matrix clause holds at that time and at no prior time t' has the same truth value it has in w_0.

(35)   *ad še-lo*$_{EN}$ *(w) (F) (P) (not Q)* – punctual

    a.   presupposes: $\lambda w_0 \forall w' \in min_w$ [F $\cap$
           $(\lambda w''.\iota t[t \in C \wedge P(t)(w'')] \neq \iota t[t \in C \wedge P(t)(w_0)])]$:
           $Q(\iota t[t \in C \wedge P(t)(w')](w')$
           $\wedge \neg \exists t'[t' \in C \wedge t' < \iota t[t \in C \wedge P(t)(w')] \wedge Q(t')(w')] =$
           $Q(\iota t[t \in C \wedge P(t)(w_0)](w_0)$
           $\wedge \neg \exists t'[t' \in C \wedge t' < \iota t[t \in C \wedge P(t)(w_0)] \wedge Q(t')(w_0)]$

    b.   asserts: $\lambda w_0.Q(\iota t[t \in C \wedge P(t)(w_0)])(w_0) \wedge \neg \exists t'[t' \in C \wedge$
           $t' < \iota t[t \in C \wedge P(t)(w_0)] \wedge Q(t')(w_0)]$

Given this semantics, we derive the following for the example in (5b), repeated below as (36): the sentence asserts that Danny will sleep at the time t at which the party starts, and there is no time t' prior to this time at which Danny will sleep. It presupposes that in all of the minimally different worlds in which the party starts at a different time t, Danny will sleep at this time and there is no time t' prior to this time at which Danny will sleep. Support for this semantics will be provided following a similar formalization for durative *until*.

(36)   dani   lo   yišan   ad   še-ha-mesiba   **lo**   tatxil.
          Danny   NEG   will.sleep   until   that-the-party   **EN**   will.start
          'Danny won't sleep until the party starts.'

As I did with punctual *until*, the analysis for durative *until* will also involve a slight modification of Giannakidou's (2002) semantics in (37), whereby the state P denoted by the matrix VP α holds at all times prior to the endpoint β, at which time the event Q denoted by the until-clause takes place. The revised formalization in (38) states that there is a time t such that all the times t'' between this time t and the time t''', at which the until-clause holds, are times at which the matrix clause holds.

(37)   Scalar semantics for durative *until*
        For α: $\lambda s\ [\mathbf{P}(s) \wedge \exists t\ \mathbf{AT}\ (s,t)]$;   β: $\lambda t'\mathbf{Q}(t')$
        $[[until\ (\alpha,\beta)]] = \lambda s\exists t\exists t'\exists t''' \ [\mathbf{P}(s) \wedge \mathbf{AT}\ (s,t''') \wedge \mathbf{Q}(t') \wedge t \subseteq t''' \wedge$
        $\forall t''\ [[t \leq t'' < t'] \rightarrow \exists s'\ [s' \subseteq s \wedge \mathbf{P}(s') \wedge \mathbf{AT}\ (s', t'')]]]$
                                                (Giannakidou 2002)

(38)   Revised semantics for durative *until*
        $[[Q\ until\ P]] = \lambda w_0.\exists t[t \in C \wedge \forall t''[t'' \in C \wedge t \leq t'' < \iota t'''[t''' \in C$
        $\wedge P(t''')(w_0)] \rightarrow Q(t'')(w_0)]]$

In (39) I add the presupposition of *lo* to the assertion in (38): again, regardless of the variation across possible worlds over the time at which the event described by

the until-clause takes place, the assertion has the same truth value in all these worlds.

