

**On the creativity of
negation**
**The case of negative
sarcasm**

Rachel Giora
Tel Aviv University
giorar@tau.ac.il
www.tau.ac.il/~giorar

Based on

- **Fein, O., Yeari, M., & Giora, R. (2013).** On the priority of salience-based interpretations: The case of irony. (In review)
- **Giora, R., Drucker, A., Fein, O. & Mendelson, I. (2013).** Negation generates sarcastic interpretations by default: Nonsalient vs. salience-based interpretations. (In review)
- **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.
- **Giora, R., Raphaeli, M. Fein, O. & Livnat, E. (2013).** Resonating with contextually inappropriate interpretations in production: The case of irony. (Submitted)

Story at a glance

1. He is particularly bright
2. He is not particularly bright

in a context in which
the guy is a complete idiot.

Which of the 2 **sarcastic** utterances is
easier to derive
the affirmative or the negative?
Whose creativity is faster to come by?

Outline

Experiments 1-9 and Study 1
focus on

Affirmative Sarcasm

and the Graded Salience Hypothesis
Giora (1997, 2003)

Experiments 10-16 and Study 2
focus on

Negative Sarcasm

and the
View of Default Nonliteral Interpretations
Giora et al. (2010, 2013)

Default sarcastic interpretations



Default sarcastic interpretations

Predictions related to
default sarcastic interpretations
which follow from
the view of
default nonliteral interpretations
conflict with those of
the Graded Salience Hypothesis,
according to which
default interpretations are salience-based

What are salience-based interpretations

According to the Graded Salience Hypothesis, salience-based interpretations are utterance interpretations not listed in the mental lexicon but constructed based on the **salient – coded and prominent – meanings** of the utterance components, regardless of degree of (non)literalness.

(Giora, 1997, 2003; Giora et al., 2007)

Predictions wrt salience-based interpretations

- Given that lexical processes are stimulus-driven, **salient meanings** and **salience-based interpretations** will not be blocked by **a strong context**, even when incompatible.
- Instead, they will be facilitated **unconditionally** even when **context-based** interpretations are **expected**.
- (For a different view see, Burgers et al. 2013; Campbell & Katz, 2012; Gibbs, 1994, 2002)

Examples of salience-based interpretations

What is the salience-based interpretation of 1 and 2:

1. He is particularly bright
He is highly intelligent
2. He is not particularly bright
He is intelligent but others are more intelligent than him.

According to the Graded Salience Hypothesis, these interpretations will be activated immediately even in a context in which the guy is a complete idiot.

What are Context-based interpretations

Context-based interpretations (e.g., novel sarcasm) are noncoded, nonsalient interpretations, derived on the basis of contextual information, often regardless of the salient meanings of the utterance components.

Nonsalient Sarcasm Interpretation

Are they easy to derive?

According to the Graded Salience Hypothesis sarcasm is hard to come by since salient meanings and salience-based interpretations enjoy priority over nonsalient creative ones.

According to the view of Default Nonliteral Interpretations creativity may be easy to come by.

Some nonsalient creative interpretations enjoy priority over salience-based ones

On the priority of salience-based interpretations of Affirmative Sarcasm (He is particularly bright)

Experiments 1-9 aim to show that, as predicted by the Graded Salience Hypothesis, affirmative sarcastic utterances activate their salience-based (often literal) interpretation unconditionally, i.e., regardless of contextual bias to the contrary

(Fein et al., 2013; but see Gibbs, 1986)

Experiments 1-9

Affirmative sarcasm

Specific Predictions

1. Shorter reading times of targets biased toward the **salience-based** than toward context-based **sarcastic** interpretation
2. Shorter response times to probes related to **salience-based (literal)** interpretations than to **sarcastic** interpretations

Experiments 1-3

use dialogues similar to Giora et al.'s (2007), strengthened by additional **sarcastic cues**

The aim here is to show that even when contextual **expectation** for a **sarcastic** utterance is strengthened, **salience-based (often literal) interpretations** are not blocked, but facilitated unconditionally.

Sarcastically biased context+a sarcastic speaker+cues

B: I finish work early today.

S: So, do you want to go to the movies?

B: I don't really feel like seeing a movie

S: So maybe we could go dancing?

B: No, at the end of the night my feet will hurt and I'll be tired.

S (derisively): You're a really active guy...

B: Sorry but I've had a rough week

S: So what are you going to do tonight?

B: I think I'll stay home, read a magazine, and go to bed early.

S (derisively): Sounds like you are going to have a really interesting evening.

Literally biased context+literal speaker+cues

B: I was invited to a film by Amos Gitai.

S: That's fun. He is my favorite director.

B: I know, I thought we'll go together.

S: Great. When is it on?

B: Tomorrow. We will have to be in Metulla in the afternoon.

S (happily): I see they found a place that is really nice.

B: I want to leave early in the morning.

S: I can't, I'm studying in the morning.

B: Well, I'm going anyway.

S (approvingly): Sounds like you are going to have a really interesting evening.

Probes: salience-based – exciting; sarcastic – dull;
unrelated – young; non-words

3 pretests controlled for

- (a) the **sarcastic bias of the sarcastically biased dialogues**, which induced a significantly **stronger expectation for a sarcastic utterance** compared to the **nonsarcastic dialogues**;
- (b) the **similar salience** status of the 3 types of probe words, which were measured online in terms of response times, following a neutral context;
- (c) the **equivalent relatedness** of the related probes to the **interpretation** of their relevant target utterances in their respective contexts, and the **unrelatedness** of the unrelated probes.

Measures were

1. Reading times of target utterances.
2. Response times to probes:

at 750 ms ISI (Experiment 1)

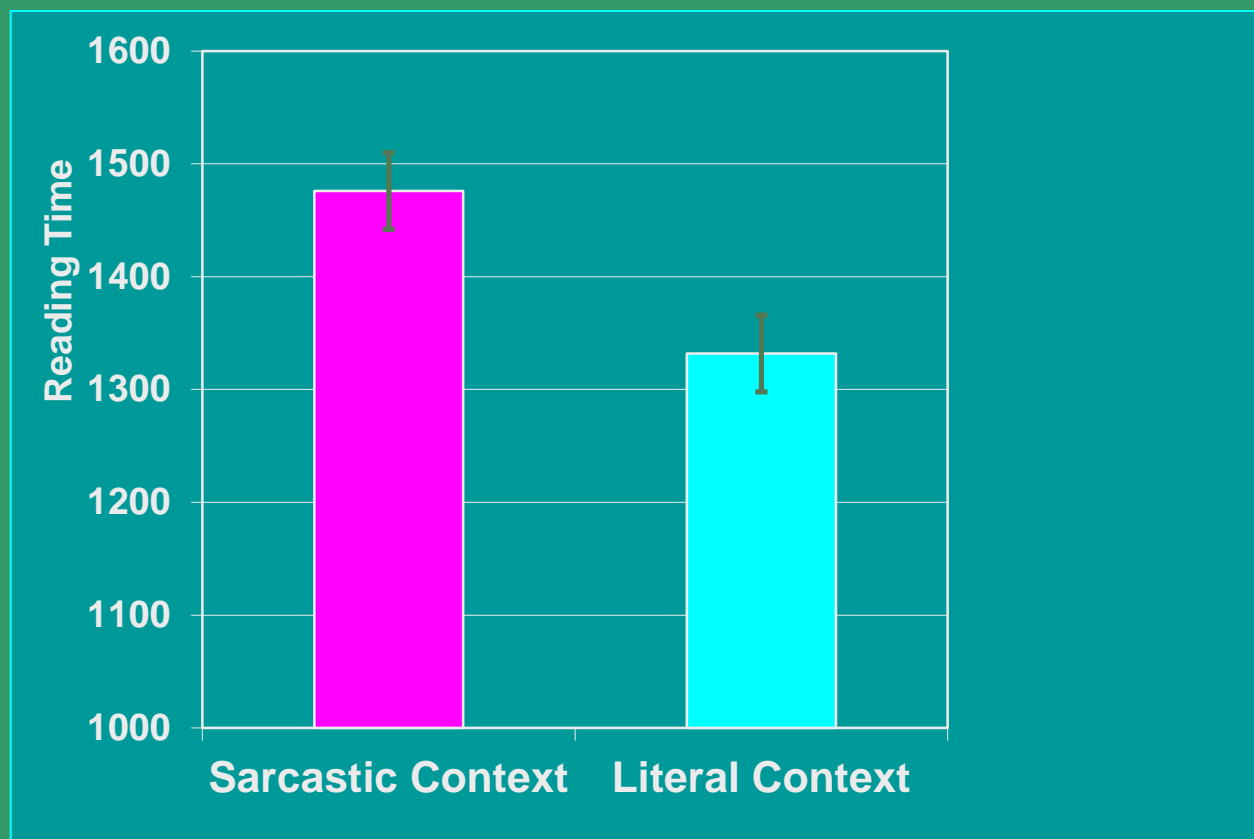
at 1500 ms ISI (Experiment 2)

at 2000 ms ISI (Experiment 3)

