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Linguistics

MA Thesis Proposal:

The Hebrew *lix'ora* – Trimming the Hedge

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המחלקה לאנגלית

בלשנות

<u>הצעת מחקר לתואר שני:</u>

לכאורה – ניתוח סמנטי

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1. Introduction and Data

The Hebrew *lix'ora* can be roughly translated into English as *allegedly*, *seemingly*, *apparently* or *supposedly*, and intuitively seems to have a hedging effect. For this stage in our research, we refer to hedging intuitively, as a way to introduce statements that are less likely to turn out to be true than in the default case. Our research aims to provide a semantic analysis for this particle while contributing to current research on hedging operators, evidentiality and division of labor issues between semantics and pragmatics.

We will regard *lix'ora* as a sentential operator, i.e. an operator over a proposition, in the form of *lix'ora p*. p stands for the 'prejacent', i.e. the bare proposition without the operator.

1.1. Data and the Questions it Raises

1.1.1. Interpretational Effects

Our main goal in this research paper is to capture correctly and precisely the hedging effect of *lix'ora*. In this respect we observe two types of variations in the interpretational effects of this particle, concerning the status of the prejacent of *lix'ora* and the motivation for the hedge, respectively, as intuitively described in sentences (1) – (3) below:

a) Prejacent Status:
   i. Sometimes *lix'ora p* will indicate that p is in doubt.
   ii. In other cases p is clearly false.

b) Motivation for Hedge:
   i. Sometimes the motivation for the hedge is a 'high level of evidence' required to conclude p / not p.
   ii. In other cases it is a larger / wider set of known facts, which is the basis for concluding p / not p.

To illustrate, consider the following sentences in the indicated contexts:

(1) *ha - feniks gavta, lix'ora, dmei nihul Se - lo ka - din.*[1]
DEF-Pheonix charge [f][3sg][Pt] *lix'ora*, fees management that NEG as-DEF-law.
('The Pheonix (company) charged (its clients), lix'ora, fees unlawfully').

Context: Uttered by a news reporter who is aware of a number of facts which suggest that the Phoenix Company indeed charged fees unlawfully, For example: Customers have reported being charged extremely high fees in recent months; The Phoenix company accountant was witnessed burning documents, etc.

Prejacent Status: p is in doubt.

Motivation for Hedge: The level of evidence required, which guides the reporter (or the news channel he/she represents) must be high in order to avoid a potential lawsuit (e.g. the speaker must have conclusive evidence).

(2) *lix'ora dani hu ha - roce'ax.*
lix'ora Danny he [cop] DEF-murderer.
('lix'ora Danny is the murderer').

Context: Uttered by a person who heard his neighbors talking about facts which suggest that Danny is the murderer. (e.g. that Danny was heard arguing with the

[1] http://www.themarker.com/law/1.627892

victim the day before the murder; Danny was seen fleeing the scene of the crime shortly after the established time of death, etc.

Prejacent Status: p is in doubt.

Motivation for Hedge: The speaker knows that these facts are true, but also knows an additional fact that weakens the certainty of this conclusion. (e.g. that Yossi, who also lives nearby, gave the victim a long overdue loan, which the victim failed to pay back – thus Danny is not the only viable suspect, or perhaps Danny has a good alibi).

(3) *lixo'ra yesh kan stira ba ktuvim.*[2]
lix'ora [exist] here contradiction in-DEF-scriptures.
('lixo'ra there is here a contradiction in the scriptures').

Context: Uttered by a Rabbi aware of an apparent contradiction in the scriptures. For Example: Chapter 1 in Kings, describes King Solomon as having seven hundred chariots, whereas chapter 9 in Chronicles, describing the exact same event, mentions seven thousand chariots.

Prejacent Status: p is clearly false.

Motivation for Hedge: The Rabbi holds more knowledge, which makes him conclude that there is actually no contradiction. For Example he may know about a certain difference in the counting system used in each case, which makes him conclude that there is actually no contradiction.

Table 1.0 below summarizes the effects of *lix'ora* with respect to the two aforementioned parameters:

	Sentence (1) ***Ha feniks gavta, lix'ora, dmei nihul Se-lo kadin.***	**Sentence (2)** ***lix'ora dani hu ha-roce'ax***	**Sentence (2)** ***Lixo'ra yesh kan stira ba ktuvim.***
Prejacent Truth Status	Truth in Doubt	Truth in Doubt	Certainty in Falsity
Motivation for Hedge	(High) Level of Evidence Required (e.g. newscast)	Speaker's (extra) knowledge	Speaker's (extra) knowledge

Table 1.0

1.1.2. Felicity

Preliminary observations lead us to note two types of sentences that are not, or less felicitous with *lix'ora*. Consider sentences (4) and (5) below:

(4) # *lix'ora ha-SemeS zoraxat ba - ma'arav.*
lix'ora DEF-sun rise [f] [3sg] [Pr] in DEF- west.
('lix'ora the sun rises in the West').
(5) ? *lix'ora ha-SemeS zoraxat ba - mizrax.*
lix'ora DEF-sun rise [f] [3sg] [Pr] in DEF-east.
('lix'ora the sun rises in the East').