(39) *ad še-lo*$_{EN}$ *(w) (F) (P) (Q)* – durative

    a.   presupposes: $\lambda w_0 \forall w' \in min_w$ [F $\cap$
        $(\lambda w''.\iota t'''[t''' \in C \wedge P(t''')(w'')] \neq \iota t'''[t''' \in C \wedge P(t''')(w_0)])]$:
        $\exists t[t \in C \wedge \forall t''[t'' \in C \wedge t \leq t'' < \iota t'''[t''' \in C \wedge P(t''')(w')] \rightarrow Q(t'')(w')]]$
        $= \exists t[t \in C \wedge \forall t''[t'' \in C \wedge t \leq t'' < \iota t'''[t''' \in C \wedge P(t''')(w_0)] \rightarrow$
        $Q(t'')(w_0)]]$

    b.   asserts: $\lambda w_0.\exists t[t \in C \wedge \forall t''[t'' \in C \wedge t \leq t'' < \iota t'''[t''' \in C \wedge P(t''')(w_0)]$
        $\rightarrow Q(t'')(w_0)]]$

Accordingly, (11), repeated below as (40), asserts that Danny will sleep at all the times t" between a given time t and the time at which the party starts t''', and it presupposes that in all of the minimally different worlds in which the party starts at a different time t''', Danny will sleep at all the times t" between a given time t and this time.

(40)   dani   yamšix   lišon   ad   še-ha-mesiba **lo** tatxil.
        Danny will.continue to.sleep until that-the-party **EN** will.start
        'Danny will continue sleeping until the party starts.'

We can now return to the observations regarding EN in until-clauses reported in section 2, and confirm that the proposed semantics explains them. First, the fact that one cannot specify the time at which the until-clause takes place, as shown in (41) (=7), follows from the modal implication of ignorance introduced by EN *lo*, described above for FRs. In the formalization employed here, the modal implication is modeled through the presence of an epistemic modal base.

(41)   dani   yamšix   lišon   ad   še-ha-mesiba (***lo**) tatxil
        Danny will.continue to.sleep until that-the-party (***EN**) will.start
        be-od   ša'ataim.
        in   two.hours
        'Danny will continue sleeping until the party starts in two hours.'

Interestingly, this observation corresponds to Dayal's (1997) "namely" test for FRs: uniquely identifying the referent of an ignorance *wh-ever* FR results in ungrammaticality, as seen in (42).

(42)   *Whatever Mary is cooking, namely ratatouille, uses onions.

Dayal explains the ungrammaticality of (42) as resulting from the requirement that there be at least two worlds qualifying as epistemic alternatives, i-alternatives in her terms. If the speaker has a belief about the identity of the FR referent, there

cannot be two such worlds in the modal base. In von Fintel's (2000) formulation, which I have adopted here, this is a presupposition failure: the existential presupposition triggered by the conditional operator (see section 4.1) requires minimally different worlds in the modal base, i.e., variation in the speaker's epistemic state, but the speaker in (41) and (42) indicates that there is no such variation.

If *lo* in until-clauses is parallel to that found in FRs, as I claim, it should also be possible to find cases in which the context supplies a counterfactual modal base, resulting in an indifference reading. Moreover, this type of reading is expected to support a non-accidental generalization or essential link (Choi 2007; see also Menéndez-Benito 2002); i.e., an interpretation whereby there is a principled relation between the entity described by the FR and the matrix clause, or in the case of until-clauses, between the event described in the matrix clause and that in the until-clause. To illustrate how this works in FRs, compare (43a) to (43b), from Tredinnick (2005): in (a) the speaker implies that John has magical powers or extraordinary luck, while in (b) she is simply providing a factual description; the set of people who won just happen to be the ones John voted for (see Tredinnick 2005 for discussion of the relation between counterfactual reasoning and causation, and an attempt to derive this in Gricean terms).

(43) a. In those days, whoever John voted for won.
      b. In those days, everyone John voted for won.

As expected, we indeed find that the appearance of *lo* in until-clauses gives rise to non-accidental generalizations, and this explains the second observation from section 2. Recall the infelicity observed in example (8b), repeated below as (44b), compared to its felicitous counterpart without *lo* in (44a) (=8a). I claim that this is the result of the non-arbitrary link created by *lo* between the events described in the matrix and until-clause. (44a) can be understood as merely indicating a temporal relation; that is, Danny was alive for a certain period of time and did not marry within this period[12]. However, in (44b), no such interpretation is possible, since *lo* imposes an essential link between Danny's death and his marriage; in other words, the former was a condition for the latter. This is, of course, an unreasonable situation, and hence the infelicity.

