

# How speakers alert addressees to multiple meanings

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Received 13 November 2012; accepted 13 November 2012

## Abstract

Two experiments and a corpus-based study test the hypothesis, falling out of the Graded Salience Hypothesis (Giora, 1997, 2003), that addressees' attention to meanings low on salience may be drawn by explicit marking (the low-salience marking hypothesis). In the experiments, participants were presented context-less sentences, followed by a 7-point scale. They were asked to rate the proximity of the interpretation of the sentences to those instantiated at the scale's ends. Items were identical except for the inclusion or exclusion of a marker. Results show that ratings of items including a marker received lower scores compared to items not including a marker, thus confirming that the markers prompted low-salience meanings.

The corpus-based study looked at naturally occurring examples in which concepts appeared with a specific marker (*double entendre*, in Hebrew). It tested the 2-fold prediction that (a) the tested marker does not draw attention to meanings equally salient and (b) that when appearing within context the environment of concepts marked by this marker will resonate with their low-salience meaning. Results show that in the absence of the marker, concepts have a preferred (salient) meaning and that the environments of these concepts, when marked, resonate with their low-salience meanings, indicating that, within context, the marker drew attention to these low-salience meanings.

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**Keywords:** Salience; Low-salience marking; Less-salient; Multiple meanings; Speaker's cues

## 1. Introduction

### 1.1. Alerting addressees to multiple meanings

In this paper we explore how speakers use linguistic markers to explicitly cue addressees to multiple meanings of concepts. We show that, as a means of alerting addressees to multiple meanings of a given concept, speakers exploit explicit markers. Consider the following example (note that throughout, markers are underlined and marked concepts are in bold, for convenience):

1. The variety of secondhand goods available at no cost to the consumer was astonishing at the Really Really Free Market, held at Anisq'Oyo' park this past Saturday. This market was "**free**" in all senses of the word. (McEniry, 2011)

In (1) the phrase *in all senses of the word* draws attention to less salient meanings of *free*. In addition to the salient meaning 'without cost'/'free of charge', the less salient meanings 'liberty/freedom (to exchange)' and 'without regulation' are also activated. These are further spelled out later in the article, when the author states that "RRFM's were started in the mid-1990s to provide an alternative to our state capitalist economy, and their proliferation across the country has been

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steady ever since. RRFMs implement a gift economy in which there is no explicit obligation to pay for things, and as a result, the banks, corporations, and governments cannot profit from these free exchanges.”

Following Fodor (1983), the Graded Salience Hypothesis (Giora, 1997, 2003) assumes that language comprehension involves two distinct mechanisms that run parallel: a bottom-up linguistic mechanism (e.g., lexical access) that is modular and stimulus driven, and a top-down, contextual mechanism that is inferential and integrative in nature, which accumulates information that has already been processed and interfaced with other cognitive processes. For a meaning to be salient – to be foremost on one’s mind – it needs to be coded in the mental lexicon and enjoy prominence due to exposure and/or cognitive prominence. The more frequent, familiar, conventional, or prototypical a meaning the more salient it is, regardless of degree of literality and contextual information. Access is ordered: salient meanings get activated instantly when the relevant stimulus is encountered; less-salient meanings, albeit coded, are slower to activate, because they are less prominent (due to being less familiar, less prototypical, less frequent, less conventional, etc.). Therefore, at times, their activation may not reach a threshold. It follows from the Graded Salience Hypothesis that, in order to prompt addressees’ attention to such meanings and speed up their activation, low-salience meanings should be marked (the low-salience marking hypothesis).

### 1.2. The low-salience marking hypothesis

Where multiple meanings of a stimulus differ in terms of degree of salience, there seems to be a need for a procedure that will prompt the activation of senses low on salience, in case they make up part of the intended meaning. Given that salient meanings are activated initially, cues may be required, alerting the processor to the possibility that initial outputs of the automatic process of decoding should undergo ‘re-coding’. This procedure can be referred to as the practice of explicitly cueing *low-salience* meanings.

In the event that a salient meaning, accessed automatically, is appropriate in a given context, no further processing is called for. However, less-salient meanings, even when potentially appropriate, require extra processing effort for their activation. Speakers must, therefore, resort to MARKing these meanings in some way (for a similar view, see Kay, 1987; Lakoff, 1973; Rosch, 1978).

For illustration, consider the following example:

2. When he was sure the street was empty he dodged into the hedge, forcing his way in amidst the jasmine and violets, and stood motionless: If there was a **dog** in the house – other than its owner, of course – it would now fill the universe with barking. But not a whisper came out of the silence. (Mahfouz, 1961/1984:49)

In example (2), in perhaps a most obvious way of directing attention to additional meanings, the author adds context. In this example, it is the literal (‘canine’) meaning of the word *dog* that is salient, foremost on our mind, and therefore gets accessed immediately. However, the additional remark (“other than its owner”) allows us an insight into the less salient, metaphoric meaning of this concept. In this way, the remark about the owner of the house, being a dog himself, is explicit enough to call attention to the figurative sense of the word.

It is, however, also possible for speakers to linguistically MARK meanings low on salience (henceforth ‘low-salience markers’). Following the procedure of *low-salience marking*, we claim that these markers can be used to cue less salient meanings of the stimuli within their scope. For the purpose of this study, these markers make up a functional class and are referred to as such. Having said that, it is important to stress that we do not assume that the function we discuss here is the exclusive or even the central role of these markers. Indeed, only a thorough corpora search of all attested uses would suffice to make such a claim. We, however, predict that these markers *can* be used in such a way.