[2] Adapted from: http://www.hidabroot.org/CommunityDetail.asp?FaqID=28743

Sentence (4), in which the prejacent is a clearly false sentence, is infelicitous with *lix'ora*. Sentence (5) in which *lix'ora* operates on a clearly true prejacent seems to be borderline felicitous, allowable, it seems, only in a context where an addressee would expect the speaker to present a new theory that negates this largely accepted fact. In contrast to (4) and (5), *lix'ora* is usually perfectly felicitous with "contingent" sentences, i.e. those whose truth or falsehood is not universally agreed upon, as in sentences (1) – (3) above.

2. Theoretical Background

In this section we will review some of the research on particles which seem to share some properties with *lix'ora*, namely epistemic *must, clear* and the German particle *wohl.*

2.1. *Must*: Modality vs. Evidentiality

2.1.1. *Must* and *lix'ora*: Comparable Particles

The necessity modal *must,* under its epistemic reading, seems to be a worthy comparable particle to *lix'ora* due to some intuitive similarities. In particular, epistemic *must* also appears to have a flavor of hedging as does *lix'ora*. For example, consider the next minimal pair:

(6) Danny must be the murderer.
(7) lix'ora Dani hu ha - roce'ax.
lix'ora Danny he [cop] DEF-murderer.
('lix'ora Danny is the murderer').

Intuitively, *must p* and *lix'ora p* are very similar in that in both it appears that the worlds or alternative scenarios in which p ("Danny is the murderer") is false, are not ruled out after uttering *lix'ora / must p.*

2.1.2. Must: A Modal Analysis

Angelika Kratzer's seminal work on *must* and *can* (1981, 1991) is where she introduces her scheme of modality using possible world semantics. Our analysis of *lix'ora* will make use of this model. Possible world semantics deals with the semantics of possibilities and necessities, contemplating not only how the actual state of affairs is, but also alternative ways things may have gone or will go. Kratzer's approach takes the various kinds of modality to be represented by the combination of three parameters:

Modal Force: This term describes the type of modality in question as the type of quantification over worlds that is in place: existential quantification for possibility and universal quantification for necessity.
Modal Base: The modal base forms the major restriction on the set of worlds quantified over, and yields a set of accessible worlds where some or all facts known in w_0 (the actual world) are true.
Ordering Source: A function that is applied to the set of accessible worlds formed by the modal base and provides an ordering with respect to the degree to which they are similar to an ideal world. This can be a world where the normal course of events holds ("stereotypical"), where the laws are obeyed ("deontic"), where my wishes come true ("bouletic"), etc.

Modal sentences are represented by Kratzer following this tripartite structure: Q [restriction] [matrix]. Within this scheme, Q is the quantifier over worlds (universal for necessity and existential for possibility). The restriction that yields a subset of the worlds quantified over is reached by taking the modal base and ordering source together. Finally, the matrix is the prejacent. This is more formally represented in (8) (from Hacquard (2011)) :

(8) $\forall w' \in \text{Best}_{g(w)}(f(w))$: $p(w') = 1$.
-Where g is the ordering source function and f is the modal base function.

Kratzer takes epistemic necessity to involve a "stereotypical" ordering source, i.e. one in which the ideal world is a world where "nothing unexpected happens". Following this, a sentence with the epistemic necessity operator *must* can be paraphrased as "In all worlds which are epistemically similar to ours, i.e. in which what we know in the actual world holds and, in addition, which are closest to an ideal world where nothing unexpected occurs, p is true". Intuitively, this means that with epistemic necessity we can take p to follow from what is known and what is considered to be the "normal state of affairs". To exemplify, consider the following sentence:

(9) John must be in his room.

