RANGE-INDICATORS
IN COLLOQUIAL ISRAELI HEBREW:
A SEMANTIC-SYNTACTIC ANALYSIS

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1. Introductory

THE MAIN PART OF this paper is a semantic analysis of the colloquial Israeli Hebrew words *gam* ("also"), *rak* ("only"), *afilu* ("even"), and *davka* ("despite, nothing but"),[1] and a discussion of various constraints on syntactic use or semantic interpretation, which we claim to be motivated by the semantic properties and relations described in this semantic analysis. The above-mentioned forms are given the common label *range-indicators* (RIs). Our reasons for having chosen this label are discussed in Section 2 below.

We hope this paper will prove a contribution not only to modern Hebrew linguistics but also to general theoretical linguistics, as its semantic part includes theoretical and descriptive points that seem to be relevant to the linguistic analysis of other, possibly all, languages.

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1. The English glosses are provided here just for the reader's general orientation. No claim is made as to their adequacy as translations of the Hebrew words.

2. On the Notion of Range-Indicators

Our main motivation for classifying the forms under investigation under the single label *range-indicators* is semantic, not syntactic. These items do share some syntactic properties.[2] But it is their semantics, rather than their syntax, that motivated us to study them as a single group. All four of them share a certain semantic property, which we shall characterize as soon as we have made our terminology clear.

The *range* of a predicate will be defined as the set of elements to which the predicate could potentially apply.[3] Thus, the range of the predicate *eat* includes all animate beings (as "eaters") and all edible substances (as "eaten"). If a predicate has more than one place (as is the case with *eat*), its range is an ordered set of subranges. Thus, the range of *eat* is an ordered set of two subranges: subrange 1 (the set of eaters) and subrange 2 (the set of edible substances).

Most predicates share their range with other predicates. Thus, the range of *eat* overlaps with the range of *touch*, as most "eaters" are also "touchers" and most edible substances are also touchable.

Now there are certain linguistic expressions whose semantic effect is such that a sentence containing them makes implicit reference to that portion of the range which is not explicitly mentioned in it. These are the expressions that we label "range-indicators" (RIs). Consider, for instance, the two sentences:

(1) *yosef axal banana.* ("Joseph ate a banana.")
(2) *yosef axal gam banana.* ("Joseph ate a banana too.")

In sentence (1) no reference is made to any elements of the range of the predicate *axal* ("ate") besides those that are explicitly mentioned in the sentence itself (namely, the elements "Joseph" and "a banana"). Sentence (2), on the other hand, contains an RI, namely *gam* ("also"),

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2. For example, all of them can form a part of every major constituent:
Noun Phrase: *ani roce [gam, rak, davka, afilu] šney tapuxim.* ("I want [also, only,nothing but, even] two apples.")
Verb Phrase: *hu [gam, rak, davka, afilu] axal.* ("He [also, only, unexpectedly, even] ate.")
Adverbial Phrase: *hu raa ota [gam, rak, davka, afilu] lifney švuayim.* ("He saw her [also, only, at no other time than, even] two weeks ago.")
Each of them precedes numerals, determiners and adjectives. They all differ from sentence adverbials such as *kanire* ("probably") and *bexol zot* ("even so") in that they cannot be shifted around in the sentence optionally without affecting its meaning substantially, etc.
3. Cf. Keenan (1973).

which contributes an implicit reference to that portion of the second sub-range of the predicate *axal* ("ate") that is not explicitly mentioned in the sentence itself. What is implied about that other portion of the second subrange is that the predicate *axal* applies to at least one other member of it, too.

Now let us consider a slightly more complex example.

(3) *yosef bikeš gam banana.* ("Joseph asked for a banana, too.")

This sentence may be interpreted along the same lines as sentence (2), that is, it may be understood to imply that Joseph asked for something besides a banana, something that is not explicitly mentioned in sentence (3) itself. But in certain contexts a different interpretation would be appropriate. According to this different interpretation, sentence (3) would not convey the information that Joseph *asked* for something else besides a banana, but, say, that he *was given* something else (e.g. an apple) without necessarily having asked for it, and then asked, in addition to what was given to him, for a banana. This is the interpretation that manifests itself, for instance, in sentence (4):

(4) *yosef kibel tapuax veaxarey xen bikeš gam banana.* ("Joseph was given an apple and afterwards he asked for a banana too.")

Now consider a yet more subtle case:

(5) *ani makir gam mišehu šeyuxal laazor lexa bestatistika.* ("I know also someone who could help you with your statistics.")

Sentence (5) may be interpreted to imply that the speaker knows another person (different from the one he explicitly refers to in the sentence as one who could help the addressee with his statistics). But in some contexts it could have another interpretation, according to which it is not implied that the speaker is familiar with another person of a specific description, but just that the speaker was informed of the existence of such a person. This other interpretation could be given to (5) when it is used, for instance, as a response to sentence (6).

(6) *macati mišehu šeyuxal laazor li bealgebra.* ("I've found someone who could help me with my algebra.")