Breaking down this theoretical prediction into three, we can state the following: (a) linguistic systems should include low-salience markers which (among others) are verbal markers that draw attention to meanings low on salience; the underlying assumption, relevant to communication in general, is that cooperative communicators use such cues as a means to alert addressees to meanings which would otherwise be missed due to the automatic but graded nature of (lexical) access and therefore, (b) on encountering these markers, addressees’ attention will be directed to meanings lower on salience; consequently (c) such markers will speed up activation of low-salience meanings, ensuring they are not lost in comprehension. Whereas prediction (c) can be tested by using online methods, the present study is limited to testing predictions (a) and (b), using off-line measures and corpus-based analyses.

## 2. Empirical findings

### 2.1. Naturally occurring examples of low-salience marking

Before reporting of our experimental data, let us consider a few naturally occurring examples which instantiate explicit low-salience marking. Below we first exemplify the low-salience marker *literally*:

3. Joakim Noah critic **eats his words**. . . literally. Two years ago, Chicago Tribune columnist Rick Morrissey wrote that Bulls first-round draft pick Joakim Noah would never become a productive NBA player. In fact, Morrissey was so certain the ex-Gator forward would be an NBA bust that he said he would slather his June 2007 column with salsa and eat it if Noah ever turned out to be a “useful” basketball player. Flash-forward to today, where Noah is averaging 11.4 points and 12.4 rebounds in 32 minutes of action. That’s right; a man of his word, Morrissey showed up at the Bulls’ practice facility with offending column and salsa in hand, and ate a small chunk of the Tribune newspaper in front of a beaming Noah. (Skeets, 2009)

Example (3) illustrates the classic use of *literally* where the figurative meaning of some expression has to be replaced by a literal one. (On the development and modern uses of *literally*, see Israel, 2002.) Here the use of *literally* informs the reader that the meaning of *eats his words* is not intended only in its idiomatic reading (‘retract/regret what one has said’); rather, in addition, the marker calls attention to a literal, compositional interpretation where the verb “eat” denotes ‘chewing, swallowing, and digesting’. Stated in terms of salience, *literally* draws attention to a compositional literal interpretation (based on the literal sense of *eat*) which is lower on salience than the coded idiomatic sense of the collocation *eat one’s words*. (On the processing of idioms, see Gibbs, 1980; Giora and Fein, 1999; Van de Voort and Vonk, 1995.) Note that both senses are necessary for a full interpretation of the phrase *eats his words* as it is used in this context. However, only the sense which is low on salience must be marked so that the hearer does not remain “stuck” with the salient idiomatic meaning only. It is noteworthy that the writer chooses to highlight the less salient meaning by marking it *despite* strong contextual support for this meaning (“he said he would *slather* his June 2007 column *with salsa and eat it* if Noah ever turned out to be a “useful” basketball player”). Recall that salience is primarily a function of exposure. A single strongly biasing context is not sufficient to affect a change in degree of salience. As additional examples will show, even when contextual information is highly supportive of multiple meanings or even of one of these meanings (i.e., the less salient meaning), speakers use markers, in addition to context, to ensure addressees become aware of this less salient meaning.

Originally, Giora proposed to reanalyze *literally* as signaling that a salient meaning should be rejected as the intended meaning in favor of a less salient one, regardless of literality/figurativity (see citation in Ariel, 2010:226, where Ariel first presents Giora’s proposal regarding *literally*). We now suggest to rephrase the original proposal so that it focuses only on the marker’s effect on low-salience meanings; *literally* thus signals to the addressee to pay attention to meanings low on salience; following this stage it will be possible for the addressee to decide whether to reject or retain the salient meaning as an additional intended meaning. In other words, the less salient meaning is not necessarily the only one intended. However, it is the one that requires marking.

Additional support for the view that *literally* marks less salient meanings regardless of degree of literalness can be found in examples where speakers use *literally* to draw attention to a less-salient but *non-literal* meaning of a stimulus whose non-literal meaning is salient. Example (4) is illustrative in this respect:

4. Logan: Basically, he told me to **hit the road**.  
Rory: And you took him literally. (*Gilmore Girls* Season 7, Episode 17: “Gilmore Girls Only”)

In the dialog in example (4), the first speaker uses *hit the road* in its salient idiomatic meaning, ‘to get going/depart/get on the road’; specifically, here, the first speaker is recounting that he has just been fired from his job. When the second speaker wonders whether the first speaker took it *literally*, she does not mean that the first speaker used force to slap the road. Instead, she refers to another non-literal meaning of the idiom; ‘begin a journey, drive a long distance’ to see her. Here, *literally* draws attention to a less salient *figurative* rather than literal meaning of the idiom. Examples such as (4), then, show that *literally* can be used as a low-salience marker, alerting the addressee to less-salient rather than literal meanings of figurative expressions. (For a critique of the view that literal properties of words and concepts are easily defined, see Ariel, 2002; Gibbs, 1994.)

Consider now the Hebrew word *be’emet* (‘truly, really, actually’, literally “in truth”). Traditionally it is considered an adverb, which has both referential and interactional uses. *Be’emet* can be used both to emphasize something that has happened, as in ‘She really left’, as well as to show commitment to what has been said, as in ‘I really mean it’. (On stance taking in Hebrew via *be’emet*, see Maschler and Estlein, 2008.) Although less common, our corpus findings reveal that *be’emet* can also be used to draw attention to less salient meanings, as shown in examples (5) and (6) below:

5. Speaker A: If you have any questions, **I’m here**.  
Speaker B: That’s right, you’re truly here. (G.B. 3/8/10, S.G.’s translation)

The salient meaning of *I’m here* is ‘I am around/I can assist’. This collocation was uttered by the first speaker after having explained to the second speaker how to fill in a form. The second speaker in the dialog notes that the first speaker is not only ‘there to assist’ but is, in fact, physically right beside her. In using *be’emet* the speaker prompts the addressee to

activate an additional meaning of the collocation, a meaning based on a compositional reading of the collocation's components – 'I'm right here', thus raising awareness to the less salient, but also contextually appropriate, meaning of the utterance as a whole.

