John Benjamins Publishing Company

Strongly attenuating highly positive concepts

The case of default sarcastic interpretations

Rachel Giora,[1] Inbal Jaffe,[1] Israela Becker[1] and Ofer Fein[2]
[1] Tel Aviv University | [2] The Academic College of Tel Aviv-Yaffo

What are the constraints rendering stimuli, such as *Alert he is **not**; He is **not** the most organized person around; Hospitality is **not** his best attribute*; *Do you **really** believe you are sophisticated*? sarcastic **by default**? Recent findings (Filik, Howman, Ralph-Nearman, & Giora, in press; Giora et al., 2005, 2013, 2015a, 2015b, in progress a) suggest that strongly attenuating a highly positive concept, e.g., *alert, sophisticated, most organized, best attribute* (associated here with *hospitality*), induces sarcastic interpretations **by default**. To be interpreted sarcastically **by default**, items should be construable as such in the absence of factors inviting sarcasm.[1] They should, thus, be (i) novel, noncoded in the mental lexicon, (ii) potentially ambiguous between literal and nonliteral interpretations, so that a preference is allowed, and (iii) free of specific and biasing contextual information. Online and offline studies, collecting self-paced reading times, eye-tracking data during reading, sarcasm rating, and pleasure ratings, alongside corpus-based studies, further support this view.[2]

Keywords: attenuation, default interpretation, pleasure, sarcasm

1. Introduction

This paper is an attempt to delineate the factors affecting sarcasm interpretation **by default**: What allows such interpretations to be derived automatically, initially and directly, irrespective of equal degree of novelty, equal degree of non/literalness, equal degree of contextual support, or degree of negation, as predicted by

---

1. Sarcasm is equivalent here to verbal irony.

2. Experimental items used here are based on natural language use (see also McEnery & Hardie, 2012, p. 194–195).

the Defaultness Hypothesis (Giora, Givoni, & Fein, 2015b)? We begin by looking at **default** interpretations in general and then move on to discuss **default** sarcasm interpretation in particular.

2.   What does it take to be *interpreted* by default?

According to the Defaultness Hypothesis (Giora et al., 2015b), *defaultness* is defined in terms of an unconditional, automatic response to a stimulus. Given its automaticity, the Defaultness Hypothesis posits the superiority of defaultness over nondefaultness. Note that here, however, the focus is on **default** *interpretations* – on responses *constructed* on the fly rather than *accessed* directly from the mental lexicon.

Still, for such responses to be generated **by default**, stimuli should be potentially *ambiguous* between literal and nonliteral interpretations, so that a preference is allowed. Therefore, they should be (i) novel, non-conventionalized i.e., not formulaic (Giora, 1997, 2003; Kecskés, 2003; Mashal & Faust, 2009); (ii) free of utterance-internal cues, inviting nonliteralness, such as semantic anomaly or internal incongruity (e.g., Beardsley, 1958; Partington, 2011); and (iii) free of utterance-external cues, inviting non/literalness, such as specific contextual information or explicit marking (e.g., *literally*, *#sarcasm,* or Hebrew *staam* [*not seriously/just kidding*]; see Campbell & Katz, 2012; Gibbs, 1994; Sulis, Hernandez Farias, Rosso, Patti, & Ruffo, 2016; Ziv, 2013, respectively; for an elaboration on these conditions, see also Giora, et al., 2013, 2015a).

3.   What does it take to be interpreted *sarcastically* by default?

Our previous studies show that strongly mitigating or "understating" an "overstated", highly positive concept generates sarcastic interpretations **by default**. Specifically, we showed that strongly attenuated highly positive concepts are processed initially and directly, irrespective of degree of negation, equal degree of novelty, equal degree of non/literalness, or equal degree of contextual support (Giora, 2016; Giora, Cholev, Fein, & Peleg, in press; Giora et al., 2015b; Giora, Drucker, Fein, & Mendelson, 2015a; Giora, Fein, Ganzi, Alkeslassy Levi, & Sabah, 2005; Giora, Levant, & Fein, in progress b; Giora et al., 2013). Indeed, such (i) novel stimuli, (ii) involving no semantic anomaly or internal incongruity, (strongly) attenuating highly positive concepts by means of explicit or implicit negation (*Alert he is **not;** Alertness is **not** his forte/best attribute/strong suit; His forte/best attribute/strong suit is **not** alertness; He is **not** the most alert person*

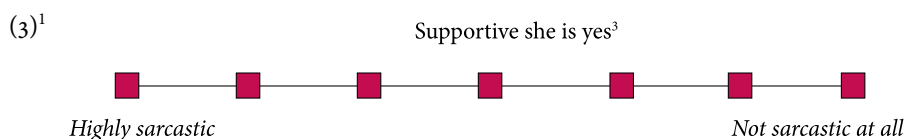*around; Do you **really** believe you are alert*?) were interpreted sarcastically and rated as sarcastic (iii) when presented in isolation. At the same time, having substantiating their defaultness (when outside of context), results further established items' rarely derived literal counterparts as **nondefault** interpretations (Giora et al., 2005, 2013, 2015a, 2015b, Giora, Jaffe, & Fein, in progress a; on negation as mitigation, see e.g., Becker, 2015, 2016; Fraenkel & Schul, 2008; Giora et al., 2005. On *about* similes as a strong mitigator, affecting sarcastic interpretations, see Veale, 2012, 2013; on the frequent occurrence of the sarcastic interpretation of the kind of negative stimuli studied here, e.g., *He is not the smartest person in the world* and the scarcity of their literal interpretation, established based on a Hebrew corpus study, see Becker & Giora, submitted; Giora, under review).

For an illustration, consider Giora et al. (2013), who presented participants with (Hebrew) negative items (whose equal degree of novelty had been established by a pretest), followed by a 7-point interpretations scale, exhibiting a literal interpretation (here at the right end of the scale) and a sarcastic interpretation (here at the left end of the scale) as in (1) below:

(1)   Supportive she is not

She's disparaging and undermining   She has some reservations
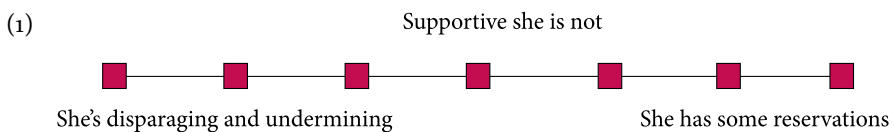
Results showed that, outside of a specific context, the interpretation of the novel negative items was sarcastic, scoring high on sarcasm ($M = 5.59$, $SD = 0.87$), significantly higher than 5 on a 7-point sarcasm scale, $t_1(18) = 2.99$, $p < .005$; $t_2(17) = 4.65$, $p < .0005$. Furthermore, explicitly rating these items and their affirmative counterparts on a 7-point sarcasm scale, ranging between *highly sarcastic* and *not sarcastic at all* (see Examples (2)–(3) below), resulted in these items' scoring high on sarcasm ($M = 5.92$, $SD = 0.94$), significantly higher than affirmative counterparts, which were actually rated as literal ($M = 2.67$, $SD = 1.33$); $t_1(42) = 11.53$; $p < .0001$; $t_2(17) = 45.55$, $p < .0001$. Such results demonstrate that these sarcastic interpretations were derived **by default** and perceived as such **by default**, even when in the negative and even in the absence of specific contextual support. Affirmative counterparts, however, were perceived as literal **by default**:

(2)   Supportive she is not

Highly sarcastic   *Not sarcastic at all*

(3)[1]

Supportive she is yes[3]

Highly sarcastic   *Not sarcastic at all*
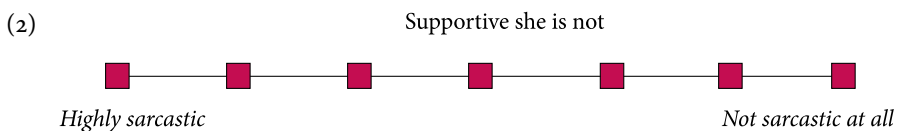
Although potentially *ambiguous* between literal and nonliteral interpretations, when embedded in strongly supportive contexts (established as such by a pretest; see Examples (4)–(5) below), such **default** sarcastic interpretations were processed significantly faster than their **nondefault** (here) literal counterparts, ($M = 883$ ms, $SD = 183$; $M = 949$ ms, $SD = 234$), $t_1(43) = 1.75$, $p < .05$; $t_2(17) = 1.20$, $p = .12$. No spillover effects were visible. They thus attested, for the first time, to the temporal superiority of novel nonliteral yet **default** interpretations over equally novel, yet **nondefault** literal counterparts (Giora et al., 2013, 2015a):

(4) **Sarcastically biasing context**
Yohai kept silent while Tidhar's wife lashed at him with a flood of insult, mocking his idea of opening a café: "You? Be self-employed? Run a business? That would be the day! When pigs fly! Who put that absurd idea into that useless poor excuse for a head? Ain't gonna happen"! After she had stormed off, Yohai asked: "That's your wife? **Supportive she is not**. *I guess* we can't expect her to help with the initial fundraising, can we"?