As can be gathered from sentences (3)–(6) and the accompanying discussion, it is not at all a simple matter to capture the general principles which would predict in each particular case what is the predicate to whose range an RI refers. An explicit formulation of such general principles would supposedly require going into a complex of presently poorly understood areas of syntax, semantics and pragmatics. This, like so many present problems in linguistics, must await further research results.

Without going further into this question, we may, in conclusion of this section, state that RIs are expressions that share the semantic property of range indication, which will be defined as follows:

> Let R be the range of a predicate P in a sentence S. Let R' be the range of another predicate P', where P' is not necessarily in S, and P and P' share at least one semantic feature (so that $C = R \cap R'$, and C is not empty). (Cf. Green, 1968.)

An RI in S indicates, by implication, whether P or P' does or does not apply to elements of R or C that are not in S.

No claim is made in this paper that the words *gam, rak, afilu,* and *davka* are the only RIs in colloquial Israeli Hebrew. There are other forms that exhibit the semantic property of Range Indication, e.g. *od* ("more, another, else"), *šuv* ("again"), *adayin* ("still"), *kvar* ("already"), etc. The reason we restricted ourselves to these forms is that they seem to constitute a relatively homogenous subset of the set of RIs. This homogeneous impression is due to the symmetrical semantic structure of this subset (cf. Table 1).

3. Semantic Analysis of Colloquial Israeli Hebrew RIs

3.1 Semantic dimensions

The meaning of RIs will be described in terms of three semantic dimensions:

I.   Type of Range Indication
II. Assertion vs. Presupposition status of logical and pragmatic consequences
III. Modality (consequence counter-expected)

The dimension of *Range-Indication* was discussed in Section 2 above.

We will refer to the logical notions of *assertion* and *presupposition* as defined by Keenan (1973) in his three-valued Proposed Logic (PL):

> Definition 1: "A PL sentence S (*logically*) *presupposes* a sentence T just in case S is assigned value zero in every interpretation in which T is not asigned value true" (Keenan, 1973, p. 346).

Definition 2: "A PL sentence S (logically) entails a PL sentence T just in case T is true in every interpretation in which S is true. In such a case T is called a (*logical*) *consequence* of S" (p. 352).

Definition 3: "A PL sentence S (logically) asserts a PL sentence T just in case S entails T but S does not presuppose T" (p. 352).

The assertions of a sentence, then, are those sentences which must hold for it to be true, but need not hold when S is false, while its presuppositions must hold for the sentence to be either true or false. If one of its presuppositions is not true, then the sentence is assigned truth value zero.

In order to make the concepts *assertion* and *presupposition* useful for our present analysis, we must vary their original definitions to accomodate *pragmatic* relations like, for instance, the relation between sentence (3) and its context-dependent (logical-pragmatic) consequence "Joseph was given something else" (cf. sentence (4)). The only thing required to adapt Keenan's definitions to our needs is to add to them a clause that will restrict their application to a particular interpretation in a particular context. Our use of the terms *assertion* and *presupposition* below should be understood to be based on such an extended definition.

The semantic dimension assertion vs. presupposition status of logical consequences will be defined as follows:

Let a sentence S, containing an RI, have, among its logical-pragmatic consequences, T and T′, where T′ takes into account the meaning of the RI.[4] Then the presently discussed semantic dimension has to do with the question which of the two (T or T′) is a presupposition of S, and which of the two is an assertion of S.

For examples illustrating this semantic dimension see below.

The semantic dimension of *modality* (consequence counter-expected) is the attitude of counter-expectation that the speaker who produces S (a sentence that contains an RI) has, or believes his audience to have,

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4. The notion "taking into account the meaning of . . . " will not be given a rigorous definition here. However, by using sheer intuition one can realize, for instance, that (ii) below takes into account the meaning of the RI *gam* in (i), whereas (iii) does not.

(i)   *gam yosef barax.* ("Joseph ran away too.")

(ii) *od misehu barax.* ("Someone else ran away as well.")

(iii) *yosef rac.* ("Joseph ran away.")

towards that assertion or presupposition of S which is relevant to the interpretation of the RI. A sentence containing an RI implies that the speaker did not expect, or believes his audience not to have expected, the assertion of his sentence, or the presupposition of his sentence, to become true. For instance, sentence (7) implies that the speaker did not expect, or believes the audience not to have expected, that Joseph would run away.

(7) *gam yosef barax*. ("Joseph ran away too.")

The main assertion of sentence (7) is *yosef barax* ("Joseph ran away").

We shall draw a distinction between *absolute* and *relative* counter-expectation. If S implies just that the speaker did not expect, or believes the audience not to have expected, the consequence of S that is relevant to the interpretation of the RI to become true, then this counter-expectation would be considered *absolute*. If S implies also that the speaker expected (or believes his audience to have expected) the relevant assertion of S to become true *less than* he expected (or believes his audience to have expected) the relevant presupposition of S to become true, or the other way around, that is, the presupposition less expected than the assertion, then this counter-expectation would be considered *relative*.

The counter-expectation implied by sentence (7) is absolute. The counter-expectation of sentence (8), on the other hand, is relative:

(8) *afilu yosef barax*. ("Even Joseph ran away.")