In (6) *be'emet* is used to highlight a nonliteral meaning low on salience:

6. ba- moniyot be-New York, ha-mone be'emet **dofek**.  
in the taxis in New York, the meter truly ticks.  
'In taxis in New York, the meter truly ticks'. (Bravero, 2010)

In (6) the marker *be'emet* draws attention to the less salient meaning of 'dofek'. In addition to the salient meaning of 'runs/operates', the nonliteral less salient meaning 'fools someone, causes them harm or damage' (as would happen to a passenger who was overcharged) is also called for. This less salient meaning is echoed in the sentence immediately following the headline which reads '3,000 taxi drivers in the Big Apple set their meters illegally and deceived passengers in 8.3 million dollars.' (S.G.'s translation). Again, the salient meaning is necessary but not sufficient for a full understanding of the utterance. It is the less salient meaning, the meaning not foremost on our mind, however, that requires marking.

Like *literally* and *be'emet*, the use of negation can also draw attention to the less salient meaning of the concept within its scope. Consider the following minimal pair (taken from Giora et al., 2010 and references therein). Giora et al. (2010) discuss a set of metaphors which behave differently from regular metaphors, in that their metaphoricity is communicated in their negative but not in their affirmative versions (for regular metaphors retaining their metaphoric meaning in both their affirmative and their negative version, see Hasson and Glucksberg, 2006):

7. You tell me what to do all of the time, what to say, where to hide, and what to do. I am not your wife, **I am not your maid**, I'm not someone that you can lay your demands [on] all of [the] time, I'm sick of this, it's going to stop!
8. No, mum. **I am your maid**. It is you, who picked me. It is my job to attend to you, mum.

Giora et al. (2010) adduced empirical evidence showing that while in instances such as (7), the information within the scope of negation is intended nonliterally (note how this is spelled out in the utterances that follow it), it is understood only literally in (8), where it is not preceded or marked by negation. In fact the nonliteral interpretation of such negative utterances is their default interpretation (as also shown in Giora et al., *in press*; Livnat, 2012). However, rather than focusing on nonliteralness, we can conceptualize this phenomenon in terms of degree of salience. In (7) the negation marker draws attention to the less salient (here nonliteral) meaning of 'being a maid' attributed to the female speaker – i.e., "someone that you can lay your demands [on] all of [the] time"; it is the less salient meaning that is being rejected or denied by the negation marker rather than the salient, here literal meaning, related to 'an employed woman hired to do her job'. By rejecting it, negation draws attention to it.

Another example of negation drawing attention to a less salient meaning is found in the following instance:

9. Brennan: Yeah, **I understand**.  
Booth: No, you say you understand but you don't. (*Bones* Season 1, Episode 5: "A Boy in a Bush")

Example (9) is a case of negating a Situation Bound Utterance (SBU, for an overview and discussion, see Kecskés, 2000). In rejecting Brennan's comment (in (9) above), Booth highlights the less salient meaning of the SBU, namely, the non-ritualized interpretation of "I understand". Brennan may be genuine in wanting to show acknowledgment or consent but that is not equivalent to understanding. In cases when consent is all that is called for, the less salient meaning of 'making sense of what one is saying' might not come to mind. Consider the use of the Hebrew negation marker *lo* (in 10):

10. tov, ma nisgar? o be'ecem, **ma lo nisgar?**  
ok, what is closed? Or actually, what not is closed?  
'What's the deal/what's going on/happening? Or actually what isn't closed?'  
(Y.M. 29/7/10, uttered in an elevator whose doors kept opening and closing incessantly).

In example (10) the Hebrew marker *lo* ("not/no") draws attention to the less salient meaning of the collocation *ma nisgar*. In addition to the salient meaning 'what's going on/happening?', the less salient, compositional-based meanings 'is closed' is also invited.

Finally, low-salience markers aren't limited to single-word cases as can be seen from the following:

11. When she'd gone he moved into the reception room and flung himself down on one of the sofas. Now he was **alone in the full sense of the word**, without even his books, which he'd left with Sheikh Ali.  
(Mahfouz, 1961/1984:90)

In the English translation of what is originally an Arabic text, the phrase *in the full sense of the word* calls for the most comprehensive meaning of *alone*, a meaning indicating both the salient meanings ('having no one else around') and the less salient meaning ('being deserted or isolated'). This use can be considered an instance of low-salience marking because the addition of *in the full sense of the word*, implicates the involvement of the less salient meaning as well.

Now that we have looked at how speakers use these markers in natural discourse, we present our experimental data (section 2.2) which focus on the effect of such markers on addressees' interpretation.

## 2.2. Experiments

The aim of the experimental part of this research is to test readers' response to low-salience markers. The following experiments are designed to test the prediction that these markers are aimed at alerting addressees to meanings low on salience. But first, a few general considerations are in order.