(5) **Literally biasing context**
Yohai was making bold steps towards realizing his dream of becoming a professional stuntman. His mom, though disapproving, did not impede his progress. Granted, she was not thrilled with his career choice, and she certainly offered no encouragement, financial or otherwise, but she didn't stand in his way. She even showed up in the bleachers for the spectacle where he was about to perform his airborne daredevil antics. His friends were all like "dude! Your mom rocks! She's your no. 1 fan!" Yohai chuckled. "That's going overboard. **Supportive she is not**. *I guess* she couldn't be expected to be happy with what I do. It was real nice of her to come this time."

In all, results in Giora et al. (2013), related to negative constructions such as *X s/he is not*, where X is a positive concept, demonstrate that attenuating a highly positive concept (e.g., *supportive*) by means of explicit negation, affects sarcastic interpretations **by default**, as evinced by the speed superiority of the **default** sarcastic interpretation over its **nondefault** literal counterpart, despite equal strength of contextual support.

Giora et al. (2015a) extended this enquiry by looking at another (Hebrew) construction such as *X is not his forte/strong suit/most amazing attribute/most*

---

1. In Hebrew, this construction makes use of explicit affirmation marking

distinctive feature (where X is a positive concept). As before, when presented in isolation and followed by a 7-point scale, instantiating sarcastic and literal interpretations at the scale's ends, items like (6) below (whose equal novelty was established by a pretest) were interpreted sarcastically and rated as sarcastic.

(6)   Alertness is not her forte

Specifically, novel negative items scored high on sarcasm ($M = 5.51$, $SD = 1.35$), significantly higher than 5 on a 7-point sarcasm scale t_1 (19) = 1.67, $p = .055$, t_2 (13) = 5.44, $p < .0001$. They were further consciously rated as highly sarcastic ($M = 6.02$, $SD = 0.78$), more sarcastic than their equally novel affirmative counterparts (*Alertness is yes her forte*; see footnote 3) which were rated as literal ($M = 2.69$, $SD = 1.01$), t_1 (39) = 15.43, $p < .0001$, t_2 (13) = 22.07, $p < .0001$.

Importantly, however, when embedded in equally strongly supportive contexts (established as such by a pretest), sarcastically biased targets were read faster ($M = 1349$ ms, $SD = 401$) than literally biased counterparts ($M = 1790$ ms, $SD = 579$), t_1 (43) = 4.69, $p < .0001$; t_2 (13) = 4.48, $p < .0005$. Similarly, spillover segments, following sarcastically biased targets, were read faster ($M = 647$ ms, $SD = 192$) than identical counterparts following equally strong, literally biased targets ($M = 739$ ms, $SD = 196$), t_1 (43) = 2.90, $p < .0005$; t_2 (13) = 1.94, $p < .05$ (see Examples (7)–(8) below; targets in bold, spillover segments in italics):

(7)   Nimrod and his brother Assaf were talking about Nimrod's wife.
      Nimrod says she is an "airhead"
      and never notices what's going on around her.
      Assaf couldn't help but laugh and agree,
      and reminded Nimrod of the following incident:
      "I remember that once when we were hanging around in the park,
      we left her on her own for a few minutes.
      When we were back, we found out that all of our belongings were stolen".
      Nimrod laughed and added: "yeah, what can you do,
      alertness is not her forte.
      She's just
      a real daydreamer".

(8)   Nimrod says his wife has all that it takes
      to be the best wife and mother in the world.
      Assaf, Nimrod's brother,
      agrees and tells him about the following incident:
      "I remember when we had a wild birthday party at the swimming pool
      and amidst the commotion
      she managed to notice
      a boy who fell into the pool, and saved him".

Nimrod: "yes, she's very sharp and focused, even though
alertness is not her forte.
She's just
the perfect woman".

Results in Giora et al. (2015a), then, support the view that mitigating a highly positive concept generates sarcastic interpretations **by default**. Specifically, attenuating a highly positive concept by means of explicit negation (e.g., *Alertness is not her forte/best attribute*) results in comprehenders deriving sarcastic interpretations initially and directly, irrespective of strength of contextual support, which was equally strong for both literally and sarcastically biasing contexts. Indeed, when biased toward the **nondefault** literal interpretation of the negative stimulus, contextual information cannot inhibit the target's **default** sarcastic interpretation, which is activated unconditionally, and, therefore, interferes with the interpretation process, while further slowing it down.

Still, note that items in both studies (Giora et al., 2013, 2015a) are structurally marked. Is it possible that it is not attenuation via negation but rather structural markedness that plays a primary role in affecting sarcastic interpretations **by default?**

4.   Is it structural markedness that generates *sarcastic* interpretations by default?

Having used structurally marked constructions in both studies, Giora et al. (2013, 2015a) further tested an alternative explanation implying that it might be structural markedness, rather than mitigation of a highly positive concept, that **affects** sarcastic interpretations **by default**. To rule out this possibility, Giora et al. (2013) weighed structurally marked (Hebrew) negatives and affirmatives (*Supportive she is not/yes*) against structurally unmarked alternatives, differing only in terms of negation and affirmation (*She is not/yes supportive*). Results showed that, although structural markedness might prompt sarcasm, negation proved to be the determinant trigger. Admittedly, unmarked items, whether negative or affirmative, scored low on sarcasm; still, the negative versions of the utterances were always significantly more sarcastic than their affirmative counterparts, regardless of degree of structural markedness. It is negation, affecting mitigation of a highly positive concept, then, that plays a crucial role in generating sarcasm interpretation **by default**.

This has been further supported by conclusive evidence adduced in Giora et al. (2015a). Giora et al. (2015a) examined a different (Hebrew) construction, weighing its structurally marked negative and affirmative versions (*Supportiveness*

is not/yes her forte/best attribute) against their unmarked negative and affirmative counterparts (*Her forte/best attribute is not/yes supportiveness*). Results showed that the negative versions were highly sarcastic, significantly more sarcastic than their affirmative counterparts. Markedness, however, didn't play any role in affecting sarcasm (see Figure 1):
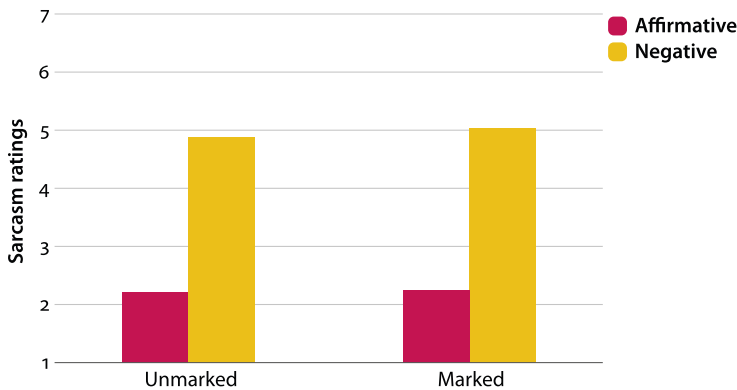

Figure 1. Mean sarcasm ratings of marked and unmarked negative and affirmative counterparts

Findings in Giora et al. (2013, 2015a) thus reduce possibility that it is structural markedness, on its own, that prompts sarcasm **by default**. Instead, they further establish mitigation, inducing the attenuation of a highly positive concept (by means of negation), as a factor significantly affecting unconditional, **default** sarcasm interpretation.

But is it really the case that (a) mitigating a (b) **highly** (c) **positive** concept prompts sarcastic interpretation unconditionally?

5. Is it really an attenuated *highly positive* concept that generates sarcasm by default?

Does it indeed take a **positive** concept to unconditionally prompt sarcasm when mitigated? Is positiveness a necessary condition? Must this positivity be high on positivity? The first question is answered by Goldenberg (2011), in which negative (Hebrew) utterances, involving positive concepts (***Supportive** she is not*), were rated as significantly more sarcastic than counterparts, involving negative concepts (***Obstructive** she is not*). Indeed, mitigating positive concepts (e.g., by means of negation) attenuates positivity to a greater extent than negativity, the former

resulting in stronger contrastive effects (Becker, 2015; Colston, 1999; Fraenkel & Schul, 2008).

In the literature on verbal irony/sarcasm, utterances rendered ironic by context, involving a positive concept, are termed "sarcastic criticism"; when involving a negative concept, they are treated as "ironic praise" (see, e.g., Schwoebel, Dews, Winner, & Srinivas, 2000). In other words, mitigating a positive concept affects a stronger sarcastic interpretation than mitigating a negative concept, whose degree of sarcasm is, therefore, much lower. To be derived sarcastically, however, both kinds (being affirmative) will rely heavily on contextual support; they will not, then, be generated as such **by default**.[2]

Given that mitigated positivity is more susceptible to sarcastic interpretation (as shown by Goldenberg, 2011), should positivity be rather highly positive? In Giora et al. (2005, Example (4)), we tested this question. Participants were presented 3 types of contextless targets, involving a nonmitigated, highly positive concept (*exceptionally bright*, see 9 below), a mitigated, highly positive concept (*not exceptionally bright*, see 10 below), and a mitigated, yet less highly positive concept (*bright*, see 11 below):

 (9)   He is exceptionally bright.