(44) a. ad   še-hu   met   dani   lo   hitxaten.
          until   that-he died   Danny   NEG   married
          'Until he died, Danny didn't get married.'
      b. #ad   še-hu   **lo** met   dani   lo   hitxaten.

---

[12] (44a) also shows that a wide scope *until* reading (Mittwoch 1977, Mittwoch 2001) without an actualization entailment is available in Hebrew (in this case, it is not necessarily the case that Danny married), while English is said to lack this reading (Giannakidou 2002). Still, it seems necessary to postulate a separate NPI-*until* (see Mittwoch 2001, Giannakidou 2002).

until that-he **EN** died Danny NEG married
'Until he died, Danny didn't get married.'

Similar reasoning explains (45) (=10), which speakers judge to be a stronger statement than the corresponding sentence lacking *lo*, which is nonetheless grammatical. That is, the use of *lo* transforms the simple temporal contingency evoked by *ad* 'until' into a causal relation, which is what (45) calls for: the event described in the matrix clause is non-arbitrarily linked to that denoted by the until-clause. Thus, the closest English paraphrase for (45) would be a conditional statement: Everyone charged with a penal offence has the right to be presumed innocent *unless* (=only if not) proven guilty.

(45)   "adam   še-ne'ešam   be-avera   plilit   xezkato
       person   that-charged in-offence   penal   his.presumption
       še-hu   zakai   ad   še-**lo**   huxexa   ašmato
       that-he   innocent   until   that-**EN** proven   his.guilt
       ka-xok   be-mišpat   pumbi."
       as-law   in-trial   public
       "Everyone charged with a penal offence has the right to be presumed
       innocent until proven guilty according to law in a public trial."
                     (Article 11 of the Universal Declaration of Human Rights;
                                   http://www.unhchr.ch/udhr/lang/hbr.htm)

To support the extension of the *-ever* analysis of *lo* from FRs to until-clauses, I have demonstrated that diagnostics associated with ignorance and indifference readings in *wh-ever* FRs, i.e., the "namely" test and the presence of a non-accidental generalization, respectively, are also found in the case of until-clauses. The expectation, then, is that there should be a dichotomy between the two types of readings, each correlated with a specific diagnostic. Given that we do not find such a dichotomy, as noted in section 2, it is perhaps not surprising that the effects also do not fall neatly into place. That is, all until-clauses involving EN *lo* yield non-accidental generalizations, to the best of my knowledge, including those that have been shown to involve an ignorance reading according to the results of the "namely" test, such as (41) above. Recall, moreover, my unsuccessful attempts in section 2 to find examples which exclusively exhibit an ignorance reading. In the theory employed here, this would have to mean that a counterfactual modal base is always present with EN *lo* in until-clauses. As for the "namely" test and its relation to ignorance readings, I claimed in section 2 that one could come up with examples which single out the indifference reading and do not carry an implication of ignorance. Accordingly, we predict that in these examples we should be able to uniquely identify the time at which the until-clause takes place. Unfortunately, I do not have clear judgments on the issue: adding a temporal adverbial to (6), for example, repeated below as (46), results in a marginal sentence, and I am not convinced that its status is different from that of (41).

(46) lo   hifsakti   lenakot   ad   še-ha-orxim   **lo**   higi'u   ($^?$be-arba).
     NEG I.stopped to.clean until that-the-guests **EN** arrived ($^?$in-four)
     'I didn't stop cleaning until the guests arrived at four.'

The mere existence of mixed ignorance and indifference readings is not unusual; Condoravdi (2005a) and Tredinnick (2005) give multiple examples of this in English *wh-ever* FRs. In addition, the markedness of ignorance readings is not unique to until-clauses, nor to Hebrew: this implication is also difficult to obtain in Hebrew FRs (see section 2), and it does not arise at all with free choice items in some languages, such as Greek (Giannakidou & Cheng 2006) and Korean (Choi 2007). What is odd, however, is that non-mixed readings are so marginal, if not nonexistent, in Hebrew until-clauses, and that it is not clear whether the "namely" test picks out ignorance readings alone, as it should. I must leave this issue unresolved for now.