Sentence (8) implies that the speaker expected (or believes the audience to have expected) the assertion of (8) (namely, that Joseph would run away) to become true less than he expected (or believes the audience to have expected) the relevant presupposition of sentence (8) (namely, that some other people besides Joseph would run away) to become true.

Sentences with an RI where the RI implies a relative counter-expectation (e.g. sentence (8)) usually express an attitude of surprise, shock, etc. This is not usually the case with sentences with an RI, where the RI implies an absolute counter-expectation. The explanation for this seems to lie in the fact that a relative counter-expectation presupposes that something was positively expected and the expectation proved wrong (hence the surprise, disappointment, etc.), whereas an absolute counter-expectation does not presuppose that anything was positively expected in advance, only that something was *not* expected. Thus, sentence (8) presupposes that it was expected that some other person (not Joseph) would do the same as those who ran away, whereas sentence (7) does not

presuppose that any additional person would run away.

Another distinction that seems relevant here is the distinction between the counter-expectation being a function of what might be called, for lack of better expression, the scope of the RI in the underlying logical representation of S versus its being also an inherent semantic feature of the RI. Let us use for the former the expression *logical counter-expectation* and for the latter *inherent counter-expectation*. The counter-expectation of *gam* is logical. The counter-expectation of *afilu* is both logical and inherent. Thus, the counter-expectation of (7) seems to result solely from the fact that *gam* has the whole sentence as its scope in "the logical representation" of sentence (7). This could be expressed as [*gam* [*yosef barax*]] ("[Also [Joseph ran away]]"). In other words, "That Joseph ran away is also true." That is to say, *gam* is the logical predicate of sentence (7), i.e. it is the element that conveys the new information carried by (7). The main point is that this information is new and it was not expected. *gam*, being a logical predicate, conveys information that was not expected, hence its logical counter-expectational value. *afilu* in sentence (8) has the same value, but, on top of all that, it has the value of *inherent counter-expectation;* its *relative counter-expectation* feature is an integral part of its own semantic make-up and has nothing to do with its logical scope.

3.2 Semantic definitions of colloquial Israeli Hebrew RIs

We now proceed to propose a definition of the meaning of each RI, using the semantic dimensions discussed in Section 3.1.

It should be pointed out, that our definitions do not embrace all the uses of the items under discussion. However, it seems to us that they could be revised so as to accomodate some uses that seem superficially to lie outside the scope of the definitions as given here. This will require further research.[5]

In our definitions we shall use the following symbols:

The symbol x will denote the scope constituent of an RI, that is, the referent of the constituent of which the RI forms a part in some deep

5. Some preliminary work on the additional use of these RIs, as well as Hebrew *od* ("more") is included in Katriel (1976). This paper is based in part on work done for that study.

representation.[6] Thus, in sentence (9), x, the scope of *gam*, would be the proposition expressed by sentence (10), since a deep representation of (9) would look, in rough outline, like (P1).

(9) *ani roce gam lašir.* ("I want also to sing.")

(10) *ani ašir.* ("I shall sing.")

(P1)
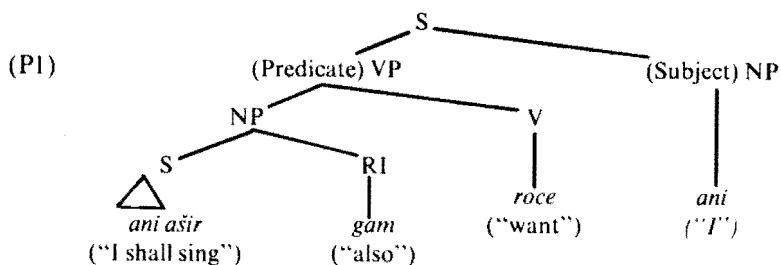
The other symbols in the following definitions will be the capital letters used in Section 3.1, namely S (the sentence containing the RI); P (the predicate of that sentence); P' (another predicate, that shares a part of its range with P); R (the range of P); R' (the range of P'); C (the intersection of R and R'); and T (a logical-pragmatic consequence of S).

Definition of *gam:*

(i) Range-Indication — positive

That is, P (or P') does apply to elements of R or C that are not mentioned in S.

Examples: Sentence (7) has as one of its consequences that P (*barax*) or P' (some other predicate) applies to unspecified elements of R (the range of *barax*) or C (the common portion of the ranges of *barax* and P'). The fact that sentence (7) has as consequences sentence (11) and, in certain contexts, sentence (12), illustrates this informally.

(11) *od mišehu barax.* ("Another person ran away as well.")

(12) *hašomrim lo hiclixu litpos et david.* ("The guards could not manage to catch David.")

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6. We shall not go into the question here of whether such deep representation would be *deep structure, semantic representation,* or some other kind of underlying structure.

Sentence (9) implies that P (*roce*) or P′ (some other predicate) applies to unspecified elements of R or C. Informally, sentence (9) may have as consequences sentence (13) and, in some contexts, sentence (14).

(13) *ani roce lirkod.* ("I want to dance.")

(14) *ani holex lenagen mašehu.* ("I'm going to play something.")

(ii) Status of relevant logical-pragmatic consequences — presupposition

That is to say, the relevant logical-pragmatic consequence T′ (where T′ is the very consequence discussed above, namely, that P [or P′] applies to elements of R or C that are not in S) is a presupposition of S rather than an assertion of S.