 (10)   He is not exceptionally bright.

 (11)   He is not bright.

Results of a sarcasm rating experiment, based on a 7-point sarcasm scale, show that negated/mitigated, highly positive concepts (see 10 above) scored highest on sarcasm ($M = 4.27$, $SD = 1.38$) – higher than affirmative/nonmitigated highly positive concepts (see 9 above), ($M = 3.03$, $SD = 1.14$), $t_2(17) = 4.92$, $p < .0001$, $t_1(47) = 5.30$, $p < .0001$, as well as negated/mitigated (less highly) positive concepts (see 11 above) ($M = 3.19$, $SD = 1.26$), $t_2(17) = 7.82$, $p < .0001$, $t_1(46) = 7.77$, $p < .0001$. Moreover, scores of nonmitigated highly positive concepts (9) and mitigated (less highly) positive concepts (11) did not vary significantly, $t_2(17) = 0.77$, $p = .23$, $t_1(47) = 0.88$, $p = .19$. Such results support the view that (strongly) mitigating a highly positive concept guarantees **default** sarcastic interpretation.

Does this suggest that mitigating a rather highly positive concept by means of negation (see 10 above) will allow such mitigated/negative sarcasm to be processed faster than nonmitigated/affirmative sarcasm (see 9 above)?

---

2. Note, in this respect, findings in Cori, Canestrari, and Bianchi (2016), who show that intermediate situations can be addressed sarcastically by a polarized/highly contrastive comment and that an intermediate comment can be perceived as sarcastic when referring to a polarized contrastive situation.

6.   Will default negative interpretations prevail over nondefault affirmative counterparts?

As shown by Giora et al. (2013, 2015a, 2015c) (see Section 3 above), **default** sarcastic interpretations supersede **nondefault** literal counterparts, despite equal strength of contextual support. Such findings attest to the superiority of defaultness over degree of non/literalness and strength of contextual support. Will **default** sarcastic interpretations further defy degree of negation? Specifically, will **default** negative sarcasm be processed faster than **nondefault** affirmative sarcasm, irrespective of equal strength of contextual bias? Will defaultness outweigh degree of negation and contextual support when it comes to processing speed?

Most scholars assume that negatives are more difficult to process than affirmative counterparts (e.g., Clark & Clark, 1977; Horn, 1989; Wason, 1965). Indeed, in many cases, weighing affirmatives against negative alternatives results in providing support for the superiority of affirmation over negation. Still, according to the Defaultness Hypothesis (Giora et al., 2015b), which posits the superiority of defaultness over affirmation (and other factors known to affect processing), it is not degree of affirmation that matters, but degree of defaultness.

To test the superiority of defaultness, Giora et al. (2015b) used a 4-way pattern of comparisons, whereby sets of four structurally unmarked (Hebrew) items were included (controlled for equal degree of novelty and strength of contextual support by pretests), each involving two **negatives** (one literal and one nonliteral) and two **affirmatives** (one literal and one nonliteral) (see Table 1 below):

Indeed, the addition of affirmatives to the equation broadened our perspective regarding the impact of defaultness. As before, degree of defaultness was established empirically, outside of a specific context. (For illustration, consider the mode of presentation of Examples (1)–(3) above, only here, the sarcastic interpretations of both negative and affirmative sarcasm were the same – 'He is pretty messy',[3] see 12 and 14 in Table 1).

Findings in Giora et al. (2015b) show that defaultness prevails, irrespective of degree of negation (negation vs. affirmation), equal degree of novelty, equal degree of non/literalness, or equal degree of contextual support. Specifically, **default** Negative Sarcasm (*he is not the most organized student*; see 12, Table 1 above, in bold) was processed significantly faster than both **nondefault** Negative Literalness (*he is not the most organized student*; see 13, Table 1, in bold) and **nondefault** Affirmative Sarcasm (*he is the most organized student*; see 14, Table 1, in bold). Similarly, **default** Affirmative Literalness (*he is the most organized student*; see 15, Table 1, in bold) was processed significantly faster than both **nondefault**

---

3. In Hebrew, the target word also means 'distracted'.

Table 1. Default and nondefault affirmatives and negatives (targets in bold, spillover segments in italics, for convenience)

Negatives	Affirmatives
(12) **Default Sarcasm** During the Communication Department staff meeting, the professors are discussing their students' progress. One of the students has been doing very poorly. Professor A: "Yesterday he handed in an exercise and, once again, I couldn't make any sense of the confused ideas presented in it. The answers were clumsy, unfocused, and the whole paper was hard to follow." Professor B nods in agreement and adds: "Unfortunately, the problem isn't only with his assignments. He is also always late for class, and when it was his turn to present a paper in class he got confused and prepared the wrong essay! I was shocked. What can I say, **he is not the most organized student**. *I'm surprised* he didn't learn a lesson from his freshman year experience."	(14) **Nondefault Sarcasm** During the Communication Department staff meeting, the professors are discussing their students' progress. One of the students has been doing very poorly. Professor A: "Yesterday he handed in an exercise and, once again, I couldn't make any sense of the confused ideas presented in it. The answers were clumsy, unfocused, and the whole thing was hard to follow." Professor B nods in agreement and adds: "Unfortunately, the problem isn't only with his assignments. He is also always late for class, and when it was his turn to present a paper in class he got confused and prepared the wrong essay!" Professor C (chuckles): "In short, it sounds like he really has everything under control." Professor A: "What can I say, **he is the most organized student**. *I'm surprised* he didn't learn a lesson from his freshman year experience."
(13) **Nondefault Literalness** The professors are talking about Omer, one of the department's most excellent students. Professor A: "He is a very efficient lad. Always comes to class on time with all of his papers in order and	(15) **Default Literalness** During the Communication Department staff meeting, the professors are discussing their students' progress. One of the student's has been doing very well. Professor A: "He is the most

Table 1. *(continued)*

Negatives	Affirmatives
all his answers are eloquent, exhibiting a clearly structured argumentation. I think that explains his success." Professor B: "Yes, it's true. Omer is simply very consistent and almost never digresses from the heart of the matter. But there are two other students whose argumentation and focus surpass his, so I'd just say that, in comparison to those two, **he is not the most organized student**. *I'm surprised* he asked to sit the exam again."	committed student in the class. Always on time, always updated on everything. Professor B: "I also enjoy his answers in class. He always insists on a clear argumentation structure and is very eloquent. In his last exam, not only was each answer to the point but also very clear. In my opinion, **he is the most organized student**. *I'm surprised* he asked to sit the exam again."

Negative Literalness (*he is not the most organized student*; see 13, Table 1, in bold) and **nondefault** Affirmative Sarcasm (*he is the most organized student*; see 14, Table 1, in bold). Results were further replicated for (identical) two-word spillover segments for all the items (*I'm surprised,* see Table 1, in italics), aiming at tapping difficulties, spilling over from target sentences to the next one.

Processing-wise, then, **default** interpretations exhibited processing superiority over **nondefault** counterparts, resulting in unprecedented findings (see 16 a-c below), while further replicating previous ones (see 16 d-f below). As illustrated by Figure 2, they show that

(16) a. **default** *novel* Negative *Sarcasm* was faster to process than **nondefault** equally *novel* Affirmative *Sarcasm* (the latter further involving **default** Affirmative Literalness in the process, which was retained, being conducive to the interpretation processes);

  b. **default** *novel* Negative *Sarcasm* was faster to process than **nondefault** equally *novel* Negative *Literalness* (the latter further involving the former in the process, which is discarded, being irrelevant to constructing literalness);

  c. **default** *novel negatives* were faster to process than **nondefault** equally *novel affirmative* (and *negative*) counterparts;

  d. **default** *novel* Affirmative *Literalness* was faster to process than **nondefault** equally *novel* Affirmative *Sarcasm* (the latter further involving the former due to its relevance in constructing sarcasm);

e.   **default** *novel* Affirmative *Literalness* was faster to process than **nondefault** equally *novel* Negative *Literalness* (the latter involving activation and suppression of **default** Negative Sarcasm, deemed irrelevant to processing literalness);

f.   **default** *novel affirmatives* were faster to process than **nondefault** *equally novel affirmative* (and *negative*) counterparts.
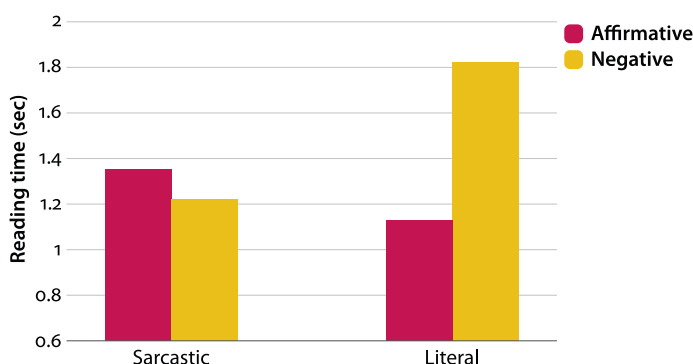

Figure 2. Mean reading times (in seconds) of sarcastic and literal negatives and affirmatives

Relevant to our discussion here is the unprecedented result, predicted by the Defaultness Hypothesis (Giora et al., 2015b), attesting to the speed superiority of **default negative** sarcasm (see 12 above) over **nondefault affirmative** sarcasm (see 14 above).[4] This unparalleled finding demonstrates that it is defaultness rather than degree of affirmation or contextual strength that makes a difference. Importantly, however, it provides further support for the hypothesis that it is strong mitigation (by means of negation) of a highly positive concept that induces sarcastic interpretation **by default**; so much so, that **default** negative sarcasm outweighs **nondefault** yet affirmative sarcasm.