5   Apparent exclamatives

Before ending the review of EN environments in Hebrew, it is necessary to address an additional case in which negation seems prima facie to lack negative force, namely, exclamatives. In Hebrew, *wh*-exclamatives are identical to *wh*-questions in terms of their lexical components, marked as different in their interpretation only by intonation[13]. In addition, there is a set of what seem to be structurally identical constructions, distinct in form only in the appearance of the negative marker *lo*. Thus compare (47a), which is a simple *wh*-exclamative, and (47b), which appears identical apart from the inclusion of *lo*:

(47) a.   ma   asiti   etmol!
           what I.did   yesterday
           'The thing I did yesterday!'
      b.   ma   **lo**   asiti   etmol!
           what **NEG** I.did   yesterday
           'The things I did yesterday!'

However, as the translation shows, these forms are not identical in meaning, unlike what Portner and Zanuttini (2000) claim in their analysis of regular Paduan exclamatives vs. exclamatives involving EN. That is, (47a) and (47b) express an 'identity' vs. 'quantity' reading, respectively. To illustrate this, I provide two

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[13] Hebrew also allows a form of *wh*-exclamative including the relativizer *še-*, unlike *wh*-questions, as in (i). I will not discuss this variant here.

(i)   ma   še-asiti   etmol!
      what that-I.did yesterday
      'The thing I did yesterday!'

contexts: one in which the speaker did many unsurprising things (48), and another in which she did one surprising thing (49). Crucially, the form in (47a), without *lo*, cannot be used when the context is (48), while (47b) can. Conversely, (47a) is felicitous given (49), but (47b) is not. Table 1 summarizes these observations; note that the upper left hand corner corresponds to the context in (49) and the lower right hand one to (48).

(48)   Context: After working until 4:00 PM yesterday, I went to the doctor for an appointment. Later I did my grocery shopping, and when I arrived at home I did my laundry and mopped the kitchen floor. At 8:00 PM I attended a yoga class, subsequently went back home and left again after half an hour to meet with friends at a local restaurant.

(49)   Context: I went bungee jumping for the first time in my life yesterday (and did nothing else that day).

	One event	Many events
Surprising	(47a), *(47b)	(47a), (47b)
Unsurprising	*(47a), *(47b)	*(47a), (47b)

Table 1: Possible contexts for exclamative *wh*-forms with and without *lo*

In light of these observations, the question is why forms like (47b) do not behave like canonical exclamatives. I maintain that they are actually not exclamatives in terms of their sentential force, i.e., the force conventionally associated with the form of a sentence (Zanuttini & Portner 2003), but rather simply negative rhetorical questions. Accordingly, *lo* in these sentences is the conventional negative marker, and there is no need to extend the semantic analysis given for *lo* in FRs and until-clauses to these cases. The forms can nonetheless possess the illocutionary force of exclamatives if the speaker so intends, just as an example like *Could you come in at 9:00?* has the sentential force of a question but can still be used as an order, i.e., have the illocutionary force of ordering (Zanuttini & Portner 2003).

Beyond the difference between them and exclamatives in terms of felicity conditions, two additional facts support the hypothesis that *wh*-forms involving *lo*, such as (47b), are not exclamatives and the negative marker serves its standard function in these cases. First, (47b) can be used to answer a question, as in (50), unlike standard exclamatives (51), but on a par with other rhetorical questions (52):

(50)   A: tagid, ma   asita   etmol?
              say,   what   you.did   yesterday
              'Say, what did you do yesterday?'

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B: ma   **LO**   asiti   etmol!
    what   **NEG**   I.did   yesterday
    'The things I did yesterday!'

(51) A: How tall is Tony's child?
      B: *How very tall he is!

                                        (Zanuttini & Portner 2003:21)

(52) A: Do you think that John loves me?
      B: Well, has he lifted a finger to help you?

Second, (50) illustrates that *lo* here bears stress, as indicated by the uppercase font, unlike what was noted for EN *lo* in FRs and until-clauses in section 2, thus corroborating the claim that it is the standard negative marker[14].