Following the above model, *John must be in his room* is true iff:

- In **all** worlds where: (Modal Force = universal)
  - What we know in the actual world is true. (for example, John usually returns by this hour, John spends most of his time in his room etc.) + (Modal Base Function result)
  - AND
  - Which are most similar to a world where nothing unexpected occurs. (Ordering Source Function Result)

Restriction

⇩

John is in his room (Matrix)

2.1.2 The Strength of Sentences with Epistemic *must*, and an Evidential-Based Analysis

A question which this treatment raises concerns the strength of *must p*. On the one hand, *must p* seems to be stronger than p, since it expresses a necessity, and not an accidental fact, but on the other hand it is "weak", in that it does not seem to entail p. More formally, on the one hand *must* provides information on the truth of p in many possible worlds (and thus is strong), but at the same time seems to be weak with respect to the truth of p in the actual world. For example, (9) does not entail that John is actually in his room (see Karttunen 1972 for the original intuition).

Kratzer attempts to solve this apparent discrepancy by specifying the nature of the ordering source. With *must*, the stereotypical ordering source turns the accessibility relation into nonrealistic, i.e. into a set of worlds which does not have w0 as a member. This is because the actual world is a world where not everything turns out the way one would expect, and low probability eventualities or "surprises" do occur.

In contrast, in their 2008 paper, von Fintel & Gillies have a different view on epistemic *must*. They propose that *must p* is always a strong statement, and that the weakness effect is derived from the fact that *must* signals that the truth of the prejacent was reached via an indirect inference. An example from von Fintel & Gillies supporting the strength of *must*, can be seen in (10a)-(10c):

(10a) *The ball is in A or in B or in C.*
(10b) *It is not in A. . . . It is not in B.*
(10c) *So, it must be in C.*

von Fintel and Gillies point out that the inference in (10c) is by no means weak, since it is virtually impossible to imagine a scenario in which (10c) is false based on (10a) and (10b). Thus, von Fintel & Gillies argue that the apparent weakness of sentences with epistemic *must* does not reflect genuine weakness, but rather that *must* is an evidential component indicating the indirect nature of the evidence for the truth of the prejacent, hence the speakers weakness intuition.

2.1.3. Evidentiality and the Judge Parameter

As our analysis proposes that *lix'ora* is heavily tied to levels of evidence required, we aim to locate this analysis within the current discussion about semantic evidentiality. Evidentiality is usually used to express the source of evidence that a certain proposition is based on, and in various languages, such as in Chechen, Bulgarian and Turkish, (Peterson, Déchaine, and Sauerland 2010) it is expressed morphologically or morphosyntactically. For our purposes, though, we will focus on evidentiality that is expressed by adverbials (as in (11)-(13)), and modal evidentials, (as in (14)) (Examples are from Peterson, Déchaine, and Sauerland 2010):

(11) ***Actually*** *it's raining* (direct perceptual evidence).
(12) ***Apparently*** *it's raining* (indirect inferential evidence–for example sees someone with umbrella).
(13) ***Reportedly*** *it's raining* (indirect hearsay evidence).
(14) *It* ***must*** *have rained* (indirect inferential evidence).

In Mcready 2010, it is claimed that in addition to the "source of evidence" parameter, there is another necessary property that defines all evidential markers, which is a "judge parameter". This term was originally used in the context of "predicates of personal taste" in e.g. Lasersohn (2005), Stephenson (2005) and Moltmann (2006). Generally speaking, according to this theory, the judge parameter determines on the basis of whose perspective a subjective statement (e.g. *This is fun*) was made. By default, we would assign the speaker as judge, unless specified otherwise (for example in embedded sentences, as in *John says this is fun*). Similarly, with respect to evidentials, the judge parameter is suggested to code the contextually salient individual or individuals whose perspective is represented by the evidential marking. Mcready suggests that within evidential theory, the judge of the context is actually the evidence holder.

2.2. *Clear* and *Wohl*: Degrees of Evidence / Commitment, and the Division of Labor between Semantics and Pragmatics

We noted above that using statements with *lix'ora* can be motivated by differences between the degrees of evidence used by the speaker and the salient addressee/s (as in (1)). A theory which uses degrees of evidence is Chris Barker's (2007) analysis of *clear*. This analysis argues that *clear* operates on a scale of "levels of justification", i.e. what is considered enough evidence in order to assert an utterance. Barker claims that *clear*'s main operation is to relax the standard for what counts as "sufficient evidence" and remove extra skepticism from the discourse. He proposes that when one utters "*It is clear that p*", the implication is that there is evidence that can lead us to conclude p and that this evidence is sufficient under the current level of evidence needed, which is determined by context.