As a verification of this, one may regard the fact that T is implied to be true even when S is false. If sentence (11) is a T of sentence (7), and (7) is false (in other words, (15) is *true*), this does not imply that (11) is false. Quite the contrary, sentence (15), as well as (7), implies the truth of sentence (11).

(15) *ze lo naxon šegam yosef barax.* ("It is not true that Joseph ran away too.")

(iii) Modality (consequence counter-expected) — absolute logical counter-expectation of assertion

gam contributes to S the modal consequence that the speaker did not expect (or believes the audience not to have expected) the relevant assertion of S to become true.

Sentence (7) implies that the speaker or the audience did not expect Joseph to run away (that is, that the main assertion, namely "Joseph ran away," was counter-expected).

Definition of *rak*

(i) Range-Indication — negative

That is, P (or P′) does *not* apply to elements of R or C that are not mentioned in S.

Thus, sentence (16) has as consequence sentence (17) and in some contexts, sentence (18).

(16) *rak yosef barax.* ("Only Joseph ran away.")

(17) *af exad axer lo barax.* ("No one else ran away.")

(18) *af exad axer lo nivhal.* ("No one else got scared.")

(ii) Status of relevant logical-pragmatic consequence — assertion

That is to say, the relevant logical-pragmatic consequence T (where T is the very consequence discussed above, namely that P [or P′] does not apply to elements of R or C that are not in S) is an assertion of S rather than a presupposition of S. As a verification of this, one may regard the fact that T is implied to be false when S is false, e.g., the denial of sentence (16) implies the denial of (17).

The difference between the presuppositional structure of *gam* and *rak* accounts for the fact that, although they are reversed in their range indication, the negation of a *rak* sentence does not yield a corresponding *gam* sentence. Thus, the negation of (19) would not be semantically equivalent to (7):

(19) *lo rak yosef barax.* ("Not only Joseph ran away.")

(iii) Modality (consequence counter-expected) — absolute counter-expectation of assertion

rak contributes to S the modal consequence that the speaker did not expect (or believes the audience not to have expected) the main assertion of S (that is, T above) to become true. For example, sentence (16) implies that (17) was not expected.

In some contexts *rak* has the following semantic feature, which the other RIs discussed here lack. In such contexts the relevant elements of the range (R or C) are considered to be ordered along the same semantically or pragmatically (extra-linguistically) determined scale, and x, the scope constituent of *rak*, is understood to be placed somewhere down the scale, usually below the (sometimes illusive) mid-point of the scale. The clearest of these kinds of contexts, perhaps, is in the case of NPs containing numerals:

(20) *rak (šloša) anašim barxu.* ("Only (three) people ran away.")

Here the relevant elements of the range are ordered along the ordinal scale of natural numbers, and *rak* implies "no greater number than three," i.e., it takes the numeral in its scope. Sentence (21) demonstrates that *gam*, for instance, does not possess such a property. It takes the whole quantified NP in its scope.

(21) *gam (šloša anašim) barxu.* ("(Three people) ran away too.")

Sentence (21) does not imply anything about numerical ordering. It

only refers to a group of a given size, it does not restrict the size of the group. In this respect *rak* functions like a group of lexical items we could refer to as "qualifiers" which characteristically take quantifiers as their scope constituents (rather than a whole NP). Among them would be *lefaxot* ("at least"), *lexol hayoter* ("at most"), *beerex* ("more or less"), and *bediyuk* ("exactly"), as illustrated in (22) below.

(22) *[lefaxot, lexol hayoter, beerex, bediyuk] šneym asar anašim barxu.* ("[At least, At most, More or less, Exactly] twelve people ran away.")

In (23) *rak* presupposes a scale of relative prestige of various occupations, that is determined by extra-linguistic, social values.

(23) *hu rak pakid.* ("He is only a clerk.")

In (24), however, the scale is an internal hierarchy of clerks, hence the differences in acceptability.

(24) *hu rak pakid [zutar, *baxir].*("He is only a [junior, senior] official.")

Definition of *afilu*

(i) Range-indication — positive

In this respect *afilu* is equivalent to *gam*. Consider, therefore, sentences (7), (8), and (11) below:

(7) *gam yosef barax.* ("Joseph ran away too.")

(8) *afilu yosef barax.* ("Even Joseph ran away.")

(11) *od mišehu barax.* ("Another person ran away as well.")
Both sentences (7) and (8) imply sentence (11).

(ii) Status of relevant logical-pragmatic consequence — presupposition

afilu is analogous to *gam* in this respect too. Just as the truth of sentence (11) is unaffected by whether (7) is true or false, the truth of sentence (11) (which, as mentioned above, serves as the T of (8), too) is unaffected by whether (8) is true or false.

(iii) Modality (consequence counter-expected) — absolute logical and relative inherent counter-expectation of assertion

That is to say, the assertion (e.g., *yosef barax* in sentence (8)) was less expected than the presupposition (e.g., sentence (11)).

Definition of *davka*

davka is equivalent to *afilu* in that both exhibit relative inherent counter-expectation, but in *afilu* it is the assertion that is least expected, whereas in *davka* it is the presupposition.