Results - Experiments 1-3 (combined analysis)

Reading Times

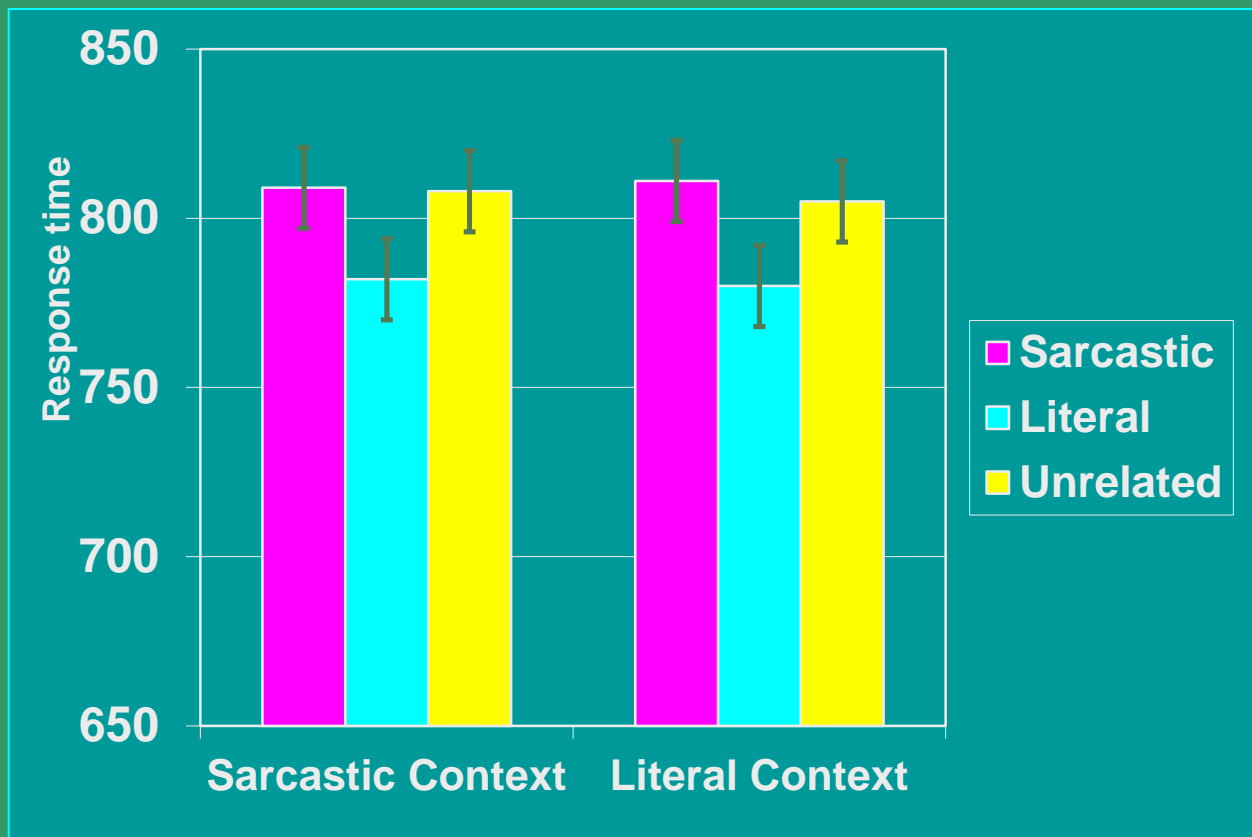
Salience-based biased targets took less time to read than the nonsalient, sarcastically biased ones



Results - Experiments 1-3 (combined analysis)

Response Times to Probes

Salience-based probes took less time to respond to than nonsalient sarcastic probes and marginally so than unrelated probes
No context-type X probe-type interaction



Summary

Affirmative sarcasm

Experiments 1-3

Results from reading times and response times support the **Graded Salience Hypothesis**. They show that only **salience-based** interpretations are facilitated initially.

Nonsalient sarcastic interpretations are difficult to derive.

Experiments 4-9

use Giora et al.'s (2007) items,
while strengthening them further by
disclosing that we are testing
sarcasm interpretation

The aim here is to show that even
when contextual **expectation** for a
sarcastic utterance is
strengthened, **salience-based**
interpretations are facilitated
unconditionally, while **sarcastic**
interpretations lag behind.

Predictions

Shorter response times to **salience-based** related probes compared to **nonsalient sarcastically** related and unrelated probes, regardless of contextual bias.

Materials

John was a basketball coach. For the past week he was feeling restless, worrying about the upcoming game. It was yet unclear how the two teams matched up, and he was anxious even on the day of the game. When he got a call telling him that the three lead players on the **opposing** team will not be able to play that night, John wiped the sweat off of his forehead and said to his friend: **this is really terrific news!**

John was a basketball coach. For the past week he was feeling restless, worrying about the upcoming game. It was yet unclear how the two teams matched up, and he was anxious even on the day of the game. When he got a call telling him that the three lead players on **his** team will not be able to play that night, John wiped the sweat off of his forehead and said to his friend: **this is really terrific news!**

Probes: **Salience-based** related – winning;
sarcastically related – losses;
unrelated – meals; non-words

4 pretests

- a) the **sarcastic bias** of the **sarcastically** biased contexts and the **salience-based** bias of the **literally** biased contexts;
- b) the **salience** status of the 3 types of probe words, which were measured online; Given that **sarcastically related** probes were faster, results served as **baseline means**.
- c) the equivalent relatedness of the related probes to the interpretation of their relevant target utterances in their respective contexts, and the unrelatedness of the unrelated probes.
- d) probes' relatedness to the target utterance in context rather than to the context itself.

Experiments 4-9 (Fein et al., 2013)

As in Giora et al. (2007), **expectation** for a **sarcastic utterance** was first manipulated via the design of the experiment.

- + **Expectation condition**, participants were presented items, all of which ended in a **sarcastic utterance**
- **Expectation condition**, participants were presented items, half of which ended in a **sarcastic utterance** and half in a **salience-based** (often) **literally biased utterance**.