Using English items (*He is(n't)/ the most/ popular hairdresser."/ "You're right."*), these findings are further replicated by Filik et al. (in press), who provide evidence from eye-tracking during reading. Here, too, results attest to the superiority of defaultness. Relevant to the question discussed here is the processing speed superiority of **default** *novel* Negative Sarcasm over **nondefault** equally *novel* Affirmative Sarcasm (both involving a highly positive concept – *most popular*). Despite equal strength of novelty and contextual support, these significant effects are vis-

---

4. On the temporal priority of **default** negative *meanings* (*The apple doesn't fall far from the tree*) over **nondefault** affirmative *interpretations* (*The apple falls far from the tree*), see Giora et al. (2017).

ible as early as the utterance second critical region (*the most*) during second-pass processing, as well as in total reading times.

Reading times of the sentences as a whole replicate previous findings (Giora et al., 2015b). They show that, as predicted, **default** *novel* Affirmative Literalness was significantly faster to process than **nondefault** equally *novel* Negative Literalness, and significantly faster than **nondefault** equally *novel* Affirmative Sarcasm. **Default** *novel* Negative Sarcasm was significantly faster to process than **nondefault** equally *novel* Affirmative Sarcasm, and faster than **nondefault** equally *novel* Negative Literalness, albeit insignificantly so.

Default mitigated Negative Sarcasm, then, comes easy; **nondefault** nonmitigated Affirmative Sarcasm comes with a cost, often involving **default** interpretations in the process (see Giora et al., 2015b; see also Fein, Yeari, & Giora, 2015; Giora et al., 2007, among others). Will the involvement of defaultness in nondefaultness result in hedonic effects, regardless of whether contextual information is linguistic or pictorial?

7.   Whence pleasure: The case of Affirmative Sarcasm

7.1   Whence pleasure: The case of affirmative sarcasm in linguistic context

According to the revised version of the Optimal Innovation Hypothesis (Giora, Givoni, Heruti, & Fein, 2017), following from the Defaultness Hypothesis (Giora et al., 2015b), pleasure is induced by **nondefault** Optimal Innovations, deautomatizing **default** *interpretations*.[5]

What does it take to be an Optimal Innovation? According to the Revised Optimal Innovation Hypothesis (Giora et al., 2017), a stimulus would be optimally innovative if it

(a)   activates a **nondefault** response, which differs from the **default** response(s) associated with it, while at the same time,

(b)   allowing for the recoverability of the **default** response(s), so that both the **default** and **nondefault** responses may be comparable, their similarities and dissimilarities assessable, rendering defaultness deautomatized (see also, e.g., Mukařovský, 1932/1964, 1978; Shklovsky, 1917/1965; or Bergson, 1900/1956) and therefore pleasing.

---

5. Note that the original Optimal Innovation Hypothesis (Giora, Fein, Kotler, & Shuval, 2015c; Giora, Fein, Kronrod, Elnatan, Shuval, & Zur, 2004) has been limited to deautomatizing **default,** *salient* (i.e., coded) *meanings*.

Based on our findings in Giora et al. (2015b), it seems safe to suggest that, of the two (sarcastic and literal) negatives and (sarcastic and literal) affirmatives tested – (Negative Sarcasm, Negative Literalness, Affirmative Sarcasm, Affirmative Literalness) – only **nondefault** Affirmative Sarcasm (see 14, Table 1 above) meets the conditions for Optimal Innovation in that it is derived indirectly, involving more than one **entertainable** interpretation in the process. Although, on account of its defaultness, Negative Sarcasm is initially involved in processing **default** Negative Literalness, this default sarcastic interpretation should be discarded rather than retained, as it interferes with deriving the contextually appropriate literal interpretation. Of the four (2 **default** and 2 **nondefault**) options available, then, only **nondefault** Affirmative Sarcasm is expected to be pleasing. Although, in general, sarcasm is humorous, optimally innovative Affirmative Sarcasm is expected to be most entertaining, more entertaining than any of the other, **default** and **nondefault** alternatives.

Indeed, Giora et al. (2017, Example (1)), show that, of the four kinds of items tested for processing speed in Giora et al. (2015b), only **nondefault** Affirmative Sarcasm was more pleasing than the rest of the options (which did not differ from each other in terms of degree of pleasantness, see Figure 3 below):
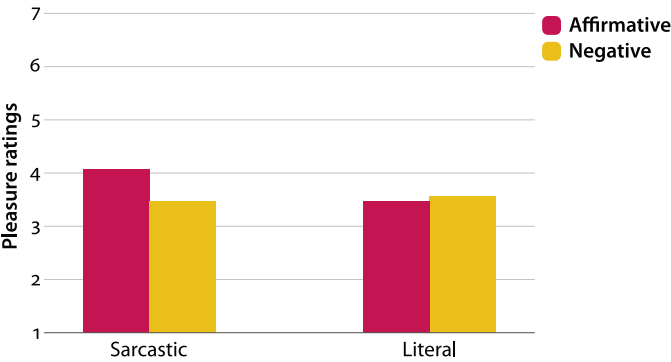

Figure 3. Mean pleasure ratings of target sentences in all experimental conditions

Relevant to our discussion, however, is the difference between Affirmative and Negative Sarcasm (*he is/he is not the most organized student*). Although both kinds of sarcasm convey the exact same (contrastive) reading ('he is pretty messy'), the attenuated (negative) version is low on pleasure, scoring low on a 7-point pleasurability scale ($M = 3.48$, $SD = 1.39$). Its affirmative counter, however, is pleasing, scoring significantly higher on the same 7-point scale ($M = 4.07$, $SD = 1.51$), $t_1(39) = 2.53$, $p < .01$; $t_2(11) = 3.91$, $p < .005$. The rest of the differences (between Nega-

tive Sarcasm, Negative Literalness, and Affirmative Literalness) are indistinguishably lower on pleasantness, as predicted.

Rendering a sarcastic interpretation easy to process, by attenuating its highly positive concept, results in defaultness but also in reduced pleasurability. In contrast, initially mis/leading comprehenders down the garden path of the **default** Affirmative Literalness involved in Affirmative Sarcasm, although harder to process, is rewarding, allowing it to qualify for optimal innovation and therefore be pleasing. Not all "good" (sarcastic) contrasts, even when identical, are equal, and being speedy is not always gratifying.

Will pictorial contexts make a difference? Will they have a different effect on **default** sarcastic interpretations, rendered as such by hedging a highly positive concept?

7.2   Whence pleasure: Will nonlinguistic contexts make a difference?

A picture, they say, is worth a thousand words. Will pictorial contexts differ from linguistic contexts in terms of how they affect targets' degree of enjoyability? In Giora et al. (2017, Example (2)), we test the revised Optimal Innovation Hypothesis with regard to nonlinguistic contexts, while focusing on constructed *interpretations* rather than on coded *meanings*. Verbal targets were the same as those used in Giora et al. (2015b), tested for pleasurability in linguistic contexts in Giora et al. (2017, Example (1), see Section 7). The only difference between this experiment and the previous linguistic one has to do with the comparison made between two (rather than four) kinds of targets – Affirmative Sarcasm and Negative Sarcasm, preceded by identical pictorial contexts, controlled for equal strength of contextual support by a pretest (see Figure 4).

Results replicate those found for linguistic contexts (see Section 7.1 above). They show that **default** Negative Sarcasm is not pleasing, scoring low on pleasurability ($M=3.65$; $SD=1.30$). In contrast, **nondefault** Affirmative Sarcasm is pleasing ($M=4.25$; $SD=1.41$) – significantly more pleasing than **default** Negative Sarcasm, $t_1(29)=3.23$, $p<.005$; $t_2(11)=3.95$, $p<.005$. (On similar results, showing null effect of context modalities on activating nondefault *meanings* low on salience, see Heruti, Bergerbest, & Giora, submitted).