There is no disagreement that context plays an important role in disambiguation and that, in addition, it can predict oncoming information of even specific lexical items or words (Beeman et al., 2000; Federmeier, 2007; Federmeier and Kutas, 1999; Peleg et al., 2001). The debate, however, revolves around the question of when, during the comprehension process, context "kicks in" (for a review, see Giora, 2003). In order to show that low-salience markers, on their own, can affect activation of less salient meanings, it is necessary to test their effects in a minimally informative context, namely, outside of any biasing, predictive, or priming context. Indeed it is under such circumstances that highlighting such low salience meanings can be established by native-speakers. However, even when limiting context to minimum, we are still left with the sentence itself.

In order to ensure that the markers themselves draw attention to less salient meanings rather than their sentential position, for instance, and due to the fact that one of the markers tested is licensed only in sentence final position, sentence *final* position was selected as the locus of all the markers used in the experiments of this study. Such a design ensures controlling of 'marker position'.

Controlling of marker final position stands in contrast to Katz and Ferretti (2003), who tested reading times for comprehension and placed *literally speaking* and *proverbially speaking* in sentence *initial* position. Katz and Ferretti (2003) found that such explicit markers or "introductory formulae" have a stronger influence on reducing ambiguity associated with the meanings of unfamiliar proverbs than with familiar (i.e., conventionalized) ones. These results can be explained by the Graded Salience Hypothesis in that salient meanings of familiar proverbs are expected to be figurative rather than literal. Note, however, that placing modifiers in sentence initial position may have invited a discourse marking role for these markers rather than construing the figurative vs. literal reading of the proverbs tested (i.e., affecting lexical decision).

A marker's position *is* relevant if the position it appears in invites a discourse marking role (for a general overview on Discourse Markers (DMs), see Schourup, 1999; for Hebrew, see Maschler, 2009). While DMs, like low-salience markers, are explicit markers guiding addressees' interpretations of utterances, DMs tend to "mark coherence relations among discourse units, and cue the addressee to the appropriate context (the preceding discourse of some extra-linguistic information) he is to use when interpreting the utterance" (Ariel, 1998:223). While DMs are expressions with sentential scope, low-salience markers of the kind tested here appear in positions *within* the sentential structure, modifying internal units such as NPs or VPs. Indeed, low-salience markers appear in sentential positions that do not favor discourse marking, namely they can appear in positions other than sentence initial (Ariel, PC 9/3/10). (On the role of the development of DMs in a theory of grammaticalization and the role sentential position plays in determining markers' functions, see Traugott (1995/1997). For more on procedural properties of DMs, i.e., instructions for how lexical meanings should be understood see Sperber and Wilson, 1993 and references therein; for such an analysis of some Hebrew DMs see Ariel, 1998 on *harey*, and Ziv, 1998 on *kaze*.)

### 2.2.1. Experiment 1

#### Method

**Participants.** Forty students of Tel Aviv University (22 women and 18 men), mean age 24.78,  $SD = 2.93$ , all native speakers of Hebrew, served as volunteer participants.

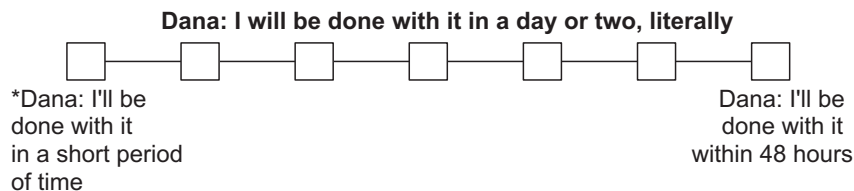
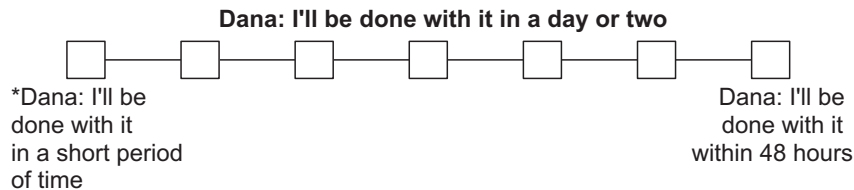
**Materials.** Materials included two sets of 24 items each, conveying as minimal world knowledge as possible, differing only in whether they did or did not include a marker in sentence/clause final position (see (12)–(13) below). Four Hebrew markers, *literali* (literally, as pronounced and written in Hebrew), *be'emet* (truly), *lo* (not/no) and *bimlo muvan hamila* (in the full sense of the word) were tested in the context of single sentences or mini dialogs. All items were presented in isolation.

Items were selected on the basis of their multiple meanings. These included conventionalized metaphors or idioms which have a salient figurative meaning as well as a less salient compositional one (*It is written black on white* – salient meaning: 'the

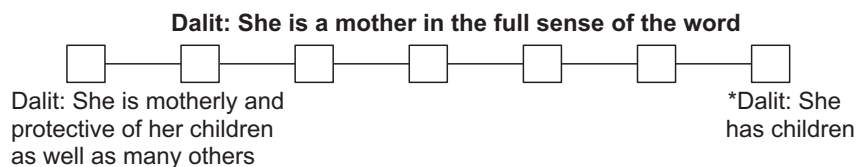
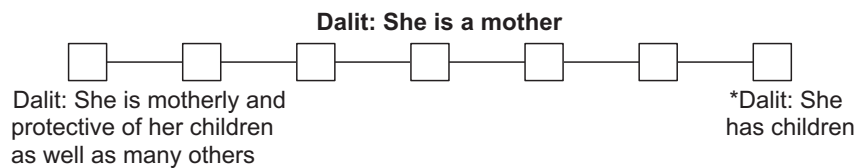
message is stated in the clearest way/terms'; less-salient meaning: 'written in black ink on white background'), SBUs (*I share in your loss* – salient meaning: 'uttered with the purpose of ritually expressing condolences'; less-salient meaning: 'a genuine sharing in the burden of the loss'), phrases with compositional as well as non-compositional meanings (*I'll be done with it in a day or two* – salient meaning: 'I will be done with it in a short period of time'; less-salient meaning: 'I will be done with it within 48 hours'), and words with a salient literal meaning which are associated with figurative meanings (*She is a mother* – salient meaning: 'she has children'; less salient meaning: 'she is motherly and protective of her children as well as many others').