Experiments 4-9 (Fein et al., 2013)

- Here, in addition, contextual expectancy was further strengthened.
- In the **+Expectation condition** participants were informed that we were examining **sarcasm interpretation**.
- Furthermore, longer processing times were allowed, with ISIs ranging between 750-3000ms
- Here too we expected to replicate previous results, demonstrating **the priority of salience-based interpretations**

Measures were

Response times to probes at:

750 ms ISI (Experiment 4)

1000 ms ISI (Experiment 5)

1500 ms ISI (Experiment 6)

2000 ms ISI (Experiment 7)

2500 ms ISI (Experiment 8)

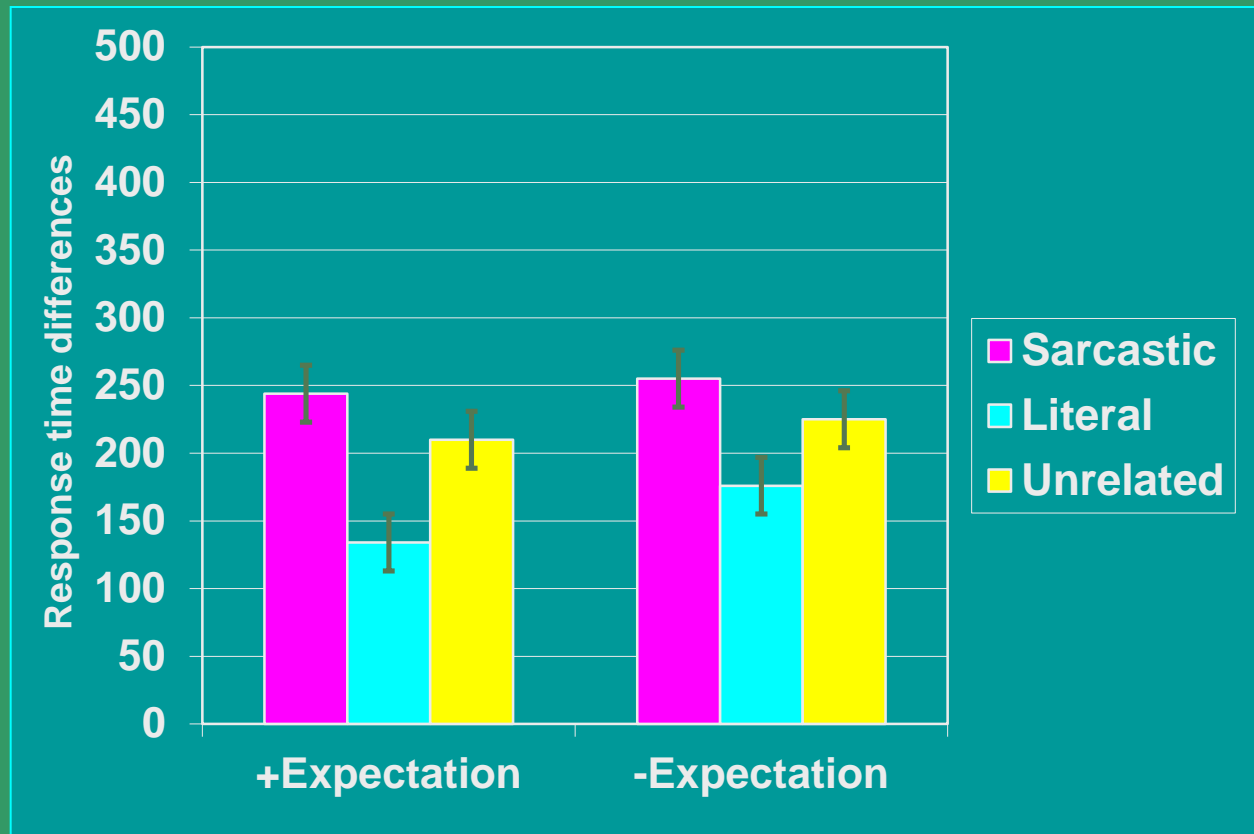
3000 ms ISI (Experiment 9)

Experiments 4-9 (combined analysis)

Mean response times at all ISIs
(after subtraction of baseline means)

Saliency-based probes took less time to respond to than nonsalient sarcastic probes

Saliency-based probes took less time to respond to than unrelated probes
No expectancy X probe-type interaction



Summary

Experiments 1-9

support the priority of
salience-based interpretations of
affirmative sarcasm

As predicted by the
Graded Salience Hypothesis,
results from 9 experiments
looking at **affirmative sarcasm**
provide support for
the priority of
salience-based interpretations
over
nonsalient (sarcastic) ones

Conclusions

**Nonsalient interpretations
of affirmative sarcasm**

don't come easy.

**They are difficult to
activate probably because
they are derived
indirectly.**

Study 1

Corpus-based study of Discourse Resonance

The Graded Salience Hypothesis Predictions

Given that salience-based
interpretations

are expected to be facilitated
immediately

the context of a **sarcastic** utterance will
resonate with its **salience-based**
interpretation more often than with its
nonsalient sarcastic one.

What is Discourse Resonance?

According to Du Bois (2002), resonance pertains to the activation of relational **affinities** between utterances.

Neighboring utterances of a **sarcastic** statement may therefore resonate either with its **salience-based** and/or **nonsalient sarcastic** interpretation.

Resonating with **salience-based** interpretations of affirmative sarcasm

"Hooray to the Israeli Air Force pilots doing a *splendid job*" effused Brigadier General Avi Benayahu, the IDF spokesperson, talking to Yonit Levy - white turtleneck against a background of tanks, vis à vis hundreds of funerals in Gaza - a token of the *"splendid job"* of our *fine* pilots (Levy 2008b).

Resonating with **nonsalient sarcastic** interpretations of affirmative sarcasm

The man [Olmert] who made a number of courageous statements about peace late in his tenure has orchestrated no fewer than two wars. Talking peace and making war, the "**moderate**" and "**enlightened**" Prime Minister [Olmert] has been revealed as one of our *greatest fomenters of war* (Levy 2009b).

Discourse Resonance Affirmative Sarcasm (Giora, Raphaely, Fein, Livnat, 2013)

Predictions

According to the Graded Salience Hypothesis, the environment of a sarcastic utterance will resonate with its **salience-based** rather than with its **nonsalient sarcastic** interpretation.

Findings

(In 0.7% cases, a sarcastic utterance was classified twice, since it was addressed both via its sarcastic interpretation and its salience-based interpretation when later developed into an extended sarcastic irony)

Type of Contextual Resonance with Irony Interpretations	Quantity (percentage out of 1612)	<i>P</i> value
No resonance	689 (42.7%)	
With both sarcastic and salience-based interpretations	64 (3.9%)	
Extended sarcastic ironies	160 (9.9%)	
Only salience-based interpretations	589 (36.5%)	p<.0001
Only sarcastic interpretations	122 (7.5%)	
Total	1624	

Conclusions

The environment of affirmative sarcasm reflects its **salience-based** interpretations, thus supporting the view that **nonsalient interpretations are difficult to activate**

On the priority of nonsalient nonliteral interpretations of negative utterances

He is not particularly bright

**On the priority of nonsalient
nonliteral interpretations of
negative utterances**

He is not particularly bright

**The view of
default nonliteral interpretations
predicts the priority of
novel, nonsalient interpretations of
creative (sarcastic) utterances over
salience-based (literal)
interpretations**

(Giora et al., 2013a, b)

What does it take to be a
default nonliteral
interpretation?



What does it take to be a default nonliteral interpretation?

For a **nonliteral** interpretation to be avored by default, utterances have to meet **the conditions for default nonliteral interpretations** which guarantee that **potential ambiguity** between literal and nonliteral interpretations is allowed **a priori**:

**How do we guarantee potential
ambiguity?**



How do we guarantee potential ambiguity?

For utterances to be potentially ambiguous

- a) **Familiarity** should be avoided.
- b) **Semantic anomaly** or **internal incongruity** should be avoided.
- c) Specific and informative **contextual information** should be avoided.

(a) Familiarity should be avoided so that **salient**/coded **nonliteral** meanings of expressions and collocations (e.g., the coded nonliteral meanings of familiar idiomatic, metaphorical, sarcastic, or any formulaic expression, see Giora 2003), **prefabs** (Erman & Warren 2001), or conventionalized, ritualistic, **situation bound utterances**, such that occur in standardized communicative situations, (Kecskés 1999, 2000) should be excluded;

If negative items are considered, they should **not** be Negative Polarity Items but should have an **acceptable** and meaningful affirmative **counterpart**, so that conventionality may be avoided.