Although, as mentioned above, our semantic analysis does not account for all the uses of the forms under discussion, it would be a conspicuous omission not to mention an additional modality feature that presents itself in some of the uses of *davka*—the feature of counter-volition. Sentence (25), for instance, would be ordinarily interpreted to imply not just the version of counter-expectation discussed above, but also the speaker's irritation with the choice of Joseph for the job.

(25) *davka yosef kibel et haavoda.* ("Of all other people, Joseph should be the one to have gotten the job.")

The notion of counter-volition seems, intuitively, to be related to the notion of counter-expectation, but whether this intuition can be placed on a more systematic basis should remain for the time being an open question.

(i)   Range-indication — negative

In this respect, *davka* is equivalent to *rak*. Just as sentence (16) implies (17), sentence (26) implies (17):

(26) *davka yosef barax.*

(ii)   Status of relevant logical-pragmatic consequence — assertion

In this respect too, *davka* is equivalent to *rak*. Just as the denial of sentence (16) implies the denial of (17), the denial of (26) implies the denial of (17).

(iii) Modality (consequence counter-expected) — absolute logical and relative inherent counter-expectation of presupposition

That is to say, the presupposition (e.g. *yosef barax* ("Joseph ran away")) in sentence (26) was less expected than the assertion (sentence (17)).

3.3 Table 1 below is a summary of the semantic definitions proposed above.

	RANGE INDICATION	
	POSITIVE	NEGATIVE
absolute (non-inherent)	*gam*	*rak* (Also, *x* below center in an ordered range)
relative (logical and inherent)	*afilu*	*davka* (Also counter-volition)
	Presupposition	Assertion
	STATUS OF LOGICAL-PRAGMATIC CONSEQUENCE	

(Left margin labels: Modality (consequence counter-expected); right margin label: presupposition counter-expected)

Table 1: Semantic mapping of colloquial Israeli Hebrew RIs

3.4 "Natural logical" universals in the semantics of RIs

Two features of the semantic analysis presented above seem to be implicit (in terms of "natural" rather than formal logic) in certain other features. If this is so, the former should be dropped from the particular semantic analysis of colloquial Israeli Hebrew and promoted to universal semantics.

The first feature is what we termed "non-inherent counter-expectation" which, as mentioned above, seems to be implied by the "logical predicative" status of RIs.

The second feature is the status of the logical-pragmatic consequence. The question whether the relevant logical-pragmatic consequence of S is an assertion or a presupposition seems to be totally determined (in terms of "natural logic") by the question whether the range-indication of the

RI in S is positive or negative. If the range-indication is positive, the consequence should be a presupposition. If the range-indication is negative, the consequence should be an assertion. To see that this is so, consider the following: To assert that the range-indication of the RI in S is positive is to assert that the set consisting of x is just a proper subset of R or C, e.g. the set consisting of Joseph in sentence (7) is just a subset of the set of elements to which P (the predicate *barax* ("ran away")) or P' (some other predicate) applies. Now if S is denied, in other words, if it is asserted that P does not apply to x either (e.g. that *barax* ("ran away") does not apply to Joseph in sentence (7)), this does not necessarily imply that P (or P') does not apply to elements of R or C other than x. To put the same idea differently, the denial of S does not necessitate the denial of its relevant consequence. This consequence is, then, by definition a presupposition of S.

On the other hand, the assertion that the range-indication of the RI in S is negative implies that x is the sole element in R or C (e.g. in sentence (17) Joseph is the sole element to which P (*barax*) applies). If S is denied, in other words, if it is asserted that P is not the sole element in R or C, this necessarily implies that there are other elements in R or C besides x. In other words, the denial of S necessitates the denial of its relevant consequence. This consequence is, then, by definition, an assertion of S.

4. Semantically Motivated Constraints on the Use of RIs in Colloquial Israeli Hebrew

Since this is not a full syntactic analysis, we shall not go into the transformational rules that relate the semantic representation with surface structure, but just point out various constraints on the use of RIs that seem to be motivated by specific features of the semantic analysis presented in Section 3.

4.1 Constraints motivated by range-indication (and, by implication, by the relevant logical-pragmatic consequence)

C1: A positive range-indicator (*gam, afilu*) does not co-occur with a negative range-indicator within the same constituent (*rak, davka*).
   (27) [*gam rak, *rak gam, *afilu rak, *rak afilu, *gam davka, *davka gam, *afilu davka, *davka afilu] yosef barax.*

("〚Also only, Only also, Even only, Only even, Also just, Just
also, Even just, Just even〛 Joseph ran away.")

This constraint seems to be due to the contradictory effect of putting
together two logical predicates with opposite logical-pragmatic conse-
quences.

C2: Two range-indicators with the same value (negative or positive)
do not occur within the same constituent.

   (28) 〚*gam afilu, *afilu gam, *rak davka, *davka rak〛 yosef barax.
       ("〚Also even, Even also, Only just, Just only〛 Joseph ran away.")

This constraint seems to be due to the redundancy that is effected by
putting together two logical predicates which share a consequence. The
use of *rak* and *davka* in such constituents is logically redundant. The use
of *gam* and *afilu* creates a contradiction.