Barker's analysis of *clear* is relevant for the understanding of *lix'ora* for another reason as well. A question we will examine in the thesis is whether *lix'ora* has only pragmatic, or also semantic, truth conditional effects. The difference is sometimes described as "side effects" versus "main effects". An example of a case yielding such a side effect is illustrated by Kennedy's (2006) example in (15):

(15) a. *I'm new in town. What counts as tall around here?*
b. *See Bill over there? Bill is tall.*

Concerning this example Barker writes:

> "Imagine [...] that we just measured Bill's height with a tape measure. Then asserting Bill is tall reveals no new information about Bill's height. Instead, in this use, it communicates something about the prevailing standard for tallness in the community in which the discourse is taking place. More technically, the update effect is to eliminate all those worlds in which the standard for tallness in this discourse is less than Bill's height" (p. 8.)

In his analysis of *clear*, Barker (2007) claims that it has only side effects, operating exclusively on the discourse level, without having main effects, i.e. without providing new information about the world. In particular, Barker proposes that the function of *clear* is to reveal the standard for what counts as sufficient evidence in the current discourse, in addition to the above mentioned effect of rejecting excessive skepticism.

Similar observations are made by Zimmermann in his analysis of *wohl* (2008). Zimmermann proposes that *wohl* is a discourse particle that has no contribution to the descriptive content of an utterance, but provides information about the discourse that is underway, namely that there is weakened commitment, by the speaker usually, to the proposition expressed by the clause. An example used to demonstrate this, is in (16):

(16) Hein ist wohl auf See.
('Hein is wohl at sea').

Zimmerman proposes that after uttering *wohl p*, the worlds in which 'Hein is at sea' is true and 'Hein is at sea' is false are still valid options, i.e. there is no effect on the set of worlds where the prejacent is true or false, hence there is no real world truth-conditional main effect here. The worlds that disappear from the common ground are only those in which the speaker is heavily committed to p (the proposition that 'Hein is at sea'). It is assumed that in the default case a commitment is strict, and in order to lower the level of certainty/commitment there is a call for appropriate operators, like *wohl*.

2.2. Allegedly: The Classic Intensional Account

The English adverb *allegedly*, intuitively seems to convey a similar form of hedging, as do certain instances of lix'ora, as exemplified in sentence (1) above *('The Phoenix company charged its clients, lix'ora/allegedly, fees unlawfully')*. Most traditional intensional accounts, based on Kratzer's basic modal

scheme, analyze *allegedly* p roughly as follows: p is true in all worlds which are compatible with what has been alleged (by a certain agent), or in other words / p is true in all worlds where allegations of a certain agent are true (see e.g. Larson 2002, Friedman 2011, Morzycki 2013). These accounts usually do not attempt to explain in detail the nature of allegations, and thus, as we will demonstrate later on, can only take us so far in explaining various phenomena.

3. Proposal

We argue that *lix'ora*'s hedging effect is derived mainly from the interaction between a negative component which dictates that in the actual circumstances p cannot be concluded, and a positive component, which dictates that in certain circumstances, related to ours, p can be concluded. The positive component (characterizing the worlds where p holds), can vary depending on the criterion of similarity of these worlds compared to w_0 (according to level of evidence required or known facts), as seen in our proposed definition below:

***lix'ora p* is true in a world w_0 iff:**

(a – Negative component) It is not the case that in all 'most normal' worlds w' where the set of facts known by the speaker (A_s) holds, given the degree of evidence applied by the speaker (d_s), p also holds, **and**

(b – Positive component) p does hold in all worlds w'', which are

(i) identical to w' in A_s but in which the degree of evidence used is not d_s, but one applied by a salient discourse participant d_c, where $d_c < d_s$ OR

(ii) identical to w' in d_s, but where the set of facts known to a salient participant A_c holds, where $A_c \subset A_s$

Paraphrased less formally: *lix'ora* p signifies that although in the current situation p cannot be safely concluded to be true, it can be concluded to be true in another situation, identical to ours, except that in that situation we would either lower the level of evidence required or decrease/limit the speaker's knowledge.

In the thesis we intend to clarify in a precise way the relationship between the level of evidence required and the degree to which the accessible worlds are considered 'normal' (see e.g. Barker 2007). In addition, we will examine the status of 'known facts', following Veltman (1984). On the intuitive level, though, this account seems to nicely explain the hedging effect that indicates that p can be concluded given some relaxed standard of evidence, or some limited set of known facts, but once we apply a stricter (actual) standard of evidence, or a wider set of (actually known) facts, it cannot be concluded anymore.

4. Accounting for the Data

4.1. Accounting for the Three Uses of *lix'ora*

We will now return to our data (as presented in section 1.1) and demonstrate how the different phenomena are explained by our suggested analysis above.

(1) ha - feniks gavta, lix'ora, dmei nihul Se - lo ka - din.
DEF-Pheonix charge [f] [3sg] [Pt] *lix'ora*, fees [pl] management that NEG as-DEF law.
('The Pheonix (company) charged (its clients), lix'ora, fees unlawfully').