(b) Semantic anomaly should be avoided (since it's known to trigger metaphoricalness, e.g., Beardsley 1958) or any kind of **internal incongruency**, any opposition between two elements of the phrase itself (known to trigger an ironic/sarcastic reading, see Partington 2010) should not be involved so that both literal and nonliteral interpretations would be permissible;

(c) Specific and informative contextual information should be avoided so that **pragmatic incongruity** - a breach of pragmatic maxims or contextual misfit (e.g., Grice 1975) - on the one hand, and **supportive biasing information** (including explicit marking, intonation/prosodic cues, gestures, facial expressions, etc.), on the other, may not invite or block a nonliteral interpretation (e.g., Gibbs 1994, 2002; Katz 2009; Katz, Blasko, & Kazmierski 2004)

In this part of the talk
the focus is on
default sarcastic interpretations.

More broadly, on the priority of
novel, nonsalient, creative
interpretations
of **negative** utterances
over their
equally novel, salience-based
interpretations

Experiments 10-16:

test the following
constructions:

X s/he is not

X is not her forte

X is not her distinctive feature

Experiments 10-16

Predictions

Novel negative items

of the form *X s/he is not, X is not her forte, X is not her distinctive feature*

will be

(a) **interpreted sarcastically** by default,

(b) **rated** as more **sarcastic** than their novel affirmative counterparts, and will be

(c) **read faster** in **sarcastically** than in **salience-based literally** biasing contexts

Experiments 10-11: Default sarcastic interpretations

X s/he is not
Meticulous she is not
Ambitious she is not

I told my ma I was doing Nanowrimo: her reaction: "Oh, God, not again!"

Basically, I pay her no attention during November, except to ask very, very obscure questions at all hours of the day and night.
Supportive she ain't.

Experiment 10: Predictions

When presented in isolation
novel negative items
will be

(a) **interpreted sarcastically** by default
and will be

(b) **rated** as more **sarcastic**
than their novel affirmative
counterparts

Items

Items were 18 Hebrew utterances of the form

X s/he is yes

X s/he is not

potentially ambiguous between

literal and **nonliteral**

interpretations

Sample items

Quick he is yes/is not

Focused he is yes/is not

Exciting she is yes/is not

Pretest:

Establishing novelty of the items

Novelty ratings were collected from 22 Hebrew speakers.

Results showed that both the **negative** items

M=2.34 SD=0.48

and their **affirmative** counterparts

M=1.89 SD=0.46

were unfamiliar, scoring significantly lower than 3 on a 7- point familiarity scale:

Negative $t(17)=5.91, p<.0001$

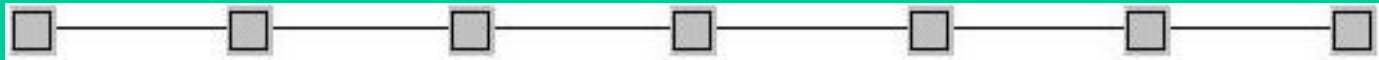
Affirmative $t(17)=10.23, p<.0001$

(a) Default interpretations of negative items

19 participants were asked to **rate**, on a 7-point scale (whose ends [randomly] instantiated either a literal (=1) or a sarcastic (=7) interpretation of each item) the **proximity of the interpretation of the items to any of those instantiations at the scale's ends.**

(a) Default sarcastic interpretations of negative items

Supportive she is not



She's disparaging
and undermining

She has some
reservations

(a) Default interpretations of negative items: Results

Results showed that outside of a specific context, the interpretations of the novel negative items were **sarcastic**, scoring high on sarcasm
 $M = 5.59, SD = 0.54$

Significantly higher than 5
on a 7-point **sarcasm** scale:

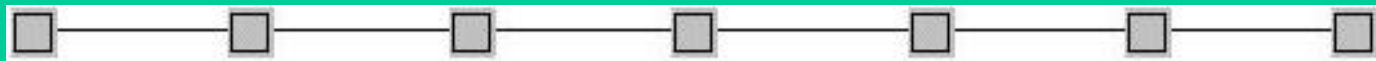
$t(17) = 4.65, p < .005$

(b) Sarcasm rating of negative and affirmative items

- 43 Hebrew speakers were asked to rate degree of sarcasm on a 7 point **sarcasm** scale.

Stimuli

Supportive she is yes/not



Not sarcastic at all

Highly sarcastic

(b) Conscious sarcasm rating of negative and affirmative items

- Results showed that novel **negative** utterances were rated as more **sarcastic** than their novel **affirmative** counterparts

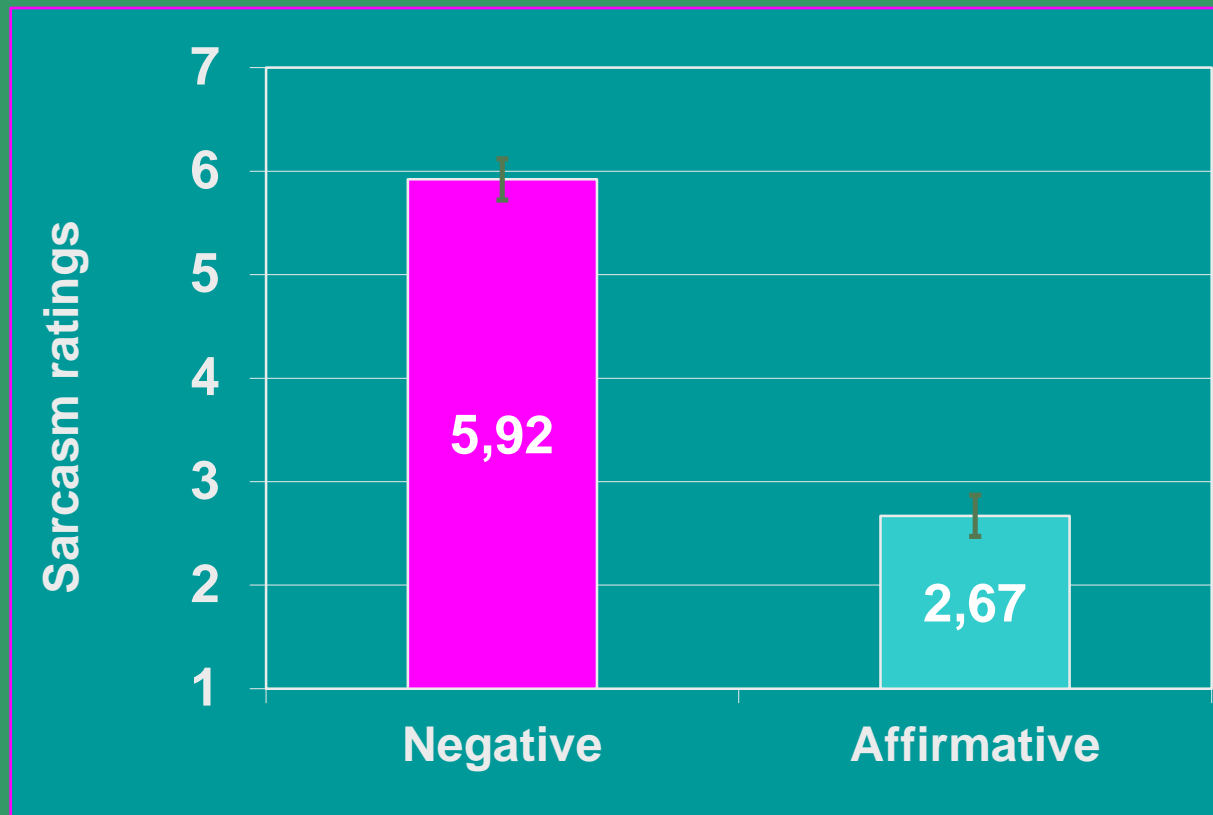
M=5.92, SD=0.94

M=2.67, SD=1.33

t1(42)=11.53, p<.0001

t2(17)=45.55, p<.0001

Sarcasm ratings



Experiment 11: Reading times of novel negative items

Prediction:

Novel negative items of the
form *X s/he is not*
will be **read faster** in
sarcastically than in **literally**
biasing contexts

Examples

- Rotem will never amount to anything with the way she conducts herself, slouched all day in front of the TV, or chatting away for hours on her cell phone. If she ever shows any concentration it's when she catches up on the latest gossip. And if she ever moves her butt, it's only in order to buy her stinking cigarettes. **Ambitious she is not.** *As far as she's concerned...*
- When Rotem has her mind set on achieving something, she usually does, but it's never a far-reaching objective. Her goals are respectable, but rather banal. **Ambitious she is not.** *As far as she's concerned...*

Pretest:

Establishing similar contextual bias

To establish contextual bias, 44 Hebrew speakers were presented the 18 negative targets in contexts either biasing them toward the literal (**mitigated**) interpretation or toward the (**creative**) sarcastic interpretation. They had to **rate** the targets on a 7 point **sarcasm** scale

Results: Similar contextual bias

Results showed that **negative items** embedded in **sarcastically** biasing contexts scored as high on sarcasm as did their counterparts on literalness when embedded in **literally** biasing contexts:

(M=**6.02** SD=0.37)

(M=**5.92** SD=0.30)

$t(17)=1.42, p=.17$ (two-tail)

We thus confirmed that both contexts were equally constraining.