Each item was followed by a 7-point salience scale (not marked for numbers) which featured two different meanings – either salient or less-salient – presented randomly at each end of the scale (salient meanings are indicated throughout with \* for convenience). Note that throughout, whenever analyses are reported, the end of the scale which featured the salient meaning indicates a score of 7 and its opposite end, featuring the less salient meaning – a score of 1:

12.



13.



### Pretest

To establish degree of salience, speakers' intuitions were tested with respect to the interpretations proposed for each item. Though salience is an empirical concept (i.e., salient meanings need to be established using on-line measures) the study reported here was limited to off-line measures. The pretest was run on all the items, presented without markers. Twenty participants who did not participate in Experiments 1 and 2 were asked to rate the proximity of the interpretation of the sentence to those instantiated at the ends of a 7-point scale. Presentation at either end was random. A meaning was considered salient if it received a mean score of 5 and above. Results singled out 21 such items. Three additional items, which scored above 4, were also included in the prospective set of experimental items, since including or discarding them from the analysis did not change the trend of results. Experimental items of Experiments 1 and 2, then, made up a total of 24 items.

Two booklets were prepared so that each participant would be presented only one item of a pair, in such a manner that –/+marker items were counterbalanced across the booklets. Each booklet included 12 sentences without a marker, 12 sentences with a marker, and 6 filler items, making a total of 30 sentences per booklet. Order of presentation of the three types of sentences was pseudorandom. Presentation of interpretations at the scale's ends was counterbalanced across pairs of items.

**Procedure.** Participants were asked to rate, on a 7-point scale, the proximity of the interpretation of the sentence to the interpretations offered at the scale's ends. They were given two examples along with the instructions to ensure that they understood the assignment.

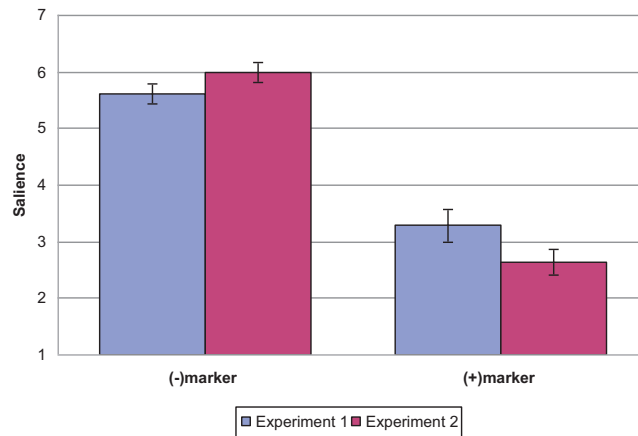


Fig. 1. Meaning salience ratings in  $-/+$ marker conditions in Experiments 1–2 (error bars denote one standard error).

### Results and discussion

Mean scores were calculated for each item and each participant in both conditions ( $-/+$ marker). Results are presented in Fig. 1. They were significant by both participant ( $t_1$ ) and item ( $t_2$ ) analyses. They show that, in the  $+marker$  condition, mean scores were lower, indicating low-salience ( $M = 3.29$ ,  $SE = 0.29$ ), compared to the mean scores obtained in the  $-marker$  condition which were higher ( $M = 5.61$ ,  $SE = 0.18$ ),  $t_1(39) = 19.78$ ,  $p < 0.001$ ;  $t_2(23) = 9.19$ ,  $p < 0.001$ . Results thus support the low-salience marking hypothesis. They show that, as predicted, comprehenders opted for less salient meanings when presented with items including a marker compared to the same items presented without a marker.

### 2.2.2. Experiment 2

The aim of Experiment 2 was to test the low-salience marking hypothesis in a more constrained design such that allows a direct comparison between the minimal pairs (same items with and without markers) tested in Experiment 1. Unlike Experiment 1, in this experiment, minimal pairs were presented next to each other. We expected this design to enlarge the difference found in Experiment 1 between the scores obtained for items with and without markers. Specifically, we wanted to test the hypothesis that the difference between items appearing with a marker and those appearing without a marker would be greater in Experiment 2, compared to Experiment 1.

#### Method

**Participants.** Twenty students of Tel Aviv University (16 women and 4 men), mean age = 23.05,  $SD = 1.99$ , all native speakers of Hebrew, who did not participate in Experiment 1, served as volunteer participants.

**Materials.** As in Experiment 1, only here the minimal pair items were presented next to each other so that participants saw both versions of each item such that the  $-marker$  item always preceded the  $+marker$  item. The presence of both conditions,  $-/+marker$  next to each other, was aimed at drawing closer attention to the markers. Only one booklet was prepared, so that each participant saw all 24 pairs and additional 6 filler pairs pseudorandomly ordered.