(2) *lix'ora dani hu ha - roce'ax.*
lix'ora Danny he [cop] DEF-murderer.
('lix'ora Danny is the murderer').

(3) *lixo'ra yesh kan stira ba ktuvim.*
lix'ora [exis] here contradiction in DEF-scriptures.
('lixo'ra there is here a contradiction in the scriptures').

Scenario 1, as represented by sentence (1): In this case the difference between the worlds where p is assumed to hold (the positive component) and the worlds where this is not the case (the negative component) lies in the degree of evidence sufficient for reaching a conclusion. In this case, then, the set of facts, A, used as the basis for concluding the prejacent ("The Phoenix company charged fees unlawfully") is the same for both the speaker and his/her addressees (e.g. the Phoenix company accountant was seen burning documents

etc.) or else the addressees may accommodate A_s, but crucially, the speaker (in this case the news reporter) applies a degree of evidence higher than the default or standard degree used by his addressees (e.g. .the people watching TV), in order to be cautious (e.g. not to be sued). The implication is that the truth of p is in doubt, since, although given a relatively low level of evidence we may conclude it, given a higher level of evidence, it cannot be concluded.

Scenario 2, as represented by sentence (2): Here the difference between the worlds where p is assumed to hold (the positive component) and the worlds where this is not the case (the negative component) lies in the set of facts that the speaker takes as the basis for concluding a proposition, which forms a superset of the set of facts known by the salient participants (e.g. the fact that besides Danny, there is an equally viable suspect). Thus, although in this case the degree of evidence applied by the speaker and the salient participants in the discourse is identical, the speaker implies that the truth of p is in doubt, since given the additional facts known, p cannot be concluded anymore.

Scenario 3 (as in sentence (3)), is similar to scenario 2, but differs from it in the speaker's implication that p is definitely false. We propose that this typically happens in "expert contexts" (see e.g. Zimmermann 2008, Gunlogson 2001) where the speaker is taken to be opinionated with respect to the truth value of p. Pragmatically, we identify a rhetorical strategy here, where for the sake of making a point, the speaker initially borrows a narrower set of facts that is known to a salient discourse participant, which leads to the conclusion that p is true, only to later apply his/her more complete set of facts, that leads to the assertion that p is actually false.

4.2. Accounting for the Felicity Issues

We previously noted that with sentences that are held to be certainly true in regular circumstances, such as sentence (5), *lix'ora* is borderline felicitous and with sentences that are held to be definitely false in regular circumstances, *lix'ora* is infelicitous, such as in sentence (4).

(4) *#lix'ora ha-SemeS zoraxat ba - ma'arav.*
lix'ora DEF-sun rise [f] [3sg] [Pr] in DEF-west.
('lix'ora the sun rises in the West').

(5) *?lix'ora ha-SemeS zoraxat ba - mizrax.*
lix'ora DEF-sun rise [f] [3sg] [Pr] in DEF-east.
('lix'ora the sun rises in the East').

This phenomenon follows from our analysis. In the case of (4), it would be impossible to accommodate a set of facts A, known in w0 that would support the truth of P, even with less evidence or with a lower level of accuracy required. Hence the positive component condition cannot be met, and *lix'ora* is indeed infelicitous in this case.

As for sentence (5), one can definitely think of a number of real world facts that support p, which is a clearly true sentence. On the other hand, it seems to be rather difficult to satisfy the negative component condition in the definition, i.e. to perceive an accessible w'' in which p is not true, where the level of evidence criterion is more strict or the set of facts is more complete. We preliminarily propose that such a sentence can be felicitous however, in what we referred to above as an expert context; where the speaker is held to be opinionated as to the truth of p and it is reasonable for the addressees to expect him/her to offer an alternative theory.

5. Appendix: Open Questions and Directions for a More Advanced Analysis

5.1. The Missing Use of *lix'ora*

Above we examined three cases where *lix'ora* is commonly used, which were summarized in table 1.0. Interestingly, there is one scenario that we cannot find in regular usage of *lix'ora* and thus is not represented in the table, namely a case where there is certainty in the falsity of the prejacent and where the reason for the hedge is the high level of evidence required in the context. In addition to our main consideration which is to account for all the described usages of *lix'ora*, we aim for our semantic analysis to account for this missing scenario as well.