Degree of items' pleasurability, then, is not necessarily sensitive to contextual information or its modality (e.g., linguistic vs. pictorial). Rather, it is sensitive to responses' degree of defaultness. Prompting a sarcastic reading by mitigating a highly positive concept renders it a **default** interpretation and hence less pleasing than a nonmitigated i.e., **nondefault** (affirmative) counterpart. **Nondefault** Affirmative Sarcasm, entertaining a **default** Affirmative Literalness in the process, is pleasing, irrespective of context's modality. Contextual information, then, plays

He is the most organized student   He is not the most organized student

Figure 4. Example of pictorial contexts in Giora et al. (2017, Example (2)), followed by the targets

no role in inducing hedonic effects. Instead, it is degree of stimuli's defaultness that matters; the involvement of retainable **default** interpretations in processing **nondefault** counterparts is the factor that accounts for the latter's deautomatization and therefore humorous effects. Importantly, however, the fact that Negative Sarcasm is not pleasing, albeit being equally sarcastic, supports the view that mitigating a highly positive concept is a factor affecting sarcastic interpretations **by default**; immediate and direct processes, thus, exclude it from qualifying for Optimal Innovation.
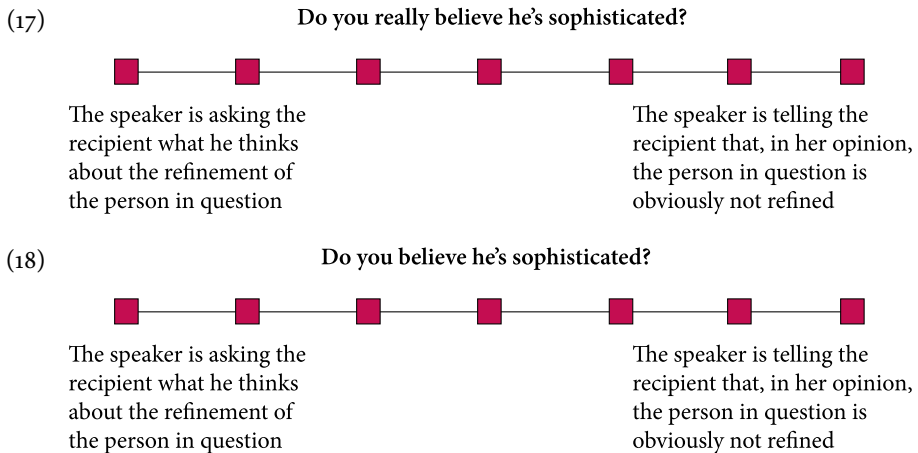
Will mitigating an intensified highly positive concept by means of a non-negative hedging, also generate sarcastic interpretations **by default**?

8.   Non-negative mitigation: The case of rhetorical questions

Rhetorical questions often function as mitigators, expressing toned down implicit assertions, while conveying a humorous sarcastic message (e.g., Brown & Levinson, 1978; Gibbs, 2000; Ilie, 1994; Paolazzi. 2013; Zuanazzi, 2013; but see Raeber, 2016). Given their hedging effect, in Giora et al. (in progress a), we test the prediction that, further hedging a highly positive concept by rendering stronger the mitigating effect of rhetorical questions, will generate sarcastic interpretations **by default**.

To do that, we first established degree of defaultness by presenting participants with strongly mitigating, intensified (Hebrew) rhetorical questions (*Do you*

really believe he's sophisticated? see Example (17)) and less-strong, non-intensified (Hebrew) counterparts (*Do you believe he's sophisticated?* see Example (18)). Items were presented outside of a specific context, followed by a 7-point scale, instantiating a sarcastic interpretation (here, at the right end of the scale) and a literal interpretation (here, at the left end of the scale):

(17)   **Do you really believe he's sophisticated?**

■———■———■———■———■———■———■

The speaker is asking the   The speaker is telling the
recipient what he thinks   recipient that, in her opinion,
about the refinement of   the person in question is
the person in question   obviously not refined

(18)   **Do you believe he's sophisticated?**

■———■———■———■———■———■———■

The speaker is asking the   The speaker is telling the
recipient what he thinks   recipient that, in her opinion,
about the refinement of   the person in question is
the person in question   obviously not refined

Results show that the **default**, preferred interpretation of the intensified rhetorical questions is sarcastic, scoring high on a 7-point interpretation scale ($M = 5.67$, $SD = 0.99$); the **default**, preferred interpretation of the non-intensified rhetorical question is literal, scoring significantly lower on the very same scale ($M = 3.83$, $SD = 0.82$), $t_1(39) = 9.77$, $p < .0001$; $t_2(23) = 15.93$, $p < .0001$. Complementarily, the **nondefault**, nonpreferred interpretation of the non-intensified rhetorical questions is sarcastic; the **nondefault**, nonpreferred interpretation of the intensified rhetorical questions is literal.

Such results lend further support to the view that attenuation of a highly positive concept, especially when accentuated, generates sarcastic interpretations by **default**; lack of such strong attenuation, involving a highly positive concept, results in a **default** literal interpretation.

Whether mitigating a highly positive concept is affected by an explicit marker, such as negation, or by an implicitly negative cue, such as conveyed by strongly hedging a rhetorical question, makes no difference. Strong attenuation, whether explicit or not, has the same sarcastic effect when it tones down a highly positive concept.

Will natural language-use support this conclusion?

9.   Strongly attenuating highly positive concepts affects sarcastic interpretations by default: A corpus-based perspective

Will studying natural discourse adduce corroborative evidence, supportive of the view that strongly mitigating a highly positive concept affects sarcastic interpretations **by default**? Complementarily, will lack of such amplified attenuation result in **default** literal interpretations, regardless of contextual information (see Section 9.1 below)? If such results are obtained, will such strongly attenuated rhetorical questions be reflected by their discoursal environment via their **default** sarcastic interpretations, while weakly mitigated counterparts will be echoed via their **default** literal interpretation, as predicted by the Defaultness Hypothesis (as shown in Section 9.2 below. See also Giora et al., 2015b; Giora, Drucker, & Fein, 2014)? And, if people recognize their sarcastic intent, will they exhibit sensitivity to the effects of attenuation so as to preface what they are going to say by strong mitigators?[6] Alternatively, will they enhance the negativity of what they will utter by being explicit about it (see Section 9.3 below)?

9.1   Strongly attenuating highly positive concepts: A corpus-based perspective

Will natural language use corroborate lab results? Will natural discourse replicate rating results collected when precipitants read items presented in isolation? To be able to answer that question, we ran a Google search. Looking at the first 100 naturally occurring (Hebrew) instances of strongly mitigating rhetorical questions, (e.g., *Do you **really** believe you are smart*?) and at another 100 first occurrences of mildly mitigating counterparts (*Do you believe you are smart?*) supports the view that intensified mitigation of a highly positive concept affects sarcastic interpretation **by default**; non-intensified mitigation affects literal interpretation **by default**.

Specifically, in Giora et al. (in progress a), three judges, native speakers of Hebrew, versed in the field of sarcasm, read 100 naturally occurring, strongly mitigating rhetorical questions, involving an intensifier (*Do you **really** believe you are smart?*), and 100 non-intensified counterparts (*Do you believe you are smart?*). One hundred seventy nine questions were specified as either sarcastic or literal by at least two judges, and for these items, agreement between judges was high (Fleiss' kappa = 0.53). Results show that, as predicted, targets, strongly mitigating a highly positive concept, conveyed their default sarcastic interpretation in 96.8%

---

6.   On verbal irony muting the meaning of literal criticism, i.e., of the reality described, see e.g., Dews and Winner (1995), Filik et al. (2016), and Giora (1995).

of the cases; only in 3.2% of the cases did they convey their nondefault literal reading, $p < .0001$.

Complementarily, targets mildly mitigating a highly positive concept conveyed their default literal reading in 62.4% of the cases; only in 37.6% of the cases did they convey their nondefault sarcastic interpretation, thus showing a preference for their default interpretation, $p < .05$.

Such results support the view that strongly attenuating a highly positive concept affects sarcastic interpretations **by default**, thereby providing converging, usage-based support for lab results. It is not only explicit negation, then, that can function as mitigation; rhetorical questions may also convey a toned down yet humorous negative attitude (as shown by Gibbs, 2000), especially when strongly mitigating a highly positive concept.

9.2   Resonating with default interpretations: A corpus-based perspective

According to the Defaultness Hypothesis (Giora et al., 2015b, see also Giora et al. 2014), the discoursal environment of both **default** and **nondefault** interpretations should reflect their **default** readings. Given the high frequency (96.81%) of **default** sarcastic interpretations of naturally occurring rhetorical questions, strongly attenuating a highly positive concept (see Section 9.1), it seems safe to expect that, as predicted, the discoursal environment of such utterances will primarily echo or resonate with this **default** *sarcastic* interpretation; in contrast, targets not mitigating an intensifier will be echoed primarily via their **default** *literal* interpretation, even when sarcastic. Note that according to Du Bois (2014), resonance relates to the activation of affinities across utterances; it is a property of relations between elements in discourse, echoing and reflecting (but not repeating) each other.