**Procedure.** As in Experiment 1.

#### Results and discussion

Results are presented in Fig. 1. They were significant by both participant ( $t_1$ ) and item ( $t_2$ ) analyses. They show that in the  $+marker$  condition, mean scores were lower, indicating low-salience ( $M = 2.63$ ,  $SE = 0.23$ ), compared to mean scores obtained in the  $-marker$  condition which were higher ( $M = 5.99$ ,  $SE = 0.18$ ),  $t_1(19) = 15.26$ ,  $p < 0.001$ ;  $t_2(23) = 9.70$ ,  $p < 0.001$ . These results support the low-salience marking hypothesis. They show that, as predicted, comprehenders opted for less salient meanings when presented with items including a marker compared to the same items presented without markers.

**Comparing Experiments 1 and 2.** The data were analyzed using ANOVAs, with marker ( $-/+$ ) and experiment (1/2) as variables. For the participant analysis ( $F_1$ ), the variable of  $-/+marker$  was treated as a within participant variable and the variable of experiment (1/2) was treated as a between participant variable. Results of ANOVAs showed the same trend in both participant ( $F_1$ ) and item ( $F_2$ ) analyses. Specifically, there was a main effect of marker, such that across the two experiments the  $+marker$  items were ranked lower ( $M = 2.96$ ,  $SE = 0.23$ ) than the  $-marker$  items ( $M = 5.80$ ,  $SE = 0.16$ ),  $F_1(1,58) = 625.83$ ,  $p < 0.001$ ;  $F_2(1,23) = 104.33$ ,  $p < 0.001$ . Additionally, there was an interaction effect:  $F_1(1,58) = 21.01$ ,  $p < 0.001$ ;  $F_2(1,23) = 18.64$ ,  $p < 0.001$ . As a means of following up on the interaction effect in the item analysis ( $F_2$ ), pairwise comparisons were conducted. Results show that while the scores in the  $-marker$  condition were lower in Experiment 1 ( $M = 5.61$ ,  $SE = 0.18$ ) than in Experiment 2 ( $M = 5.99$ ,  $SE = 0.18$ ),  $t(23) = -2.50$ ,  $p = 0.02$ , the items in the

+marker condition scored *higher* in Experiment 1 ( $M = 3.29$ ,  $SE = 0.29$ ) than in Experiment 2 ( $M = 2.63$ ,  $SE = 0.23$ ),  $t(23) = 2.90$ ,  $p = 0.008$ . These results support the low-salience marking hypothesis. As expected, the difference between the scores obtained for items in the +marker condition vs. the –marker condition was larger in Experiment 2 than in Experiment 1. Importantly, as predicted, the presence of the markers in Experiment 2 drew attention to the low-salience meanings which received lower scores compared to Experiment 1. Before moving on to the general discussion of these findings we present the results of an additional, corpus-based, study.

### 2.2.3. A corpus-based study

On top of testing the low-salience markers in isolation, it is also important to test markers in their natural environments, by looking at natural uses. In this corpus-based study, we look into the Hebrew *tartey mašma* (literally “double meaning” or “double entendre”). Naturally occurring uses reveal that, despite its semantics, inviting two meanings of similar salience, *tartey mašma* functions like all the other markers discussed above. It is basically a cue intended to prompt a meaning low on salience. Consider the following example:

14. hi hizmina pasta im šokolad ve-  
she ordered pasta with chocolate, and-  
hu lo yada eix le-exol et ze, tartey mašma.  
he not know how to-eat it double meaning.  
'She ordered pasta with chocolate and he didn't know what to do about it, double entendre  
[i.e., how to eat it]'. (L.L. 25/11/2009)

Example (14) was uttered by an acquaintance recounting a date a friend of hers had gone out on. While out at a restaurant, that friend ordered pasta with chocolate, and her date *lo yada eix le'exol et ze*, (literal meaning: '(He) did not know how to eat it'; salient/idiomatic meaning: '(He) did not know what to do about it/'did not know how to cope (with it)'). Clearly, in this case, the less salient, here the literal meaning was also contextually appropriate. However, as shown before, despite contextual support, the less salient meaning was marked by the speaker to ensure the addressee would not miss the joke/pun she intended. Indeed, when combined with the salient meaning, the less salient, compositional meaning can be enjoyed. Contrary to appearances, however, by uttering *tartey mašma*, the speaker is not limited to drawing attention to literal meanings of figurative language, but rather to a less salient meaning, be it literal or figurative (as shown for the various markers discussed above). The following examples illustrate this further. Example (15) is the title of a newspaper article:

15. **dolarim yerukim, tartey mašma.**  
dollars green, double meaning.  
'Green Dollars, double meaning'. (Godelnik, 2005)

It was followed by the lead: “Billions of dollars a year – that's the extent of the industry of environment friendly products and services in the United States alone. Companies interested in a piece of the pie are beginning to endorse greenish values” (S.G.'s translation). Note that in Hebrew, nouns precede adjectives and that *dolarim yerukim* (literally: “Dollars green”) is taken to mean ‘their color is green’ (*yerukim* on its own is metonymic and means ‘American dollars’ in Hebrew). In this example, *tartey mašma* calls one's attention to the fact that these dollars are also ‘environmentally friendly’ in that they are being spent on products and services that are, figuratively speaking, *green*, i.e., ‘mindful of the environment’.

Finally, consider (16):

16. What a pleasure. What's the date today? Three more days till the month ends and I get out of the shelter.  
**I get out of the shelter. tartey mašma.** (Talmor, 1999:65, S.G.'s translation)

The person thinking these thoughts is a woman who has been renting an air-raid shelter where she keeps her self-made ceramics. When her husband leaves her, she decides to clear out his at-home studio so as to make room for her ceramics and save the money she was spending on rent. She is thus leaving the shelter both physically and emotionally, as she will no longer keep herself or her work in hiding. By adding *tartey mašma*, the author draws the readers' attention to this duality; it is the less salient, emotional reading that has now become apparent. Note that the salient, physical sense of *shelter* has already been accessed at this point.