A final relevant observation, due to Espinal (2000), is that exclamatives with EN in Spanish and Catalan cannot occur under the scope of a factive verb, unlike standard exclamatives. (53a) is an example of a standard exclamative embedded under a factive predicate in Catalan, while (53b) is an embedded exclamative including EN:

(53) a. És   insòlit   com   es   porta   de   malament!
          is   unusual   how es_{ReflCl} behaves   of   bad
          'It is unusual how bad (s)he behaves!'
      b. *Es   increïble quines mentides   **no**   diu   en   Joan!
           is   incredible which   lies   **not**   says   DET   Joan
                                                        (Espinal 2000:61)

The fact that this is not true of the Hebrew forms discussed here, as shown in (54), is not a problem for the proposed analysis. On the contrary, since I have contended that these forms are not exclamatives, but rather rhetorical questions, that they behave unlike exclamatives in other languages, and allow embedding as do rhetorical questions (Pullum 2006, Caponigro & Sprouse 2007), is not surprising.

(54) madhim   ma   **lo**   asiti   etmol!
      amazing   what   **EN**   I.did   yesterday
      'It is amazing what I did yesterday!'

With respect to the quantificational force of (47b), it again patterns like negative rhetorical questions in Hebrew and other languages, involving some type

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[14] Interestingly, the Yiddish equivalent of (47b), from which the Hebrew form is apparently calqued (see section 6), actually bears the syntax of a question. That is, (47b) has the V2 word order found in questions in Yiddish, while (47a) does not (see Eilam 2008 for further details)

of universal quantification. That these constructions exhibit such quantification is a well-known fact, schematically illustrated in (55), which conveys that everybody knows English (for possible accounts of this phenomenon see Bhatt 1998 and Han 1998, a.o.). I consider the fact that (47b) can be used to refer to a large quantity of individuals, rather than an entire set, a matter of pragmatics, akin to other expressions which can be used this way (e.g., *I met everyone at the party* can be judged as true in a context where the speaker met many of the party-goers).

(55) a. Who doesn't know English?
      b. ¬∃x [x doesn't know English] =
      c. ∀x [x knows English]

6 Diachronic aspects and remaining issues

I have argued that in Hebrew, the marker *lo* can serve both as the standard negative marker and, in FRs and until-clauses, as a marker equivalent to the *-ever* morpheme familiar from English. An obvious question this proposal raises is how this type of divergence in meaning was made possible from a diachronic point of view. Unfortunately, Hebrew is not informative in this respect, since EN in FRs was apparently calqued from Russian and/or Yiddish (Blanc 1956, 1965), and in until-clauses from Yiddish (Eilam 2008)[15]. Note that this does not entail that EN in these languages plays the same role as it does in Hebrew, and hence does not refute Citko's (2001) proposal, whereby the *-ever* component in Russian and Polish is contributed by subjunctive mood and not EN (see section 4.2). It is possible that speakers misanalyzed the original forms, wrongly attributing the *-ever* component to EN; alternatively, they may have mapped the *-ever* component onto the negative marker in Hebrew simply because the language lacks a distinct morphological reflex of subjunctive mood.

Hebrew is not alone, however, in exhibiting EN in FRs and until-clauses, and hence it is important to ask whether the analysis proposed here is correct for other languages, and if so, whether a diachronic story could be told regarding these languages. On the one hand, there is reason to be skeptical: the distribution and behavior of EN seems to differ from language to language, and even within a given language there may be more than one subtype of EN (see fn. 2; also Citko 2001 regarding Russian). Furthermore, even in languages in which EN appears in FRs and until-clauses, as in Hebrew, previous analyses have not attributed the *-ever* meaning to the negative marker (e.g., Citko 2001). On the other hand, the latter analyses may simply be misguided; moreover, some of the findings noted in previous sections seem to carry over into other languages: for example, the distinction in (44a) vs. (44b) is also found in Spanish (Laia Mayol, p.c.; see also

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[15] The negative rhetorical questions discussed in section 5 were apparently also calqued from Yiddish (Eilam 2008).