C3: An RI is excluded from a constituent which contains an expres-
sion that is synonymous with an RI (at least with respect to range-
indication).

   (29) 〚*rak, *davka, *gam, *afilu〛 yosef bilvad barax. ("〚Only, Just,
       Also, Even〛 Joseph alone ran away.")

The explanation of this constraint is self-evident.

C4: RIs are excluded from constituents which denote an x that is the
only element in R (the range of P).

   (30) 〚*rak, *davka, *gam, *afilu〛 metim kamim litxiya. ("〚Only, Just,
       Also, Even〛 the dead resurrect.")

rak metim kamim litxiya ("only the dead resurrect") is a tautology
and may be used as part of an explanation of the meaning of *kam litxiya*
("resurrect").

   (31) 〚*rak, *davka, *gam, *afilu〛 yosef hu haiš haašir beyoter baolam.
       ("〚Only, Just, Also, Even〛 Joseph is the richest man in the
       world.")

C5: RIs are excluded from a constituent which denotes an x that is
empty.

   (32) 〚*rak, *davka, *gam, *afilu〛 af exad lo haya šam. ("〚Only, Just,
       Also, Even〛 no one was there.")

The dimension of range-indication presupposes that x is not empty,
otherwise it would make no sense to ask whether P (or P′) applies just to
x or also to elements of R or C besides x.

C6: RIs are excluded from a constituent that refers to an x that in-
cludes the whole range of P.

   (33) 〚*rak, *davka, *gam, *afilu〛 kol dayarey habayit haze garim bo.

("⟦Only, Just, Also, Even⟧ all the occupants of this house live in it.")

rak and *davka* are excluded because their negative range-indication would be redundant. *gam* and *afilu* are excluded because their positive range-indication would cause a contradiction.

C7: RIs are excluded from a constituent which refers to an x that is not specific.

(34) *tizaher, ⟦*rak, *davka, *gam, *afilu⟧ mišehu alul lehikanes.*
("Take care, ⟦only, just, also, even⟧ someone might come in.")

All range-indicators treated in this paper are specific, that is, they presuppose that x is specific. Compare sentences (34) and (35). In the latter the non-specific RI *od* ("else") is used:

(35) *tizaher, od mišehu alul lehikanes.* ("Take care, someone else might come in.")

C8: If a constituent includes one of the following expressions (which qualify an evaluation of the size of x): *bediyuk* ("exactly"), *lefaxot* ("at least"), *lexol hayoter* ("at most"), RIs obey the following cooccurence restrictions:

I. Negative RIs (*rak* and *davka*) do not cooccur with *bediyuk* ("exactly").

(36) *hayu šam ⟦*rak, *davka⟧ bediyuk asara psantranim.* ("There were ⟦only, just⟧ exactly ten pianists there.")

as compared with

(37) *hayu šam ⟦gam, afilu⟧ bediyuk asara psantranim.* ("There were ⟦also, even⟧ exactly ten pianists there.")

Although *afilu* in (37) is of dubious acceptability, it is certainly less unacceptable than *rak* or *davka*.

bediyuk seems to imply "no more and no less than." Negative RIs would introduce an element of redundancy, since negative range-indication means "no more than" in context of sentences such as (36).

II. Negative RIs do not cooccur with *lefaxot* ("at least").

(38) *hayu šam ⟦*rak, *davka⟧ lefaxot asara psantranim.* ("There were ⟦only, just⟧ at least ten pianists there.")

lefaxot ("at least") implies "possibly more." This implication contradicts the negative range-indication of *rak* ("only") and *davka* ("just").

III. Positive RIs do not co-occur with *lexol hayoter* ("at most").

(39) *hayu šam ⟦*gam, *afilu⟧ lexol hayoter asara psantranim.* ("There were ⟦also, even⟧ at most ten pianists there.")

lexol hayoter ("at most") implies "no more than," and this contradicts the positive range-indication of *gam* and *afilu*.

C9: RIs are excluded from a constituent that contains excluding expressions such as *milvad* and *xuc mi-* ("except, besides").

(40) *milvad* ⟦**rak, *davka, *gam, *afilu*⟧ *xatul* ⟦*lo haya šam klum, hayu šam šney klavim*⟧. ("Except ⟦only, just, also, even⟧ a cat ⟦there was nothing there, there were two dogs there⟧.")

RIs are either redundant or contradictory in this context.

C10: If the negative *lo* ("not") has *gam* ("also") in its scope, the sentence is unacceptable. If it has *rak* ("only") in its scope, the sentence is acceptable.

(41) **lo gam yosef rakad.* ("Not also Joseph danced.")

(42) *lo rak yosef rakad.* ("Not only Joseph danced.")

The explanation seems to lie in the fact that the relevant consequence of *gam* ("also") is a presupposition, whereas the relevant consequence of *rak* ("only") is an assertion. *lo* ("not") is used to deny an assertion rather than a presupposition (cf. the unacceptability of sentence (43)):

(43) **lo beerex xamišim anašim nixnesu laxeder.* ("Not about fifty people came into the room.")