In order to further demonstrate that, despite its semantics, *tartey mašma* is a low-salience marker, drawing attention to less salient meanings rather than to meanings of similar salience, two controlled studies were conducted.

One way of ascertaining that *tartey mašma* calls for a less salient meaning, rather than for two meanings similarly salient is to test its effect in isolation (see section 2.2.3.1). Specifically, items, including the marker *tartey mašma*, which originally appeared in supportive contexts, will now be presented in isolation, that is, without any specific context and without the marker. Participants will be presented with two meanings instantiated at two ends of a scale (see (17)). If items



in isolation do not have a preferred meaning, this would indicate that *tartey mašma* is used to call attention to meanings similar in salience when used in context. If, however and as predicted, participants' ratings of items presented in isolation demonstrate a preference for one meaning, this would indicate which meaning is higher on salience. If preferred meanings are found, it is plausible to assume that items, appearing in their natural settings, accompanied by the marker, would give rise to a less preferred meaning, i.e., a less salient meaning, which might otherwise not get activated. To further test the hypothesis that *tartey mašma* invokes a less salient meaning one could look at how the natural contexts of these items resonate with their various meanings (see section 2.2.3.2).<sup>1</sup>

According to Du Bois (submitted for publication), resonance pertains to “the activation of affinities across utterances”, which also includes echoing an utterance's meanings and interpretations by its previous or subsequent context (Giora, 2007). If resonance is found, then, given these two studies, we will be able to conclude the following: the items in question have a salient meaning and their contexts, including the marker, attest to the activation of their less salient meaning via resonating with it. In other words, the marker facilitates activation of the less salient meanings found to be echoed by the contexts.

### 2.2.3.1. Preferred/salient meaning study.

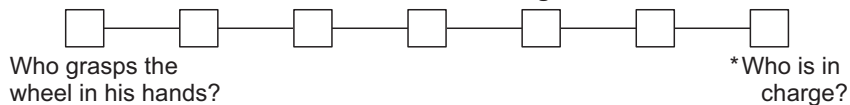
#### Method

**Participants.** Ten students of Tel Aviv University (7 women and 3 men), mean age = 25.5,  $SD = 3.03$ , all native speakers of Hebrew, served as volunteer participants.

**Materials.** Materials included 32 sentences, mini phrases or words, all found through a Google search and appearing, originally, in the scope of the marker *tartey mašma*. For the purpose of this study, items were presented in isolation and without a marker (*Green dollars*, *Big singer*, *Discovering America*). The items were compiled in the following manner: a Google search was conducted of *tartey mašma* (in Hebrew, as is, no parenthesis). Because *tartey mašma* is also used in Hebrew to refer to “cross word puzzles”, all of these uses were ignored. The first 32 items that fit the following criterion were selected for the experiment: At least two distinct meanings for the phrase/word in the scope of the marker could be established. Two interpretations were prepared for each item on the basis of the context found in the search. Each item was followed by a 7-point salience scale (not marked for numbers) which featured these two interpretations at its ends. Presentation at the scale's ends was pseudorandom:

17.

#### Who controls the steering wheel?



**Procedure.** As in Experiment 1.

#### Results and discussion

Mean scores were calculated for each item and participant. Once a preference was indicated, this choice determined which of the scale's ends received the highest-score (7) so that scores could be converted in the following manner: From 1 to 7, 2 to 6, and so on. The key point was to determine which items received a mean score of 4. Recall that if items did not receive such a score they indicated a preference.

Results show that all items, collectively and individually, received a mean score above 4 and indeed, a mean score significantly higher than 4 was found overall ( $M = 5.97$ ,  $SE = 0.15$ ),  $t(9) = 21.09$ ,  $p < 0.001$ ;  $t(31) = 13.37$ ,  $p < 0.001$ . These findings, then, show that the items in question were not balanced but had a preferred (salient) meaning and a less preferred, less-salient one. Given this salience imbalance, it follows that *tartey mašma* does not cue meanings similar on salience.

By testing them in isolation, we show that these concepts have a salient meaning. In the following study we tested whether the contexts, in which these items appear, where they are marked by *tartey mašma*, resonate with the less salient meanings.

### 2.2.3.2. Resonance study.

#### Method

**Participants.** Three experts, familiar with the theoretical and empirical concepts of “Salience” and “Resonance” acted as judges in the study. They were all native speakers of Hebrew.

**Materials.** Materials were 23 items individually scoring significantly higher than 4 as established in the previous study. Materials were presented in the following manner: Each item was displayed in the way it appeared on the

<sup>1</sup> On production and comprehension sharing similar processes, see e.g., Levelt (1989) and Pickering and Garrod (in press); on speakers and comprehenders mirroring each other's neural activities while interacting, see Hasson et al. (2009) and Stephens et al. (2010).

internet, except for the target utterances (those tested in the first study) marked in bold (for instance example (15) from above):

18. **Green dollars**, tartey mašma. Billions of dollars a year – that's the extent of the industry of environment friendly products and services in the United States alone. Companies interested in a piece of the pie are beginning to endorse greenish values

*Procedure.* The judges were informed that they would be given 23 contexts each containing one utterance appearing in bold. They were instructed to read these contexts and indicate, only if found, any resonance with a less salient meaning of the utterance appearing in bold. For illustration, in (18), instances of resonance with the less salient meaning could be: "environment friendly products" or "greenish values". Note that "United States" resonates with the salient meaning 'American dollars (whose color is green)'.