Español-Echevarría and Vegnaduzzo 2000). Thus, a diachronic scenario explaining the addition of an *-ever* meaning to the negative marker is at least worth considering. The scenarios I suggest here follow a key assumption among most theories of semantic change, whereby new meanings of lexemes are variants of older meanings, the former derived from the latter via implicatures and inferences deduced from the use of the lexeme in specific contexts (Traugott 2006). Accordingly, plausible pragmatic derivations must be postulated to account for each stage of meaning change.

In the first stage of meaning change, the universal quantification of negative rhetorical questions like (47b) was reanalyzed as a conditional presupposition of the type found in *-ever*, giving rise to the modal flavor of ignorance or indifference. This was made possible through a conversational implicature typically associated with forms like (47b): using universal quantification implies that the speaker does not know the individual members of the set quantified over or is indifferent as to their identity[16]. Since the negation in negative rhetorical questions is not originally expletive, the fact that it seems to be the most common crosslinguistically and is found even in English (e.g., *What you won't do for love!*), which does not exhibit EN, is predicted under this account.

In a possible second stage, the negative rhetorical questions evolved into exclamatives, rendering the negation opaque. I claimed in section 5 that these constructions can have the illocutionary force of exclamatives, so that this stage, not yet attested in Hebrew, involves encoding the exclamative component as part of their sentential force. Their illocutionary force of exclamation again derives from a plausible pragmatic inference, whereby referring to a large set of individuals implies that some of the members of this set were unexpected. For example, the negative rhetorical question in (47b) can conversationally implicate that the speaker did unusual or surprising things, and hence be interpreted as an exclamative (see also Rohde 2006 on the functional affinity between rhetorical questions and exclamatives). In this stage of semantic change, another development was possible, already proposed for various languages by Haspelmath & König (1998) and Leuschner (1998); namely, the grammaticalization of discourse sequences of negative rhetorical questions and declaratives, giving rise to adjunct FRs, which underwent further clause integration to become argument FRs. In this case, the role of negation also becomes opaque, as expected. As noted above, these various diachronic trajectories are not plausible for Hebrew; I leave it to future research to assess their validity vis-à-vis other languages.

In addition to the diachronic aspects which the proposed analysis raises and which warrant further examination, there are a number of questions left to be resolved, relating both to Hebrew specifically and to more general theoretical

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[16] This theory would have to take into account the fact that *wh-ever* FRs can also yield non-universal interpretations (e.g., Jacobson 1995). In addition, it seems that only certain cases of universal quantification across languages come to encode ignorance/indifference readings. I leave this issue for future research.

aspects. First, I have not addressed the issue of the distribution of EN *lo* in Hebrew; that is, why it is available only in FRs and until-clauses. Even if this usage was calqued in both environments, rather than being a development internal to Hebrew, one could ask why speakers borrowed it all, why they did so in these particular environments, and why its use has not spread to other contexts. In addition, one should examine why EN *lo* is not available with *ad* when the latter is interpreted as 'by the time' rather than 'until' (i.e., "*until*-by"; see also Giannakidou 2003). As noted by Eilam and Scheffler (2006), a sentence involving *ad* with a negated matrix clause has three different readings, exemplified in (56): the NPI-*until* reading in (a), the *until*-by reading in (b), and the negation over durative *until* reading in (c).

(56)   dani   lo   yišan   ad   še-ha-mesiba   tatxil.
       Danny   NEG   will.sleep   until   that-the-party   will.start
       = a. Danny will start sleeping when the party starts.
       = b. Danny will not have slept by the time the party starts.
       = c. Danny will wake up before the party starts.

When EN *lo* is included in the until-clause, the sentence only retains the NPI-*until* reading (a)[17]:

(57)   dani   lo   yišan   ad   še-ha-mesiba   **lo**   tatxil.
       Danny   NEG   will.sleep   until   that-the-party   **EN**   will.start
       = a. Danny will start sleeping when the party starts.
       ≠ b. Danny will not have slept by the time the party starts.
       ≠ c. Danny will wake up before the party starts.