A preliminary attempt to explain this missing use, following our analysis, can be made by pointing out the following: If the only relevant parameter which distinguishes the worlds where p is concluded from those where it is not concluded is the level of evidence required, this means that the set of facts known to the discourse participants should be identical in both types of worlds. But then, assuming that the speaker is sure about the falsity of p, the other discourse participants would know that p is false as well. In such a case there is no motivation for the speaker to suggest a weakened statement about the potential truth of p, using *lix'ora*, at all, or employ a rhetorical strategy to emphasize that p is false, as this is already known to the salient interlocutors.

5.2. *lix'ora*: the Approximating Effect

When associated with adjectives, *lix'ora* can get an "approximative" effect, similar to what we find with more standard approximators like *more or less* or the Hebrew *be-gadol*. Consider, for example (17):

(17) *ha - xeder lix'ora naki.*
DEF-room *lix'ora* clean.
('The room is lix'ora clean').

Sentence (17) can be uttered in two intuitively different scenarios. The first is when the speaker intends to say that the room is only superficially clean (e.g. that it is very dirty under the furniture, under the carpet, etc.). The second scenario is where the degree to which the room is clean is not maximal, (but that it is not very dirty either). This second reading is similar to the effect we get with e.g. *more or less*.
In the thesis we will try to explain the existence of these two readings using the two options for interpreting the gap between the worlds within the positive and negative components in the semantics of *lix'ora,* namely using a gap between the set of facts known by the speaker and the addressee/s (for the first reading), and the gap between the standard of evidence required (for considering the room clean) by the speaker and the addressee/s (for the second reading).

We will also try to explain the fact that, like standard approximators, *lix'ora* is better with U(pper) closed, than with L(ower) closed adjectives (using Kennedy & McNally's (2005) terminology):

(18) *? ha - xeder lix'ora meluxlac.*
DEF-room *lix'ora* dirty.
('The room is lix'ora dirty').

More generally, we will examine whether the semantics we propose for *lix'ora* can be seen as a special case of the general scalar schema for interpreting approximators suggested in Greenberg and Ronen (2013) for e.g. *almost, more or less* and *be-gadol*. Given this proposal, all approximators share a positive (proximity) and a negative (polar) component. The semantics proposed for *lix'ora* seem to be similar in this respect.

5.3. *lix'ora* Compared to Other Particles

Although we have preliminary intuitions and findings with regards to the differences and similarities between *lix'ora*, clear and must, which we claim are worthy comparable particles, there is still further work to be done in order to crystallize these observations into clear ideas.

5.3.1. *lix'ora* and *Clear*

Interestingly, while we apply Barker's 'level of evidence' parameter to *lix'ora* similarly to the way it is applied to *clear*, it seems that in some respect, *lix'ora*'s operation is the opposite of that of *clear*. As mentioned above, Barker claims that *clear*'s main operation is to relax the standards for sufficiency of evidence and remove extra skepticism from the discourse. With *lix'ora*, we will argue that in the default case, it indicates that the current level of evidence required is actually set to the higher end of the scale, and that caution, and using Barker's term, skepticism, are actually requirements of the current discourse.

In addition, unlike *clear*, which is assumed by Barker to have only "side effects", i.e. operating on discourse only, *lix'ora* seems to be more flexible. This is due to the fact that, following our analysis, *lix'ora* can operate not only on levels of evidence required, which influences discourse, but also optionally via a comparison of sets of facts, which have truth conditional effects (e.g. indirectly indicating that p is false). Thus, following more exploration, *lix'ora* may emerge as a flexible operator that functions in both domains.

5.3.2. *lix'ora* and *Must*

In many cases, epistemic *must* seems to be quite similar to *lix'ora*, but we have encountered sentences and contexts where differences can be detected. For example, considering the scenarios in examples (1)-(3) above, replacing *lix'ora* with *must* will not be natural. Similarly, unlike *lix'ora* (see the discussion in the section above), *must* does not have an approximation effect, and is equally natural with U(pper) closed and L(ower) closed adjectives:

(19) The room must be clean / dirty

Another difference between *lix'ora* and *must* can be seen when considering (20a) and (20b):

(20a) lix'ora yored *geSem.*
lix'ora come down [m] [3sg] [Pr] rain.
('lix'ora it is raining').