Giora et al. (in progress a) test the prediction of the Defaultness Hypothesis (Giora et al., 2015b, see also Giora et al. 2014), according to which both **default** and **nondefault** interpretations will be echoed by their discoursal environment via their **default** interpretation. To test this prediction, judgements regarding type of resonance (**sarcastic/literal**) were collected from 3 raters, versed in the field of sarcasm and resonance, who examined the 200 rhetorical questions, examined previously for degree of sarcasm. One hundred and fifty questions were specified as either sarcastic or literal by at least two judges, and for these items, agreement between judges was high (Fleiss' kappa = 0.56). Results show that, rhetorical questions, strongly mitigating a highly positive concept, were echoed via their **default** sarcastic interpretation in 70.3% of the cases; only in 29.7% of the cases were they echoed via their **nondefault** literal interpretation, $p < .0005$. Similarly, looking at the rhetorical questions examined previously for degree of sarcasm, which mildly mitigate a highly positive concept, shows that such questions were echoed via

their **default** literal interpretation in 77.6% of the cases; only in 22.4% of the cases were they echoed via their **nondefault** sarcastic interpretation, $p < .0001$. Findings regarding discoursal resonance with **default** interpretations, established usage-wise, support the view that strongly mitigating a highly positive concept generates sarcasm interpretation **by default**; lack of it induces literal interpretation **by default**.

9.3   Strengthening attenuation of highly positive concepts: A corpus-based perspective

Is intensifying the attenuation of highly positive concepts, as in prefacing a mitigated construction (such as 'X is not the most Y'/'X she is not'/'X is not her best attribute') by means of (variants of) *to put it mildly*, an additional sarcastic cue? If so, will natural language use attest to the prevalence of this kind of attenuation compared to the alternative of rendering explicit the criticism the speaker is about to communicate? Specifically, will speakers attempt to tone down their upcoming sarcastic criticism (see Examples (19)–(21) below, originally in Hebrew) or opt, instead, for an intensifying cue – *to be (too) blunt/rude* – heightening the literal negativity of the sarcastic interpretation (see Example (22) below, originally in Hebrew).[7]

(19)   The lifespan of the iPhone battery, if I were to put it mildly, is not the gadget's most glamorous feature.

(20)   How to put it mildly, for some people, translation is not their best attribute.

(21)   How shall I put it mildly – a superb writer she is not. Mediocre minus.

(22)   I don't want to be too blunt, but this conduct is not the most courageous thing I came across.

According to the hypothesis tested here, intensifying the attenuation, while understating, rather than explicitly indicating the criticism, will be the favored option:

A query of *HeTenTen*, a web-corpus of Modern Hebrew accessed via the Sketch Engine corpus tool (Kilgariff et al. 2014), resulted in 872 instances which include *to put it mildly* and its variants, of which 171 instances (171/872 = 19.6%) preface the kind of constructions we are studying here. Three judges, native speakers of Hebrew read these 171 items in order to decide whether the negated concept in each of these 171 instances is positively-oriented or not. One hundred fifty nine (159) items were specified as hosting a positively-oriented concept by at

---

7.   Examples (19)–(22) are taken from *HeTenTen*, which is a web-corpus of Modern Hebrew, comprising about 1 billion words (see Kilgariff et al., 2014)

least two judges (159/171 = 93.0%), whereas the remaining 12 items were specified as *not* hosting a positively-oriented concept by at least two judges (12/171 = 7.0%), $p < 0.0001$.

Complementarily, we comprehensively extracted from *HeTenTen* 78 instances of *(not) to be (too) blunt/rude* and its variants. Of this subset of 78 items, only 1 instance of the kind of constructions studied here (following *(not) to be (too) blunt/rude*) was detected (see 22, above), making up 1.28% (1/78 = 1.28%) of this subset.

There are, then, significantly more instances of *to put it mildly* (and its variants), prefacing the kind of constructions studied here (159/872 = 18.2%), than instances of *(not) to be (too) blunt/rude* (and its variants), prefacing these same constructions (1/78 = 1.28%), $\chi^2 = 14.69$, $p < 0.001$, as shown by Becker & Giora (submitted).

Such results support the view tested here that strongly attenuating highly positive concepts affects sarcasm interpretation by default. They provide corpus-based evidence, corroborating psycholinguistic lab results, while substantiating the validity of the latter.

In all, we show that attenuated uses, strongly mitigating a highly positive concept (*Do you really believe you are smart?*) are interpreted sarcastically when in discourse; their less strongly attenuated counterparts (*Do you believe you are smart?*) are interpreted literally when in such natural environment (see Section 9.1 above). Our corpus-based findings further show that, as predicted by the Default-ness Hypothesis (Giora et al., 2015b; see also Giora et al., 2014), it is effortless processing, testifying to items' **default** interpretations, that shapes our discoursal environment, the latter echoing and resonating with **default** rather than **nondefault** interpretations (see Section 9.2 above). Such findings, attesting to the high frequency of sarcastic interpretations when cued by strongly attenuated highly positive concepts, provide support for the view that strongly mitigating a highly positive concept generates sarcastic interpretations **by default**. No wonder such constructions favor intensified attenuation (e.g., *to put it mildly*) over intensified bluntness (e.g., *(not) to be blunt*) (see Section 9.3). In sum, strong attenuation seems to be a necessary condition for the derivation of sarcastic interpretation **by default**. Still, is it a sufficient condition?

10.   When strongly attenuating a highly positive concept is not enough: The case of doubly-hedged similes

So far, we have shown that strongly mitigating a highly positive concept induces sarcastic interpretations **by default**. Are there counter examples?

Consider the case of similes, such as *as X as Y*, which are a mitigated form of assertions, implying that that X is not "absolutely identical" to Y (see Veale, 2013, p. 12). Will strongly mitigating a highly positive concept, embedded in a simile construction (*as **soothing** as a cat*), by means of an additional hedging cue, such as "about" (***about** as **soothing** as a cat*), result in sarcastic effects? The answer in Veale's (2013) corpus-based study is negative. It turns out that strong mitigation, such as double-hedging, might be necessary, but it is not sufficient. For such similes to be sarcastic, they should be further furnished with a contrastive, negative complement (e.g., *about as **soothing** as a cat **in a blender***). It is this oxymoron-like type of combination, including a doubly hedged highly positive concept (*about as soothing as*) and a paired negative ('noisy', 'risky') concept (*blender*), that renders "about" similes sarcastic. Indeed, in Veale (2012, 2013, p. 14, Figure 1), searching the web for "about" similes resulted in 76% of them being sarcastic; similes lacking such double hedging were mostly non-sarcastic (making up 82% of the cases).

Relevant to our discussion is the conclusion that highly mitigating, double-hedged (e.g., "about") similes, involving a hedged positive concept, are, indeed, interpreted sarcastically. However, they are not interpreted sarcastically **by default**, since they crucially rely on *internal* incongruity, which, by definition, precludes them from being considered a **default** interpretation. Recall that for a sarcastic interpretation to be derived **by default**, items must, among other things, be free of semantic anomaly (e.g., Beardsley, 1958) or "internal incongruency" (Partington, 2011, p. 1790; see also Section 2 condition (ii) above). Hence, such similes, albeit sarcastic, do not count as **default** interpretations, even if they are interpreted as such outside of a specific context.

Still, will doubly-attenuated "about" similes, involving internal incongruity, be more sarcastic than their non-doubly hedged counterparts. Specifically, will similes, involving both an additional hedge (e.g., "about") and a highly positive concept, such as *soothing* (*as a cat*), coupled with a conceptually negative counterpart, such as (*a cat*) *in a blender* (as in ***about** as **soothing** as a cat in a **blender***), be more sarcastic than less attenuated counterparts, devoid of an additional hedge (such as *as **soothing** as a cat in a **blender***)? Alternatively, will similes, involving both an additional hedge (e.g., "at least", "nearly", "almost") and a highly positive concept, such as *creative*, coupled with a highly positive concept, such as *Michael Angelo, Rembrandt, and Picasso,* (as in *at least as **creative** as **Michelangelo, Rembrandt, and Picasso taken together***), be sarcastic **by default**, more sarcastic than attenuated counterparts, devoid of an additional hedge (such as *as **creative** as **Michelangelo, Rembrandt, and Picasso taken together***)? Consider further such options as *nearly as great an achievement as the first manned lunar landing mission*, or *on the verge of being as funny as Charlie Chaplin,* or *at least as fast as Usain Bolt,* compared to their counterparts involving no such additional hedge.

It remains for future research to resolve these issues experimentally (but see Giora et al., in progress b).

11.   General discussion

What factors affect sarcasm interpretation **by default**? In this paper we aimed to show that strongly attenuating highly positive concepts prompts sarcastic interpretation **by default**. For interpretations to count as **default**, stimuli should be potentially ambiguous between literal and nonliteral interpretations, so that a preference is allowed. They should, therefore, be (i) novel, i.e., noncoded, (ii) free of semantic anomaly or internal incongruity, inviting nonliteralness, and (iii) free of specific or informative contextual information, cueing included. To test the hypothesis that attenuating highly positive concepts induces sarcastic interpretation **by default**, we used stimuli that met conditions (i-iii) above. These stimuli included both structurally marked (*Alert he is **not**; Hospitality is **not** his best attribute*) and structurally unmarked items (*He is **not** the most organized person around; His best attribute is **not** Hospitality; Do you **really** believe he's sophisticated?*). They involved strong mitigation, amplified by means of explicit negation (a negation marker), implicit negation (intensified rhetorical questions; see Sections 8, 9.1 and 9.2), or an additional attenuation intensifier (e.g., *to put it mildly*), toning down highly positive concepts, compared to an additional bluntness intensifier (*to be blunt/rude*), amplifying rudeness (see Section 9.3). These attenuators further included hyperboles or superlatives (*most organized, best attribute*), thereby conveying a mitigated yet sarcastic statement (see Giora et al., 2013, 2015a, 2015b).