The *relevant consequence* of (43) seems to be a presupposition rather than an assertion. It would be something like "speaker does not know exactly how many people came into the room." Sentences (44) and (45) seem to be unacceptable for the same kind of reason.

(44) **lo davka yosef rakad.*[7] ("Not just Joseph danced.")

(45) **lo afilu yosef rakad.* ("Not even Joseph danced.")

Cf. constraints concerning cooccurrences of *afilu* and *davka* with sentence adverbials (in C13 and discussion thereof).

C11: The scope of pro-forms, interpretation of questions, and other expressions that refer anaphorically to a constituent with an RI, etc., are partly determined by the value of its range-indication (and, by implication, by its status as assertion or presupposition).

(46) A: *kaniti* ⟦*rak, davka*⟧ *tapuxim.* ("I bought ⟦only, just⟧ apples.")
     B: *ata tamid ose li et ze.* ("You always do this to me.")
(Response interpreted as "You never buy anything else.")

(47) A: *kaniti* ⟦*gam, afilu*⟧ *tapuxim.* ("I bought ⟦also, even⟧ apples.")

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7. The idiomatic expression *lav davka* ("it is not necessarily so") is a different case altogether.

B: *ata tamid ose li et ze.* ("You always do this to me.")
(Response interpreted as "You always buy apples on top of everything else.")

(46a) A: *kaniti [rak, davka] tapuxim.* ("I bought [only, just] apples.")
      B: *lama?* ("Why?")
(Question interpreted as "Why didn't you buy anything else?")

(47a) A: *kaniti [gam, afilu] tapuxim.* ("I bought [also, even] apples.")
      B: *lama?* ("Why?")
(Question interpreted as "Why did you buy apples on top of everything else?")

(47b) A: *kaniti gam tapuxim.* ("I bought also apples.")
      B: *vegam ma?* ("And what else?")

(46b) A: *kaniti rak tapuxim.* ("I bought only apples.")
      B: **verak ma?* ("And only what?")

Here the response is unacceptable because the form of the question presupposes that P applies to something else, which would contradict the negative range-indication of *rak*.

4.2 Constraints motivated by modality

C12: Embedding an S that contains an RI in a clause that refutes a counter-expectation is unacceptable.

(48) *af al pi šecipita lexax [*rak, *davka, *gam, *afilu] yosef rakad.* ("Even though you had expected it, [only, just, also, even] Joseph danced.")

The refutation of counter-expectation that is implied by such expressions contradicts the counter-expectation implicit in all RIs.

C13: Inherent counter-expectational RIs sound awkward with sentence adverbials that express (as most sentence adverbials do) the attitude of the speaker towards the content of the sentence.

(49) *[kanire, lelo safek, beferuš, . . .] [*afilu, *davka, gam, rak] moše rakad.* ("[Seemingly, No doubt, Certainly, . . .] [even, just, also, only] Moshe danced.")

The explanation for this constraint seems to lie in the fact that *afilu* and *davka,* being inherently counter-expectational (in other words, inherently refer to the speaker's attitude to the content of the sentence) naturally require the whole sentence to be their logical scope; that is, they naturally serve as logical predicates. Sentence adverbials, having a similar status, push them, as it were, out of this natural position, and this creates

the impression of awkwardness. On the other hand, *gam* and *rak*, which are not inherently counter-expectational, do not have such a natural claim for the status of a logical predicate that has the whole sentence as its scope, and therefore tolerate a sentence adverbial in this position. By way of reinforcing the above argument, notice that no such constraint seems to be at work when the adverbial and RI are not dominated by the same S-node in underlying structure as in (50).

(50) [*nire, eyn safek*] *še-*[*afilu, davka*] *moše rakad.* ("[It seems, There's no doubt] that [even, out of all people] Moshe danced.")

C14: *rak* does not occur with expressions that convey surprise at the exclusion of elements of R that are not in *x* from the extension of P. (The extension of a predicate is that portion of its range to which the predicate actually applies in a specific context. Cf. Keenan, 1973.)

(51) *yosef hitpale še-*[**rak, davka*] *david rakad velo mišehu axer.* ("Joseph was surprised that [only, just] David was dancing and not someone else.")

As the counter-expectation of *rak* is absolute, it does not imply a stronger expectation that someone else would dance than that David would dance. Therefore surprise at the refutation of such stronger expectation is out of place. *davka* does imply such stronger expectation, so expression of surprise at its refutation is in order.

C15: *afilu* does not occur with expressions that convey surprise at the inclusion of elements of R that are not in *x* in the extension of P.

(52) *yosef hitpale še-*[**afilu, gam*] *david rakad vegam axoto šel david.* ("Joseph was surprised that [even, also] David danced and also David's sister.")

The relative counter-expectation of *afilu* implies that it was expected that people (not David) would dance. So surprise at the fact that David's sister danced is out of place.

C16: *afilu* and *davka* sound odd in a sentence that expresses a banal truth.

(53a) [*gam, *afilu*] *lerotšild yeš milyon lirot babank.* ("[Also, Even] Rothchild has a million IL in the bank.")

(53b) [*rak, *davka*] *lerotšild yeš milyon lirot babank.* ("[Only, Just] Rothchild has a million IL in the bank.")