(20b) *It must be raining.*

In their evidential analysis of epistemic *must*, von Fintel & Gillies note that (20b) involves indirect evidence (e.g. that (20b) can be uttered based on noticing people entering the house with wet coats and umbrellas etc). Thus (20b) would be infelicitous in a context where the speaker is directly perceiving the rain. It would seem that in normal circumstances, *lix'ora* is infelicitous as well in this context. But consider a situation where a mother and child are visiting a cinema studio where they encounter artificial special-effect rain. The mother can utter sentence (20a) felicitously, as she, unlike her son, is aware of cinematic special effects, thus following our proposal – the speaker holds more information than a salient addressee. In this same context, *must* (as in (20b)) is definitely not felicitous. Initial thoughts for explaining this may be either that *must*, unlike *lix'ora*, does not allow for a context where the speaker is opinionated about p, or perhaps because the indirect evidence requirement is not satisfied in this case (the speaker does have direct evidence for the drops of water falling from above, even if it is not "genuine" rain). If the latter is true then this means that the source of evidence parameter is not part of the core meaning of *lix'ora*. These and other considerations will be addressed in depth in the thesis.

5.3.3. *lix'ora* and *Allegedly*

Preliminary research indicates that current intensional accounts of *allegedly* p (roughly: p is true in all worlds where what is alleged holds) are limited in their ability to explain the phenomena described above re *lix'ora*. As we have shown, our proposal can explain issues related to the motivation behind the hedge, i.e. why in a certain context a speaker will utter p (e.g. '*The Phoenix Company charged unlawfully...*') and in another context the same speaker will utter *lix'ora* p ('*The Phoenix Company charged, lix'ora, unlawfully...*'). While the basic intensional analysis does not seem to be able to account for such distinctions in a systematic way, we explain this use of *lix'ora* by indicating the higher level of evidence that is required in a certain context.

As shown above, our analysis can also explain the variation in the truth conditional status of the prejacent (sometimes in doubt and sometimes false), by indicating that an implication that p is definitely false will only occur in situations where the difference between the p worlds and not p worlds lies in the set of known facts (for example the speaker knows more than a salient discourse participant) and only where the speaker is opinionated as to the truth of p. The basic intensional scheme for *allegedly* does not seem to capture this divergence, due to the fact that it does not explain what it means to allege or on what basis people make allegations.

With regards to explaining the felicity constraints we discussed above, such as why *lix'ora* is less natural in sentences that are clearly true, and infelicitous in sentences that are clearly false, our proposal has proven quite useful. We have accounted for this by pointing out the nature of the positive and negative components we argue are a part of *lix'ora*'s semantic analysis. These felicity problems will occur if either it is hard or impossible to consider a context where the prejacent is true (the positive component) or a context where the prejacent is false (the negative component). As long as the classic intensional analysis for *allegedly* does not explore when it is felicitous for speakers to allege something, or what are the constraints applied on the basis used for allegations, such felicity issues cannot be accounted for in a systematic and precise way.

With this in mind, we will further explore in the thesis what can be the contribution of the basic intensional analysis of *allegedly* to our analysis of *lix'ora* and moreover, hopefully our analysis can shed light and provide more fine-grained insight to the analysis of *allegedly* and similar adverbs.

5.4. *lix'ora* and Focus

lix'ora seems to be a focus sensitive operator. Consider, for example, the following pair:

(21a) *lix'ora rina rakda im [dani]F.*
lix'ora Rina dance [f] [3sg] [Pt] with [Danny]F.
('lix'ora Rina danced with [Danny]F').

(21b) *lix'ora rina [rakda]F im dani.*
lix'ora Rina [dance]F [f] [3sg] [Pt] with Danny.
('lix'ora Rina [danced]F with Danny').

What is presupposed in (21a) is that Rina danced with someone, and what is hedged is only the claim that it is Danny that she danced with. In contrast, what is presupposed in (21b) is that Rina did something with Danny, and what is hedged is only the claim that what she did with him was dancing. In the thesis we will attempt to integrate this focus sensitivity into the proposed semantics of *lix'ora*, and will also examine *lix'ora's* "degree of association with focus", using Beaver & Clark's 2008 model (i.e. examine whether the focus sensitivity is conventionalized in the semantics of *lix'ora,* in a similar way to what Beaver & Clark claim is true with respect to *only*, or is this sensitivity a pragmatic epiphenomenon, similarly to what they claim with respect to *always*).

In addition, we will examine what happens when *lix'ora* itself is stressed, as in (21c), where in addition to the stress on *dani*, *lix'ora* is stressed and lengthened, and acquires a specific fall-rise-fall intonation:

(21c) *[lix'ora]F, rina rakda im [dani]F*
[lix'ora]F, Rina dance [f] [3sg] [Pt] with [Danny]F.
('[lix'ora]F Rina danced with [Danny]F').

Intuitively, in such a case the sentence strongly implies certainty in the falsehood of the prejacent (similarly to the "opinionated" scenario in (3) above). In the thesis we will attempt to explain this observation using theories which deal with stressed operators (e.g. Koch & Zimmermann 2009, Féry 2011, and Greenberg & Khrizman 2012).