Reading times

44 participants read the passages segment by segment, advancing the texts by pressing a key. And the computer measured the reading times of the target utterances and the next 2 words that followed (for spill-over effects). The texts were followed by a comprehension question.

Results: Different reading times

Results showed that **sarcastically biased** targets were read **faster** than their **salience-based literally biased** versions

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:

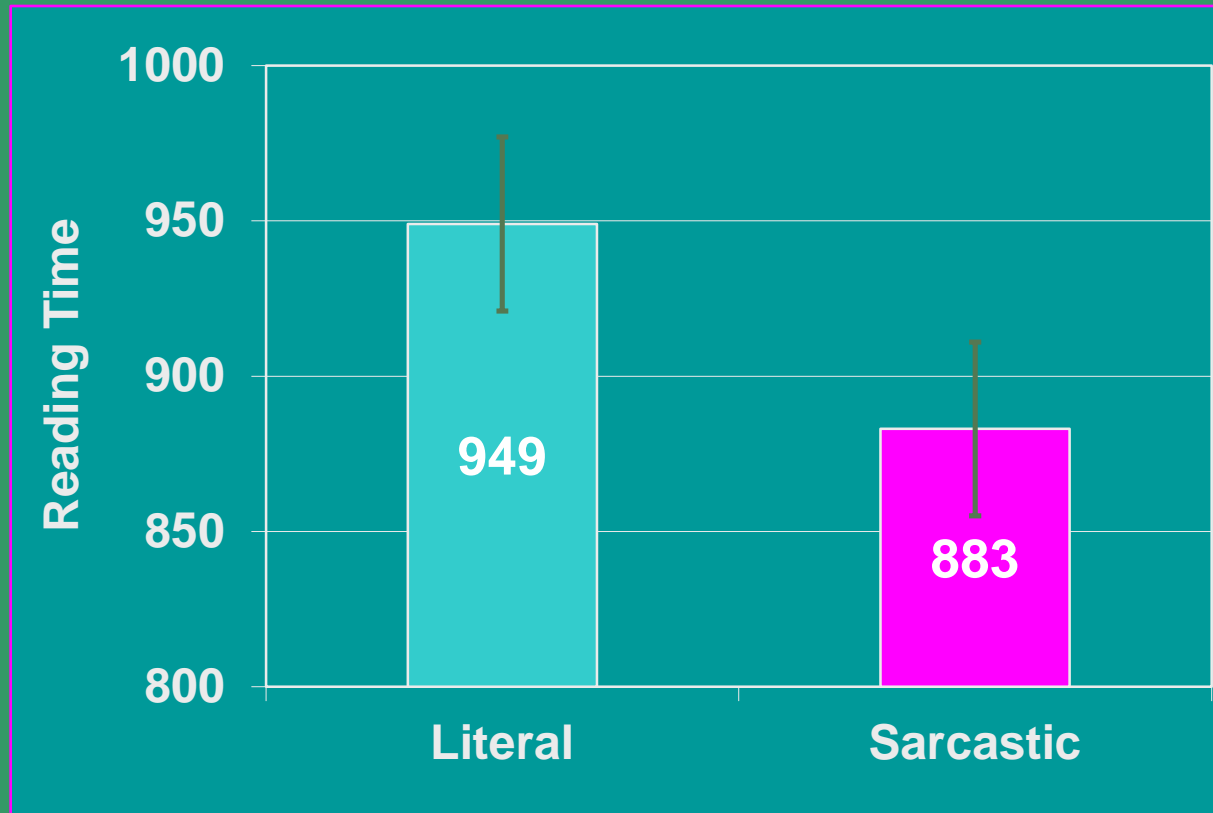
M=**787 ms** (SD=204);

M=**811** (SD=211)

$t_1(43)<1, n.s.; t_2(15)<1, n.s.$

Default sarcastic interpretations of (*X s/he is not*) items

Mean reading times (ms)



Experiments 10-11: Summary

As predicted, when presented in isolation, novel **negative** items are

(a) interpreted sarcastically by default are

(b) rated as more sarcastic than their novel affirmative counterparts, and are therefore

(c) read faster in sarcastically than in salience-based biased contexts

Experiments 12-15

Default sarcastic interpretations

Exp. 12-13: Punctuality is not his forte

Exp. 14-15: Hospitality is not his
best attribute

Tom's wait is currently 3 years, more-
or-less. **Punctuality is not his forte.**

<http://test.woodwind.org/oboe/BBoard/read.html?f=10&i=8736&t=18711>

Experiments 12-13

Predictions

Novel negative items
of the form *X is not her forte*
will be

- (a) **interpreted sarcastically** by default,
- (b) **rated** as more **sarcastic** than their novel affirmative counterparts, and will be
- (c) **read faster** in **sarcastically** than in **literally** biasing contexts

Experiment 12: Predictions

When presented in isolation
novel negative items
will be

(a) **interpreted sarcastically** by default
and will be

(b) **rated** as more **sarcastic**
than their novel affirmative
counterparts

Items

Items were 14 Hebrew utterances of the form X is/is not her forte potentially ambiguous between **literal** and **nonliteral** interpretations

Pretest:

Establishing novelty of the items

Novelty ratings of 14 pairs of items were collected from 24 Hebrew speakers. Results showed that

both the **negative** items

M=2.09 SD=0.49

and their **affirmative** counterparts

M=2.04 SD=0.46

were similarly novel $t(13) < 1$, n.s.

Scoring significantly **lower than 2.5** on a 7 point familiarity scale:

Negative $t(13) = 3.12$, $p < .005$ (one-sample t-test)

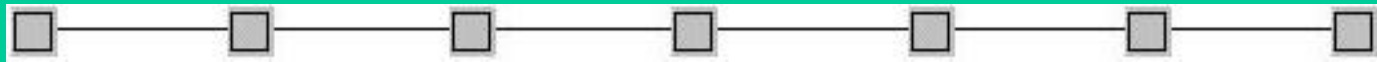
Affirmative $t(13) = 3.81$, $p < .005$ (one-sample t-test)

(a) Default interpretations of negative items

20 participants were asked to **rate**, on a 7 point scale (whose ends [randomly] instantiated either a literal (=1) or a sarcastic (=7) interpretation of each item) the **proximity of the interpretation of the items to any of those instantiations at the scale's ends.**

(a) Default sarcastic interpretations of negative items

Punctuality is not his forte



He is fairly punctual but there are other things he is better at

He is not punctual at all

(a) Default interpretations of negative items: Results

Results showed that outside of a specific context, the interpretations of the novel negative items were **sarcastic**, scoring high on sarcasm
 $M=5.51, SD=0.35$

Significantly **higher than 5**
on a 7-point **sarcasm** scale:

$t(13)=5.44, p<.0001$

(b) Sarcasm rating of negative and affirmative items

- 40 Hebrew speakers were asked to rate degree of sarcasm on a 7 point **sarcasm** scale.
- Results showed that novel **negative** utterances were rated as more **sarcastic** than their novel **affirmative** counterparts

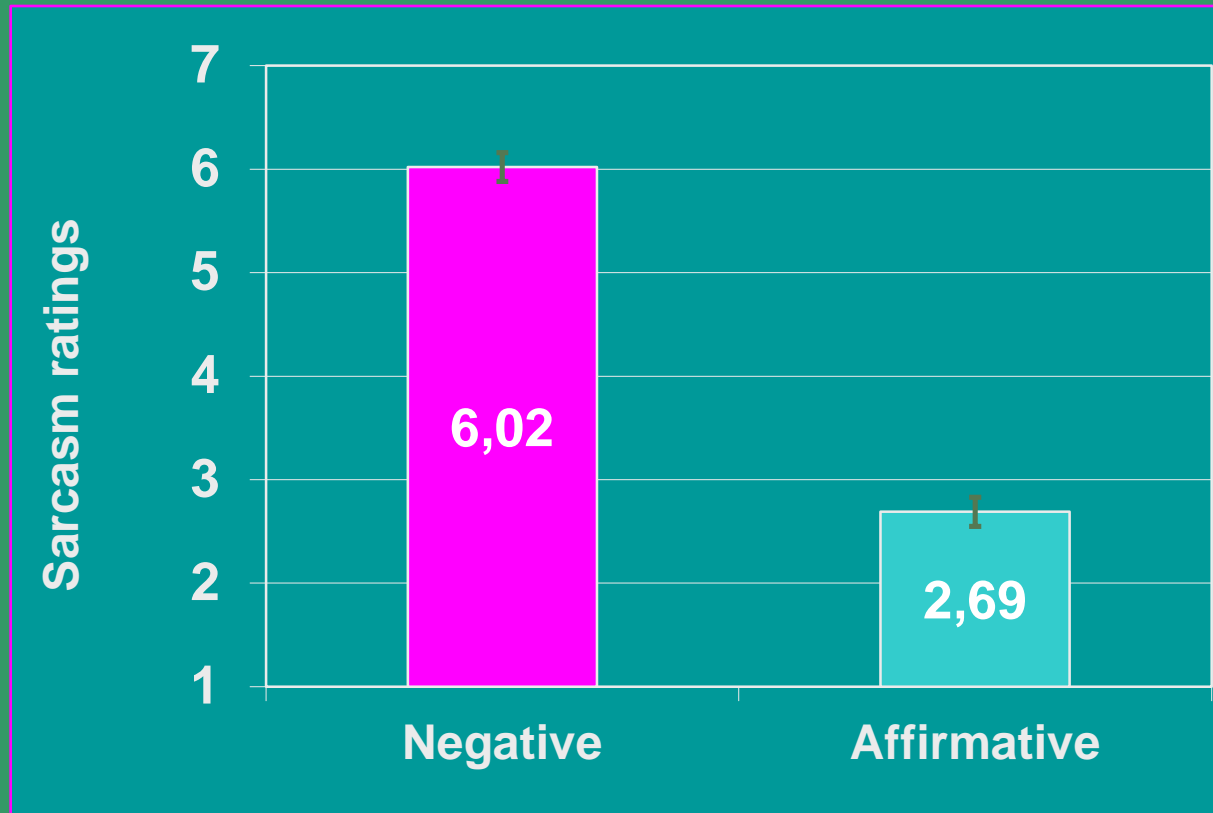
$M=6.02, SD=0.78$

$M=2.67, SD=1.01$

$t1(39)=15.43, p<.0001$

$t2(13)=22.07, p<.0001$

Sarcasm ratings



Experiment 13:

Reading times of novel negative items

Prediction:

Novel negative items of the form *X is not his forte* will be **read faster** in **sarcastically** than in **salience-based literally** biasing contexts

Examples

- Shay had to take his father to the dentist. Although his father reminded him time and again that he must be there at precisely 10:00 because he hates being late, Shay was half an hour late, arriving at 10:30. Later, while having dinner, Shay's father complained to his wife about Shay's behavior, embarrassing him in front of the dentist. "Well, what did you expect?" answered his wife, "we know him well enough, don't we? And this is not the first time he has given you a lift. **Punctuality is not his forte.** *He has received ...*"
- Shay had to take his father to the dentist at 10:00. He was a few minutes early and waited for his father outside his place. During the dental treatment, Shay's father could not stop bragging about his son, telling the dentist how successful he is, and responsible, and what a lovely girlfriend he has and a great career too... The dentist reciprocated: "Yeah, and I've noticed that he knows an appointment is an appointment. Most of my patients act like time is insignificant". The father agreed while adding: "Yes, he is usually on time, albeit **punctuality is not his forte.** *He has received..*"

Pretest:

Establishing similar contextual bias

To establish contextual bias, 34 participants were presented the 14 negative targets in contexts either biasing them toward the literal (**mitigated**) interpretation or toward the (**creative**) sarcastic interpretation. They had to **rate** the targets on a 7 point **sarcasm** scale

Results: Similar contextual bias

Results show that the **negative items** embedded in **sarcastically** biasing contexts scored as high on sarcasm as did their counterparts on literalness when embedded in **literally** biasing contexts:

(M=**5.66** SD=0.32)

(M=**5.58** SD=0.39)

$t(13)=0.52, p=.61$ (two-tail)

We thus established that both contexts were equally constraining.

Reading times

- ◆ 44 participants read the passages segment by segment, advancing the text by pressing a key. And the computer measured the reading times of the target utterances and the next 2 words that followed (for spill-over effects). The texts were followed by a comprehension question.

Results: Different reading times

Results showed that **sarcastically biased** targets were read **faster** than their **literally biased** versions

M=1349 ms (SD=401)

M=1790 ms (SD=579)

$t_1(43) = 4.69, p < .00001$

$t_2(13) = 4.48, p < .00005$

Spillover effects:

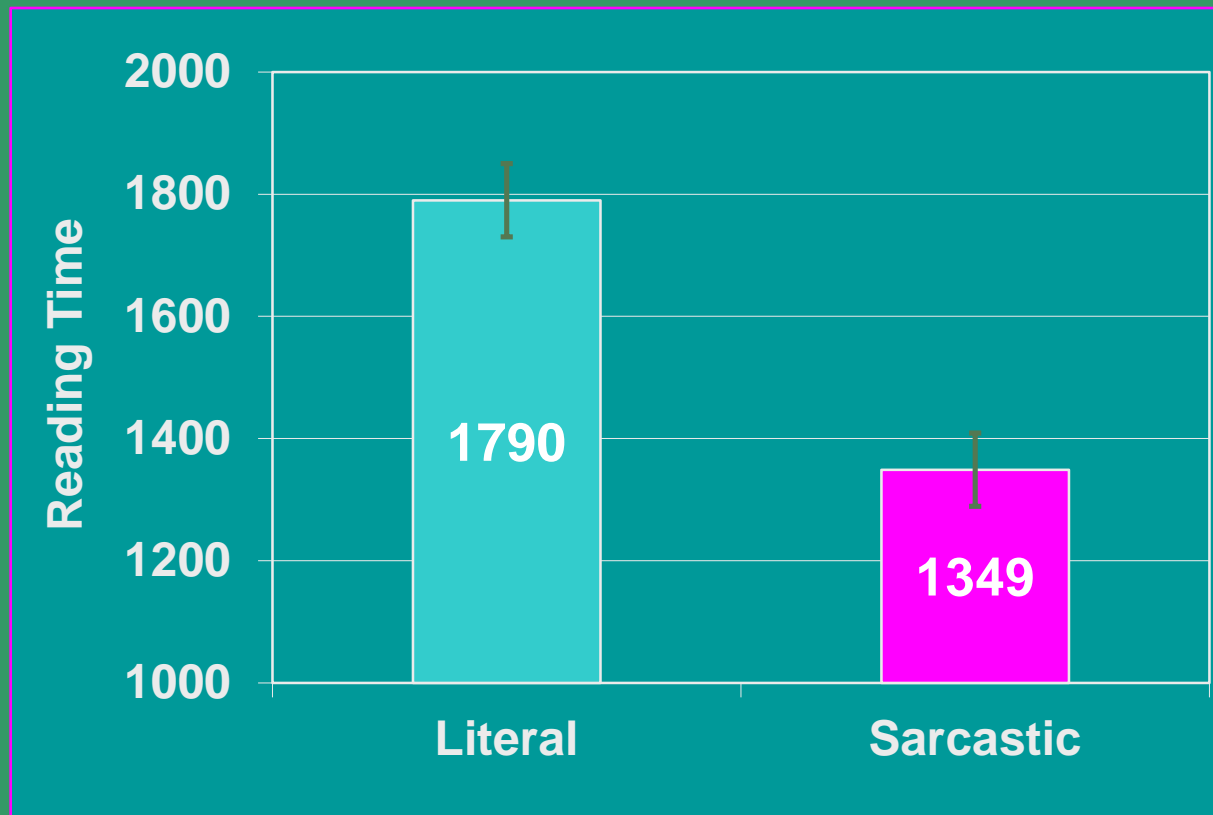
M=647 ms (SD=192)