To reduce the possibility that it is markedness that might affect sarcasm **by default**, offline experiments were run, involving items presented in isolation (see Section 4). They reveal that it is not structural markedness that plays a crucial role in affecting sarcasm **by default**. Instead, it is strong mitigation of highly positive concepts that induces a sarcastic reading unconditionally, regardless of the availability of a literal interpretation (see Giora et al., 2013, 2015a).

According to the Defaultness Hypothesis (Giora et al., 2015b), **default** interpretations (whose defaultness has been established outside of context) should be processed faster than **nondefault** counterparts. Indeed, when embedded in strong contexts, equally supportive of either their **default** or **nondefault** interpretations, whether literal or sarcastic, strongly mitigated highly positive concepts proved to affect sarcasm interpretation **by default**. For instance, in Giora et al. (2015b), negative items such as *He is **not** the most organized student* were processed faster in contexts biasing them toward their **default** sarcastic interpretation (e.g., 'He

is pretty messy/distracted'; see Example (12) in Table 1 above) than toward their equally strongly biased **nondefault** literal interpretation (e.g., 'He is rather organized but others are more organized than him'; see Example (13) in Table 1 above). Moreover, such **default** Negative Sarcasm was also processed faster than **nondefault** but equally strongly biased Affirmative Sarcasm (*He is the most organized student*), conveying the same sarcastic interpretation (e.g., 'He is pretty messy/distracted'; see Example (14) in Table 1 above). Such results demonstrate the superiority of defaultness over nondefaultness. Relevant to our discussion, however, is the fact that such results further substantiate the claim that strongly mitigating a highly positive concept generates sarcastic interpretations **by default** (see Sections 3, 5 and 6)

But are **default** sarcastic interpretations humorous? Findings collected from pleasure ratings of target utterances, followed either by a linguistic or a pictorial context, indicate that pleasure is sensitive to nondefaultness, involving **default** yet retainable counterpart(s) in the process. A case in point is nondefault Affirmative Sarcasm (see Giora et al., 2015b, 2017; see also 14 above). Given its multiple interpretations, Affirmative Sarcasm, in fact, qualifies for Optimal Innovation, which is strongly associated with hedonic effects (Giora et al., 2004, 2015c); hence it is pleasing, more pleasing than **default** Negative Sarcasm, which is interpreted immediately and directly, without involving other interpretations while being processed (see Section 7)

Some sarcastic interpretations, then, are more humorous than others. While being devoid of mitigation of highly positive concepts allows Affirmative Sarcasm to be pleasing, it further attests to the role of such mitigation in rendering sarcasm a **default** interpretation, albeit at the cost of being less pleasing (Giora et al., 2017).

Corpus-based studies further support the view that **default** sarcasm is the product of accentuated mitigation of highly positive concepts. They show that, as predicted by the Defaultness Hypothesis (Giora et al., 2015b), rhetorical questions, which are an attenuated form of assertion, are interpreted sarcastically when further intensified (e.g., *Do you **really** believe you are sophisticated*?) (see Section 9.1) and are echoed by their natural environment via their **default** sarcastic interpretation (Giora et al., in progress a). They further show that their nonintensified versions are echoed by their environment via their **default** literal interpretation (Section 9.2).

And while similes, such as examined in Veale's (2013) corpora-based studies, are also an attenuated form of assertion (e.g., *as **soothing** as a cat*), they do not induce sarcastic interpretations **by default** when mitigated (e.g., ***about** as **soothing** as a cat*). Rather, to be sarcastic, such similes rely on attenuating highly negative concepts (e.g., ***about** as **soothing** as **a cat in a blender***) as shown by Veale (2013), so as to widen the gap between what is said and the situation described

(see Giora, 1995). Such similes might be (i) novel and sarcastic, even (iii) outside of context, but they involve internal incongruity (ii). So, while they are interpreted sarcastically, they are not interpreted sarcastically **by default**. Unlike the constructions studied here, similes are based on shared features; to create the gap essential for a sarcastic interpretation, they resort to highly negative concepts. Such similes show, then, that mitigating a highly positive concept (as in ***about as soothing as a cat***), although a necessary condition, might not be always sufficient. It is, however, also possible, that "about" is not a strong enough mitigator when it comes to similes not involving a complementary negative concept. When strengthened, as in ***just about as soothing*** *as a cat*, or as in *Do you **really** believe he is as **soothing** as a cat?* or as in *Is he **really** as **soothing** as a cat?* these stronger, doubly charged mitigators might induce sarcastic interpretation **by default** (see Section 10).

Acknowledgements

References

Beardsley, M. (1958). *Aesthetics*. New York: Harcourt, Brace and World.

Becker, I. (2015). The good, the not good, and the not beautiful: On the non-obligatoriness of suppression following negation. *Corpus Linguistics and Linguistic Theory*, 11(2), 255–283. https://doi.org/10.1515/cllt-2014-0010

Becker, I. (2016). *The negation operator is* not *a suppressor of the concept in its scope: In fact, quite* the opposite. Unpublished MA thesis, Tel Aviv University.

Becker, I., & Giora, R. (submitted). The Defaultness Hypothesis: A quantitative corpus-based study of non/default sarcasm and literalness production.

Bergson, H. (1900/1956). Laughter. In W. Sypher (Ed.), *Comedy* (pp. 61–190). New York, NY: Doubleday Anchor Book.

Brown, P., & Levinson, S. (1978). Universals in language usage: politeness phenomena. In E. N. Goody (Ed.), *Questions and politeness: Strategies in social interaction* (pp. 56–311). Cambridge: Cambridge University Press.

Campbell, J. D., & Katz, A. N. (2012). Are there necessary conditions for inducing a sense of sarcastic irony? *Discourse Processes*, 49(6), 459–480. https://doi.org/10.1080/0163853X.2012.687863

Clark, H. H., & Clark, E. V. (1977). *Psychology and language*. Cambridge University Press.

Colston, H. L. (1999). "Not good" is "bad," but "Not bad" is not "good": An analysis of three accounts of negation asymmetry. *Discourse Processes*, 28(3), 237–256. https://doi.org/10.1080/01638539909545083

Cori, V., Canestrari, C., & Bianchi, I. (2016). The perception of contrariety and the processing of verbal irony. *Gestalt Theory*, 38(2–3), 253–266.

Dews, S., & Winner, E. (1995). Muting the meaning: A social function of irony. *Metaphor and Symbol*, 10(1), 3–19. https://doi.org/10.1207/s15327868ms1001_2

Du Bois, J. W. (2014). Towards a dialogic syntax. *Cognitive Linguistics*, 25(3), 359–410. https://doi.org/10.1515/cog-2014-0024

Fein, O., Yeari, M., & Giora, R. (2015). On the priority of salience-based interpretations: The case of irony. *Intercultural Pragmatics*, 12(1), 1–32. https://doi.org/10.1515/ip-2015-0001

Filik, R., Howman, H., Ralph-Nearman, C., & Giora, R. (in press). The role of defaultness in sarcasm interpretation: Evidence from eye-tracking. *Metaphor and Symbol*.

Filik, R., Turcan, A., Thompson, D., Harvey, N., Davies, H., & Turner, A. (2016). Sarcasm and emoticons: Comprehension and emotional impact. *Quarterly Journal of Experimental Psychology*, 69, 2130–2146.

Fraenkel, T., & Schul, Y. (2008). The meaning of negated adjectives. *Intercultural Pragmatics*, 5(4), 517–540. https://doi.org/10.1515/IPRG.2008.025

Gibbs, R. W. (1994). *The poetics of mind: Figurative thought, language, and understanding.* Cambridge University Press.

Gibbs, R. W. (2000). Irony in talk among friends. *Metaphor and Symbol*, 15(1–2), 5–27. https://doi.org/10.1080/10926488.2000.9678862

Giora, R. (1995). On irony and negation. *Discourse Processes*, 19, 239–264. https://doi.org/10.1080/01638539509544916

Giora, R. (1997). Understanding figurative and literal language: The graded salience hypothesis. *Cognitive Linguistics*, 8(3), 183–206. https://doi.org/10.1515/cogl.1997.8.3.183

Giora, R. (2003). *On our mind: Salience, context, and figurative language.* Oxford University Press. https://doi.org/10.1093/acprof:oso/9780195136166.001.0001

Giora, R. (2016). When negatives are easier to understand than affirmatives: The case of negative sarcasm. In P. Larrivée & C. Lee (Eds.), *Negation and negative polarity: Experimental perspectives* (pp. 127–143). Cham: Springer. https://doi.org/10.1007/978-3-319-17464-8_6

Giora, R. (under review). How defaultness affects processing, pleasure, and cueing: The case of default constructional sarcasm and default non-constructional literalness.