To illustrate this point further, I provide the examples in (58a-b), where including the adverbial *kvar* 'already' forces the *until*-by reading, since the NPI-*until* reading is incompatible with temporal nonadjacency between the events described in the matrix clause and until-clause (see section 4.2). Note that (58b), with EN *lo* in the until-clause, is ungrammatical.

(58)   a.   ad   še-dani   higia   la-misrad,
           until   that-Danny   arrived   to.the-office
           ha-menahel   kvar   lo   haya.

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[17] I do not address the unavailability of the negation over durative *until* reading (c) with EN. This is perhaps a processing issue, since it is possible to get this reading if the standard negation in the matrix clause is moved out of the clause:

(i)   lo   naxon   še-dani   yišan   ad   še-ha-mesiba   **lo**   tatxil
     NEG   true   that-Danny   will.sleep   until   that-the-party   **EN**   will.start
     'It's not true that Danny will sleep until the party starts.'

the-manager already   NEG   was
'By the time Danny arrived at the office, the manager was already not there.'

b. *ad   še-dani   **lo**   higia   la-misrad,
  until   that-Danny EN   arrived   to.the-office
  ha-menahel   kvar   lo   haya.
  the-manager   already   NEG   was
  'By the time Danny arrived at the office, the manager was already not there.'

The problem here may be related to the fact that *until*-by does not entail a relation of temporal adjacency between the event described in the matrix clause and that described in the until-clause, unlike NPI-*until* and durative *until*. Moreover, while it allows for a reading of simultaneity between the two events, a sentence including *until*-by is most readily construed as meaning that the event in the matrix clause precedes the until-clause event. As such, it does not allow one to induce an essential link between the two events, by introducing EN *lo*. Of course, two events need not be temporally adjacent to cause one another in the physical world, but human language does encode such events differently. For example, language allows us to describe causal chains with single-clause expressions only if there is a direct relation between the causer and causee (Wolff 2003, Pinker 2007): if Sara grabs the doorknob and pulls the door open, we say that *Sara opened the door*, but not if she opened the window and a breeze pushed the door open. Perhaps examples like (58b) constitute further illustration that language treats a relation between two events differently if we cannot necessarily infer a direct causal link between them. In any case, this is only a tentative suggestion at this point, which does not fall out from the proposed semantics.

The account suggested in Eilam and Scheffler (2006) explains the observation regarding *until*-by, but is problematic in other respects. They posit that EN is an NPI of the weak sort, i.e., it is licensed in monotone decreasing contexts. Furthermore, NPI-*until* includes a monotone decreasing entailment, and thus can license EN, while durative *until* and *until*-by lack this entailment and hence do not allow EN. Unfortunately, this theory relies on van der Wouden's (1994) analysis of EN as an NPI, which was already argued to be flawed (see section 3). In addition, it forces one to assume that the form of EN available with *until* in affirmative sentences (i.e., durative *until*, as in (40)) is categorically different from that appearing in negative sentences. There is no support in terms of interpretation or distribution for this assumption.

A broader theoretical issue raised in the course of this paper is whether or not the free choice component of meaning contributed by *lo* should be regarded as a presupposition, as von Fintel (2000) suggests. Recall that under this account, the ungrammaticality of sentence (41), involving EN and specification of the time at which the event described by the until-clause takes place, is considered presupposition failure (or, more precisely, failure of a presupposition within a

presupposition). Condoravdi (2005b) argues against this assumption, based on evidence showing that the modal implications of *wh-ever* FRs do not pattern like presuppositions: they cannot be canceled via denial, nor do they exhibit filtering effects with conditionals or conjunctions. Rather, she claims that the modal implications are part of the informative content of *wh-ever* phrases, and offers an alternative analysis. Beyond the English data, which requires further examination, the crosslinguistic patterning of these implications is also of interest: we observed that in Hebrew the ignorance reading is difficult to obtain in FRs, while in other languages it is entirely unavailable with free choice items (e.g., Greek, Giannakidou & Cheng 2006; Korean, Choi 2007), and in Hebrew until-clauses both readings seem to consistently coincide.

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