5.5. The Scope of *lix'ora*: Sentential vs. Nominal

Our analysis focuses on the adverbial use of *lix'ora,* where it appears as a sentential operator even when it surfaces sentence internally (cf Beaver & Clark's (2008) sentential analysis of *only*). Indeed, a sentence like (1) can be naturally rephrased as (1a), where *lix'ora* appears sentence initially, with no apparent difference in truth conditions:

(1) Ha - feniks gavta lix'ora, dmei nihul Se - lo ka - din.
DEF-Pheonix charge [f] [3sg] [Pt] *lix'ora,* fees [pl] management that NEG as-DEF law.
('The Pheonix (company) charged (its clients), lix'ora, fees unlawfully')

(1a) *lix'ora ha - feniks gavta dmei nihul Se - lo ka - din.*
lix'ora DEF-Pheonix charge [f] [3sg] [Pt] fees [pl] management that NEG as-DEF law.
('lix'ora the Pheonix (company) charged (its clients) fees unlawfully').

However, consider (22):

(22) *ha–miStara bodeket maasim pliliyim, lix'ora, Sel mar cohen.*
DEF-police check [f] [3sg] [Pr] actions criminal [pl], *lix'ora,* of Mr. Cohen.
('The police is investigating criminal actions, lix'ora, of Mr. Cohen').

In (22) *lix'ora* does not operate on the main clause; the fact that the police is investigating a potential crime is not in doubt and is not meant to be hedged. Indeed, unlike (1), (22) cannot be paraphrased as (22a), with *lix'ora* in the sentence initial position, while preserving the same meaning:

(22a) *lix'ora ha-miStara bodeket maasim pliliyim Sel mar cohen.*
lix'ora DEF-police check [f] [3sg] [Pr] actions criminal [pl] of Mr. Cohen.
('lix'ora the police is investigating criminal actions of Mr. Cohen').

In sentence (22), then, *lix'ora* seems to operate on a nominal expression ("criminal actions"), similarly to the way the adjective 'alleged" would apply. This is in contrast to the initial intuition that regard *lix'ora* as having sentential scope (as in sentences (1) – (3)). On the other hand, concluding that *lix'ora* operates on the nominal 'criminal actions' would clash with our initial sentential analysis. The solution to the puzzle lies in identifying the presupposition that is triggered by the NP "criminal actions by Mr. Cohen", which is:

(23) *mar cohen bitsa maasim pliliyim.*
Mr. Cohen perform [m] [3sg] [Pt] action [pl] criminal [pl].
('Mr. Cohen performed criminal actions')

Thus, *lix'ora* in (22) thereby actually operates on the sentential presupposition (23), allowing us to maintain our sentential analysis. More support for our sentential analysis of lix'ora can be found for example in Faller's (2006) analysis of the scope of evidentials, where he claims that allegedly is a propositional-level operator, according to the embedability test. Further research is required to determine which parameter governs whether *lix'ora* will operate on the presupposition or on the assertion; (e.g. what is exactly the syntactic

relationship that should hold between *lix'ora* and the expression triggering the presupposition). It would be also interesting to check whether or not in such presuppositional cases, the status of the prejacent can be clearly false (i.e. whether the speaker can be considered to be opinionated with respect to the status of the presupposition).

This being said, there are instances where lix'ora does seem to act as a non-subsective adjective, such as in sentence (24) below, where it does not seem to operate on any sentential presupposition:

(24) ha - miStara xokeret recax lix'ora.
DEF - police investigate [f] [3sg] [Pr] murder *lix'ora.*
('The police is investigating an alleged murder".

This proposed adjectival use raises some other issues concerning non-subsective adjectives like *alleged / potential / probable, etc.*, such as: why are they usually not favored in predicative position?, are they really non-subsective? (cf Partee's 2010 research of so-called "privative adjectives"), etc. In the thesis we will examine to what extent the analysis of 'adjectival lix'ora' can help answer such questions, although our intention within the scope of the dissertation is to mainly address the adverbial - sentential version of lix'ora.

5.6. What is "at Issue" (Asserted) and What is "not at Issue" (Presupposed / Backgrounded) in the Semantics of *lix'ora*

Lastly, we proposed that the semantics of *lix'ora* has two components (a positive and a negative one). In the thesis we will attempt to decide which of these components is "at issue" and which is "not at issue" (following Simons et al (2010) terminology). Roberts (2011), for example, takes the positive (proximity) component of *almost* to be "at issue", and the negative (polar) component to be "not at issue". We will attempt to use her diagnostics for determining 'at issueness' to determine the status of the components with *lix'ora.*

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