This effect is due to the relative counter-expectation implicit in *afilu* and *davka*. A banal truth is more expected than a non-banal one, but relative counter-expectational RIs imply that something is least expected.

C17: An anaphoric demonstrative that serves as the subject in a

sentence whose predicate expresses counter-expectation refers to the presupposition of a sentence with *davka* and to the assertion of a sentence with another RI.

(54) A: [*davka, afilu, gam, rak*] *yosef rakad.* ("[Just, Even, Also, Only] Joseph danced.")

B: *beemet! laze lo cipiti.* ("Really! This I did not expect.")

The demonstrative *ze* ("this") refers to the presupposition (cf. the sentence with *davka*).

C18: The Hebrew construction that would be analogous to English *both* utilizes two occurrences of *gam*.

Note that parallel constructions with *rak, afilu,* or *davka* are not acceptable:

(55) [*gam, *rak, *afilu, *davka*] *mose ve-*[*gam, *rak, *afilu, *davka*] *dan bau.* ("[Both, Only, Even, Just] Moshe [and also, and only, and even, and just] Dan came.")

rak cannot participate in such a construction because of its negative range-indication, which would make one part of it contradict the other. *afilu* and *davka* are excluded here due to their relative counter-expectational consequence, which partially orders the range of the predicate. We cannot first state that Moshe's arrival was least expected and go on to say that Dan's was least expected. We could say that both their arrivals were least expected, but that would be a different sentence. It would go:

(56) [*afilu, davka*] *mose vedan bau.* ("[Even, Just] Moshe and Dan came.")

C19: RIs affect conditional sentences in many interesting ways.

Let us illustrate some of them briefly. It is a general pragmatic presupposition that effort is positively associated with success. Hence, the acceptability judgments of the sets of examples (57)–(58):

(57) [*gam, afilu, *rak, davka*] *im hu yenase hu lo yacliax.* ("[Also, Even, Only, Just] if he tries he won't succeed.")

gam and *afilu* presuppose that he will try, and assert that *despite* his efforts he will not succeed. *davka* also presupposes the truth of the antecedent, but asserts that *because of* his efforts he won't succeed, contrary to the above-mentioned pragmatic expectation. *rak* seems questionable here: it seems to be a real conditional and seems to carry the stronger implication that if he does not try, he will succeed, which contradicts the above-mentioned presupposition, as was the case with *davka*. But *rak*

lacks the inherent modal force of *davka* which renders it more appropriate for such a refutation.

Compare the above with (58):

(58) [*rak, *davka, *afilu, *gam*] *im hu yenase hu yacliax.* ("[Only, Just, Even, Also] if he tries he will succeed.")

The acceptability judgments in (58) are reversed from those in (57). Since the sentences in (58) reflect the pragmatically "expected" state of affairs, no attitude of counter-expectation is compatible with it. *rak,* again, expresses a conditional statement, placing a restriction on its possible antecedents, and is thus not excluded from (58).

We can generalize and say that if a sentence is in agreement with an accepted pragmatic presupposition, or a previously made statement, it will exhibit the acceptability judgments of (58) when RIs are inserted. If it contradicts a presupposition held to be true by Speaker or Hearer or both, then it will exhibit the acceptability judgment of (57). In both cases the readings will follow the pattern indicated.

C20: RIs do not take elements which have undergone the *it-transformation* as their scope constituents.

This seems to be due to the fact that as logical predicates they single out their scope as the focal element, which is just the semantic function of the above transformation, so one of them is redundant. Thus:

(59) *ze* [**rak, *gam, *afilu, *davka*] *moše šešavar et haxalon.* ("It's [only, also, even, just] Moshe who broke the window.")[8]

However, notice that (60) is different with *rak:*

(60) A: *mi šam?* ("Who's there?")

B: *ze* [*rak, *gam, *davka, *afilu*] *anaxnu.* ("It's [only, also, just, even] us.")

The implication of the sentence with *rak* is that it is somebody the inquirer knows well, and the *rak* refers to some scale of familiarity or intimacy. As was argued in Section 3.2, with reference to numerals, *gam* does not share this semantic function of *rak.*

The above discussion concerning the incompatability of RIs with *it-transformation* explains why (62) would not be considered quite appropriate as an answer to (61):

(61) *mi ze šeaxal po glida?* ("Who is it that had ice-cream here?")

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8. Similarly, Azar (1976) has indicated that the *it-transformation* in Hebrew is incompatible with certain emphatic transformations which have an equivalent semantic function.

(62) *moše axal ⟦gam, rak, afilu, davka⟧ glida. ("Moshe had ⟦also, only, even, just⟧ ice-cream.")⁹

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9. Our semantic analysis, in some of its aspects, is in agreement with, and reinforces, the work of Horn (1969), Fillmore (1971), Fraser (1971), Keenan (1971), Anderson (1972), Green (1968), and Lakoff (1972) on related expressions in English, and with Kuroda's paper (1969) on Japanese. However, some specific facts concerning the structure of Hebrew, notably the lexical form *davka* as paralleling *afilu* ("even"), have enabled us to make additional observations leading to further generalizations.

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