Giora, R., Cholev, A., Fein, O., & Peleg, O. (in press). On the superiority of defaultness: Hemispheric perspectives of processing negative and affirmative sarcasm. *Metaphor and Symbol*.

Giora, R., Drucker, A., & Fein, O. (2014). Resonating with default nonsalient interpretations: A corpus-based study of negative sarcasm. *Belgian Journal of Linguistics*, 28, 3–18. https://doi.org/10.1075/bjl.28.01gio

Giora, R., Drucker, A., Fein, O., & Mendelson, I. (2015a). Default sarcastic interpretations: On the priority of nonsalient interpretations. *Discourse Processes*, 52(3), 173–200. https://doi.org/10.1080/0163853X.2014.954951

Giora, R., Fein, O., Ganzi, J., Levi, N. A., & Sabah, H. (2005). On negation as mitigation: The case of negative irony. *Discourse Processes*, 39(1), 81–100. https://doi.org/10.1207/s15326950dp3901_3

Giora, R., Fein, O., Kotler, N., & Shuval, N.. (2015c). *Know Hope*: Metaphor, optimal innovation, and pleasure. In G. Brône, K. Feyaerts, & T. Veale (Eds.). *Cognitive Linguistics and humor research: Current trends and new developments* (pp. 129–146). Berlin/New York: Mouton de Gruyter. https://doi.org/10.1515/9783110346343-007

Giora, R., Fein, O., Kronrod, A., Elnatan, I., Shuval, N., & Zur, A. (2004). Weapons of mass distraction: Optimal innovation and pleasure ratings. *Metaphor and Symbol*, 19(2), 115–141. https://doi.org/10.1207/s15327868ms1902_2

Giora, R., Fein, O., Laadan, D., Wolfson, J., Zeituny, M., Kidron, R., Kaufman, R., & Shaham, R. (2007). Expecting irony: Context vs. salience based effects. *Metaphor and Symbol*, 22, 119–146. https://doi.org/10.1080/10926480701235346

Giora, R., Givoni, S., & Fein, O. (2015b). Defaultness reigns: The case of sarcasm. *Metaphor and Symbol*, 30(4), 290–313. https://doi.org/10.1080/10926488.2015.1074804

Giora, R., Givoni, S. Heruti, V., & Fein, O. (2017). The role of defaultness in affecting pleasure: The Optimal Innovation Hypothesis revisited. *Metaphor & Symbol*, 32(1), 1–18.

Giora, R., Jaffe I., & Fein, O. (in progress a). Default sarcastic interpretations: The case of rhetorical questions.

Giora, R., Levant, E., & Fein, O. (in progress b). Default affirmative sarcasm: The case of attenuated similes.

Giora, R., Livnat, E., Fein, O., Barnea, A., Zeiman, R., & Berger, I. (2013). Negation generates nonliteral interpretations by default. *Metaphor and Symbol*, 28, 89–115. https://doi.org/10.1080/10926488.2013.768510

Giora, R., Meytes, D. Tamir, A. Givoni, S., Heruti, V., & Fein, O. (2017). Defaultness shines while affirmation pales. In A. Athanasiadou & H. Colston (Eds.), *Irony in language use and communication* (pp. 219–236). Amsterdam: John Benjamins.

Goldenberg, D. (2011). Default ironic interpretation. Unpublished ms. Tel Aviv University.

Heruti, V., Bergerbest, D., & Giora, R. (submitted). A linguistic or pictorial context: Does it make a difference?

Horn, L. R. (1989). *A natural history of negation*. Chicago: The University of Chicago Press.

Ilie, C. (1994). *What else can I tell you?: A pragmatic study of English rhetorical questions as discursive and argumentative acts*. Almqvist & Wiksell International, Stockholm.

Kecskés, I. (2003). *Situation-bound utterances in L1 and L2*. Berlin/New York: Walter de Gruyter. https://doi.org/10.1515/9783110894035

Kilgarriff, A., Baisa, V., Bušta, J., Jakubíček, M., Kovář, V., Michelfeit, J., Rychlý, P., & Suchomel, V. (2014). The sketch engine: Ten years on. *Lexicography*, 1(1), 7–36. https://doi.org/10.1007/s40607-014-0009-9

Mashal, N., & Faust, M. (2009). Conventionalization of novel metaphors: A shift in hemispheric asymmetry. *Laterality*, 14(6), 573–589. https://doi.org/10.1080/13576500902734645

McEnery, T., & Hardie, A. (2012). *Corpus linguistics: Method, theory and practice*. Cambridge: Cambridge University Press.

Mukařovský, J. (1932/1964). Standard language and poetic language. In P.L. Garvin (Ed.), *A Prague school reader on esthetics, literary structure, and style* (pp. 17–30). Washington, DC: Georgetown University Press.

Mukařovský, J. (1978). *Structure, sign and function*. New Haven, CT: Yale University Press.

Paolazzi, C. (2013). "Do you really think it?": Testing hypotheses on default nonliteral interpretations. University of Trento, Italy. Unpublished ms.

Partington, A. (2011). Phrasal irony: Its form, function and exploitation. *Journal of Pragmatics*, 43, 1786–1800. https://doi.org/10.1016/j.pragma.2010.11.001

Raeber, T. (2016). Distinguishing rhetorical from ironical questions: A relevance-theoretic account. In M. Padilla Cruz (Ed.), *Relevance Theory: Recent developments, current challenges and future directions* (pp. 173–190). Amsterdam/Philadelphia: John Benjamins.

Schwoebel, J., Dews, S., Winner, E., & Srinivas, K. (2000). Obligatory processing of the literal meaning of ironic utterances: Further evidence. *Metaphor and Symbol*, 15(1–2), 47–61. https://doi.org/10.1080/10926488.2000.9678864

Shklovsky, V. (1917/1965). Art as technique. In L. T. Lemon & M. J. Reis (Eds. and Trans.), *Russian formalist criticism: Four essays* (pp. 3–57). Lincoln: University of Nebraska Press.

Sulis, E., Hernandez Farias, D. I., Rosso, P., Patti, V., & Ruffo, G. (2016). Figurative messages and affect in Twitter: Differences between #irony, #sarcasm and #not. *Knowledge-Based Systems*, 108, 132–143.

Veale, T. (2012). *Exploding the creativity myth: The computational foundations of linguistic creativity*. London/New York: Continuum.

Veale, T. (2013). Humorous similes. *Humor*, 26(1), 3–22. https://doi.org/10.1515/humor-2013-0002

Wason, P. C. (1965). The contexts of plausible denial. *Journal of Verbal Learning and Verbal Behavior*, 4(1), 7–11. https://doi.org/10.1016/S0022-5371(65)80060-3

Ziv, Y. (2013). *Staam*: Maintaining consistency in discourse. In M. Florentin (Ed.), *Collection of articles on language* (pp. 151–159). Jerusalem: Hebrew Academy (In Hebrew).

Zuanazzi, A. (2013). Italian affirmative rhetorical questions generate ironic interpretations by default. University of Trento, Italy. Unpublished ms.

Address for correspondence

Rachel Giora
Department of Linguistics
Tel Aviv University
Tel Aviv, 69978
Israel
rachel.giora@gmail.com

Biographical notes

Rachel Giora is Professor of Linguistics at Tel Aviv University. Her research areas include cognitive aspects of coherence and women and language. As of 1997, her work has focused on experimentally testing the Graded Salience Hypothesis and the Defaultness Hypothesis (2015), featuring the psycholinguistics and neurolinguistics of non/default non/figurative language, context effects, Optimal Innovations, aesthetic pleasure, and discourse negation. She has published over 130 articles and a book – *On our mind* (Oxford University Press, 2003)-, and coedited a 6-volume series with Patrick Hanks on figurative language (Routledge, 2011), and a volume with Michael Haugh titled *Doing pragmatics interculturally* (de Gruyter Mouton, 2017).

Inbal Jaffe is a MA student in the Cognitive Studies of Language Use Program at Tel Aviv University. Graduating from Consciousness Studies Program at Tel Aviv University in 2012 (cum laude in Philosophy), she is currently completing her Master's thesis under the supervision of Prof. Rachel Giora and Dr. Ofer Fein. Her main interests lie in pragmatics research including the cognitive aspects of sarcasm, humor, and metaphor.

Israela Becker is a PhD candidate in the School of Philosophy, Linguistics, and Science Studies at Tel Aviv University supervised by Prof. Rachel Giora and Prof. Mira Ariel. Her main research interests lie in the psycholinguistics and pragmatics of negation.

Ofer Fein is a Senior Lecturer in the School of Behavioral Sciences, The Academic College of Tel-Aviv-Yaffo. His current research interests include psycholinguistics, psychology of sexual orientation, application of queer theory to psychology, relationship agreements among gay men, and prejudice against LGBT people.