#### *Results and discussion*

Results show that agreement among judges was very high (95.65%). Specifically, the judges found resonance with the less salient meaning in 22 out of the 23 items presented. Out of these 22 items, only 3 non-unanimous decisions were found (namely, 3 items where only one judge found no resonance with the less salient meaning, while the other two judges agreed and marked resonance with the same low salience meaning). These results show that, in contrast to the first study, when the sentences appeared in context, marked by *tartey mašma*, the less salient meaning was activated.

### 3. General discussion

The aim of this study was to offer an answer to the following question: how can speakers direct addressees' attention to alternative meanings of words or phrases uttered in discourse? Throughout this study, this pragmatic question has been dealt with in cognitive terms, focusing on lexical access. In the event that a salient meaning, accessed automatically, is appropriate in a given context, no further processing is necessary (Giora, 1997, 2003). However, in the event that a less-salient but potentially appropriate meaning is intended, it may be lost in comprehension, given that such meanings do not get activated immediately (if at all).

The prediction falling out of the Graded Salience Hypothesis (Giora, 1997, 2003) that linguistic cues can be used to explicitly direct attention to intended but low salience meaning(s) was tested here. Specifically, this low-salience marking hypothesis predicts that explicit markers such as *literali*, *be'emet*, *lo*, *bimlo muvan hamila* and *tartey mašma* will be utilized by speakers to draw attention to less-salient meanings. It further predicts that on encountering the aforementioned markers, addressees' attention would be drawn to a less salient meaning of a concept. Two off-line experiments and a corpus-based study were designed to test this low-salience marking hypothesis.

Results of Experiments 1–2 support the low-salience marking hypothesis. They show that, as predicted by the Graded Salience Hypothesis, the markers tested indeed drew attention to less salient meanings.

The corpus-based study lends further support to the low-salience marking hypothesis. It shows that the marker tested (*tartey mašma*) does not call attention to two meanings that are equally salient (as may be deduced from the marker's semantics, literally "double entendre"). Instead, the naturally occurring environment in which the marker was used, resonated with the less salient meaning of the concepts within its scope.

Can other processing models account for these results? Consider, first, the Modular View (Fodor, 1983). According to this view, lexical access is exhaustive: all the meanings of a stimulus are accessed *initially*, regardless of context. On this view, what role can be assigned to markers such as *literali*, *be'emet*, *lo*, and *bimlo muvan hamila* and what would their influence on the concepts they modify be? Which processing mechanism could explain the transition from all meanings to an additionally intended meaning *on the basis of the marker alone*? Recall that it has already been shown that speakers do not rely on the semantics of these markers when processing their modified concepts (as shown by the Hebrew examples of *tartey mašma*, section 2.2.3 above and the English *literally* in example (4), section 2.1). If some sort or degree of hierarchy among meanings does not exist, accounting for the results of the experiments in terms of this view does not seem possible.

Can the Direct Access or the Interactionist Views (Bates, 1999; Bates and MacWhinney, 1989; MacWhinney, 1987; Tabossi, 1988; Tabossi et al., 1987; Vu et al., 1998), which assume that the effects of a strongly biased context on language comprehension are temporally primary, explain these results? Recall that according to this view, rich and constraining contextual information interacts with lexical access initially and selects contextually appropriate meanings *exclusively*. It follows that this view would predict that such markers as tested here, which might constitute a contextual constraint, should mark meanings which are compatible with context. The design of this study cannot tease apart the predictions of this view and those of the Graded Salience Hypothesis, given that items were presented outside of a specific (let alone strong) context. However, note that in many of the naturally occurring examples presented above (sections 2.1 and 2.2.3), contextual information did not favor any of the meanings; in other words, more than one meaning

could have been considered contextually appropriate. In addition, even when contextual information might be strong enough, speakers still felt the need to alert the addressee to one of the meanings by marking it.

An additional theory which is specific to polysemy is the Underspecification Model (Frisson and Pickering, 2001) which predicts that for words with multiple senses only the underspecified meaning (i.e., compatible with all the senses of a concept established in someone's lexicon) is activated initially (see also Frazier and Rayner, 1990). Once this underspecified meaning is used, context homes-in on the contextually appropriate, narrowed down sense. It is unclear how the model would account for the fact that the sole use of a marker gave rise to assigning a low salience meaning, given that items were presented outside of context. The results obtained here cannot, then, be accounted for by this model. In addition, the model cannot account for the fact that even in a minimal context or a null context (such as in the –marker condition), participants showed preference for *one* of the meanings presented (i.e., the salient).

In contrast, the Graded Salience Hypothesis can account for all these findings. Given that salient meanings are activated automatically, marking additional meanings which might lag behind is motivated by this theory. Regardless, further studies need to test the on-line processing of these markers and their effects on the phrases and words modified, while these are being processed. Such studies could use lexical decision tasks to tap initial stages of lexical access of low salience meanings in –/+marker conditions, testing whether markers speed up activation of less salient meanings.

In conclusion, lab results and natural data show that speakers can and, in fact, do mark additional meanings of phrases and words that make up part of their intended meaning by inserting explicit markers to their utterances. Results collected from off-line experiments and studies of naturally occurring discourse lend support to the psychological reality of salience as a force in language comprehension and production.

## Acknowledgements

This research was supported by a grant to Rachel Giora by The Israel Science Foundation (Grant no. 436/12). We are also very grateful to Mira Ariel for insightful comments and discussions, to Yael Ziv for her comments on a previous draft and to an anonymous reviewer for her/his very helpful comments.

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