M=739 ms (SD=196)

$t_1(43) = 2.90, p < .00005; t_2(13) = 1.94, p < .05$

Default sarcastic interpretations of (*X is not his forte*) items

Mean reading times (ms)



Experiments 12-13: summary

As predicted, novel negative items of the form *X is not her forte*

are

- (a) **interpreted sarcastically** by default;
- (b) **rated as sarcastic** when presented in isolation;

and are

- (c) **understood faster in sarcastically** than in **salience-based literally** biasing contexts.

Experiments 14-15 (replication of 12-13)

Default sarcastic interpretations

Agility is not her most distinctive feature
Supportiveness is not what she excels at

... a new species of humanity fighting for their share of the world? Either way it is a historical fact: **Sharing the world has never been humanity's defining attribute.**

<http://www.imdb.com/title/tt0290334/>

Experiments 14-15

Predictions

Novel negative items
of the form *X is not her best
attribute*
will be

- (a) interpreted sarcastically by default,
- (b) rated as more sarcastic than their novel affirmative counterparts, and will be
- (c) read faster in sarcastically than in literally biasing contexts

Experiment 14: Predictions

When presented in isolation
novel negative items
will be

- (a) interpreted sarcastically by default
and will be
- (b) rated as more sarcastic
than their novel affirmative
counterparts

Items

Items were 12 pairs of utterances of the form X is/is not her best attribute potentially ambiguous between **literal** and **nonliteral** interpretations

Pretest:

Establishing novelty of the items

Novelty ratings of 12 pairs of items were collected from 40 Hebrew speakers. Results showed that

both the **negative** items

M=1.47 SD=0.36

and their **affirmative** counterparts

M=1.30 SD=0.15

were similarly novel $t(11)=1.86, p=.09$ (two-tail)

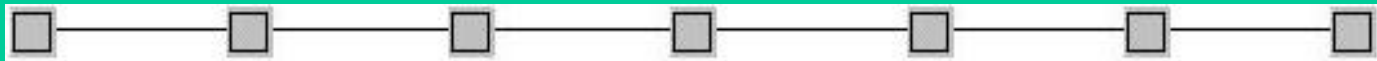
Scoring significantly **lower than 2** on a 7 point familiarity scale:

Negative $t(11)=5.11, p<.0005$

Affirmative $t(11)=15.60, p<.0001$

(a) Default sarcastic interpretations of negative items

Punctuality is not his best attribute



He is fairly punctual but there are other things he is better at

He is not punctual at all

(a) Default interpretations of negative items

20 participants were asked to **rate**, on a 7 point scale (whose ends [randomly] instantiated either a literal (=1) or a sarcastic (=7) interpretation of each item) the **proximity of the interpretation of the items to any of those instantiations at the scale's ends.**

(a) Default interpretations of negative items: Results

Results showed that outside of a specific context, the interpretations of the novel negative items were **sarcastic**, scoring high on sarcasm
 $M=5.55$, $SD=0.29$

Significantly **higher than 5** on a 7-point **sarcasm** scale:
 $t(11)=5.52$, $p<.0001$

(b) Sarcasm rating of negative and affirmative items

- 40 Hebrew speakers were asked to rate degree of sarcasm of the utterances on a 7 point **sarcasm** scale.
- Results showed that novel **negative** utterances were rated as more **sarcastic** than their novel **affirmative** counterparts

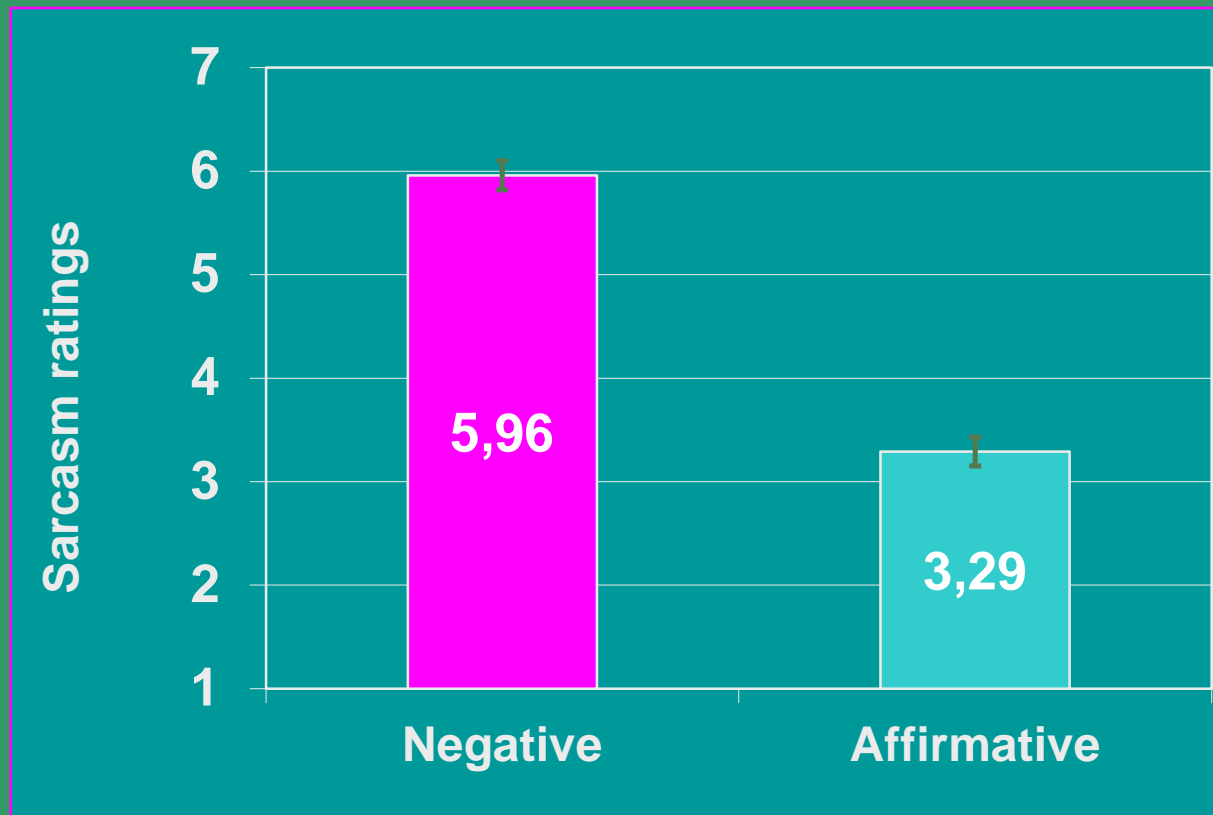
M=**5.96**, SD=0.76

M=**3.29**, SD=1.06

t1(39)=12.72, p<.00001

t2(11)=13.95, p<.00001

Sarcasm ratings



Experiment 15:

Reading times of novel negative items

Prediction:

Novel negative items
will be **read faster** in
sarcastically than in
salience-based literally
biasing contexts

Examples

- Shay had to take his father to the dentist. Although his father reminded him time and again that he must be there at precisely 10:00 because he hates being late, Shay was half an hour late, arriving at 10:30. Later, while having dinner, Shay's father complained to his wife about Shay's behavior, embarrassing him in front of the dentist. "Well, what did you expect?" answered his wife disparagingly, "we know him well enough, don't we? And this is not the first time he gives you a lift. **Punctuality is not his best attribute**". *He has ...*
- Shay had to take his father to the dentist at 10:00. He was a few minutes early and waited for his father outside his place. During the dental treatment, Shay's father could not stop bragging about his son, telling the dentist how successful he is, and responsible, and what a lovely girlfriend he has and a great career too... The dentist reciprocated: "Yeah, and I've noticed that he knows an appointment is an appointment. Most of my patients act like time is insignificant". The father agreed while adding: "Yes, he is usually on time, albeit **punctuality is not his best attribute**". *He has...*

Pretest:

Establishing similar contextual bias

To establish contextual bias, 44 participants were presented the 12 negative targets in contexts either biasing them toward the literal (**mitigated**) interpretation or toward the (**creative**) sarcastic interpretation. They had to **rate** the targets on a 7 point **sarcasm** scale

Results: Similar contextual bias

Results showed that the **negative items** embedded in **sarcastically** biasing contexts scored as high on sarcasm as did their counterparts on literalness when embedded in **literally** biasing contexts:

(M=**6.31** SD=0.21)

(M=**6.14** SD=0.41)

$t(11)=1.24, p=.24$ (two-tail)

Each scoring significantly **higher than 5.5** on a 7 point scale:

sarcastic: $t(11)=13.12, p<.0001$

Literal: $t(11)=5.47, p<.0001$

We thus confirmed that both contexts were equally constraining.

Reading times

- ◆ 52 participants read the passages segment by segment, advancing the text by pressing a key. And the computer measured the reading times of the target utterances and the next 2 words that followed (for spill-over effects). The texts were followed by a comprehension question.

Results: Different reading times

Results showed that **sarcastically biased** targets were read **faster** than their **literally biased** versions

M=1821 ms (SD=588)

M=2405 ms (SD=833)

$t_1(51) = 6.19, p < .0001$

$t_2(11) = 2.93, p < .01$

Spillover effects:

M=690 ms (SD=208);

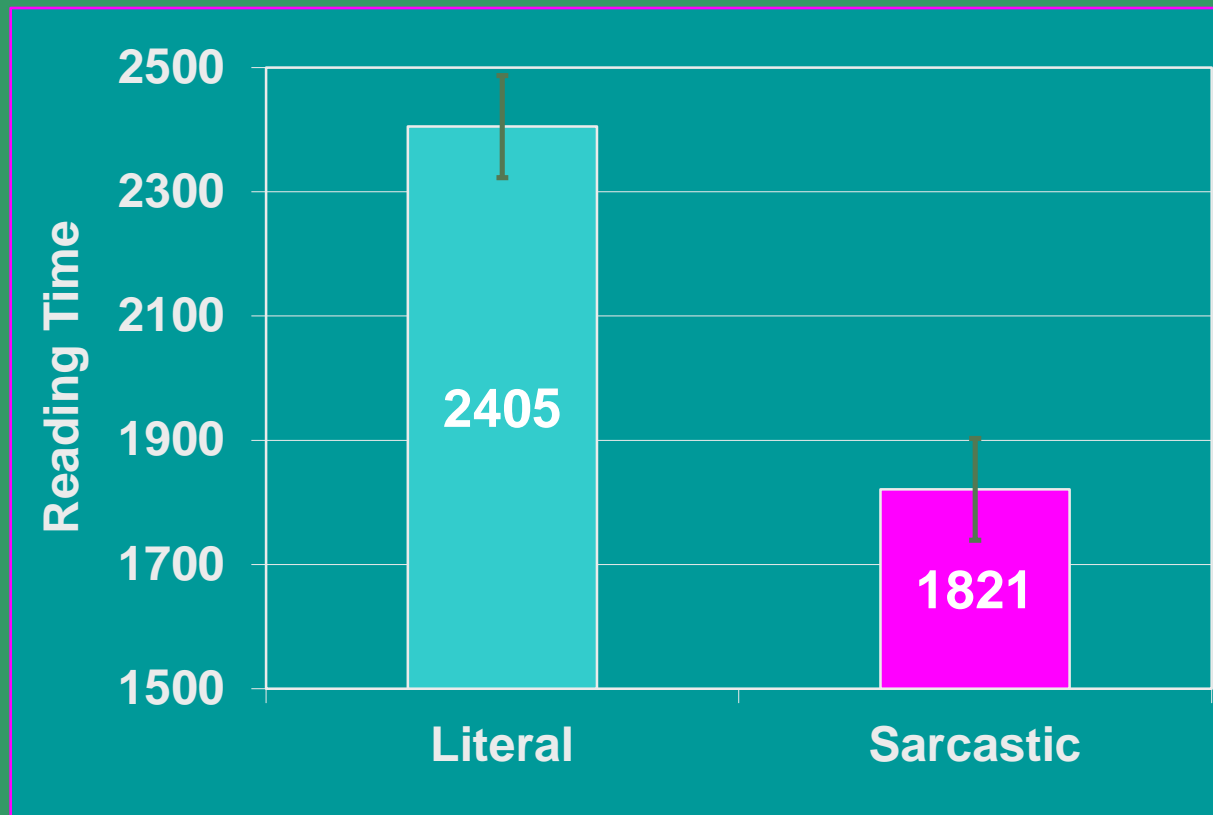
M=726 ms (SD=275)

$t_1(51) = 1.48, p = .07$

$t_2(11) = < 1, n.s.$

Default sarcastic interpretations of (*X is not his best attribute*) items

Mean reading times (ms)



Experiments 14-15: summary

As predicted, novel negative items of the form

X is not her best attribute

are

- (a) **interpreted sarcastically** by default;
- (b) **rated as sarcastic** when presented in isolation;

and are

- (c) **understood faster in sarcastically** than in **salience-based literally** biasing contexts.

Experiment 16

Negation vs. structural markedness

To further test the hypothesis that negation generates sarcastic interpretations by default, **it is necessary to weigh it against an alternative assumption that it is the markedness of the fronted constructions rather than the negation marker that accounts for this effect.**

Experiment 16

Negation vs. structural markedness

Experiment 16 was designed to directly weigh degree of negation (not/yes) against degree of structural markedness (+/-fronting).

Predictions

Although structural markedness might prompt sarcasm, **negation** would prove to be the **determinant** trigger.

Negative versions of utterances will always be more **sarcastic** than their affirmative counterparts, regardless of degree structural markedness.

Experiment 16

Stimuli

Experimental items included 16 concepts (taken from Experiments 12-15) each appearing in 4 different constructions, **marked** and unmarked:

Stimuli

- Supportiveness is **not** her forte/best attribute
- Supportiveness is **yes** her forte/best attribute
- Her forte/best attribute is **not** supportiveness
- Her forte/best attribute is **yes** supportiveness

Participants

Participants were 60 students of Tel Aviv University and The Academic College of Tel Aviv-Yaffo. They were all native speakers of Hebrew.

Task

Participants were asked to **rate** the degree of sarcasm of each utterance on a 7-point **sarcasm** scale.

Negation vs. structural markedness

Results

Results show that the **negative** versions were always more sarcastic than their affirmative counterparts. **Markedness did not play a role in affecting sarcasm.**

Two 2-way ANOVAs showed

- **a significant main effect of Negation**

$$F_1(1,59)=128.87, p<.0001,$$

$$F_2(1,15)=799.72, p<.0001,$$

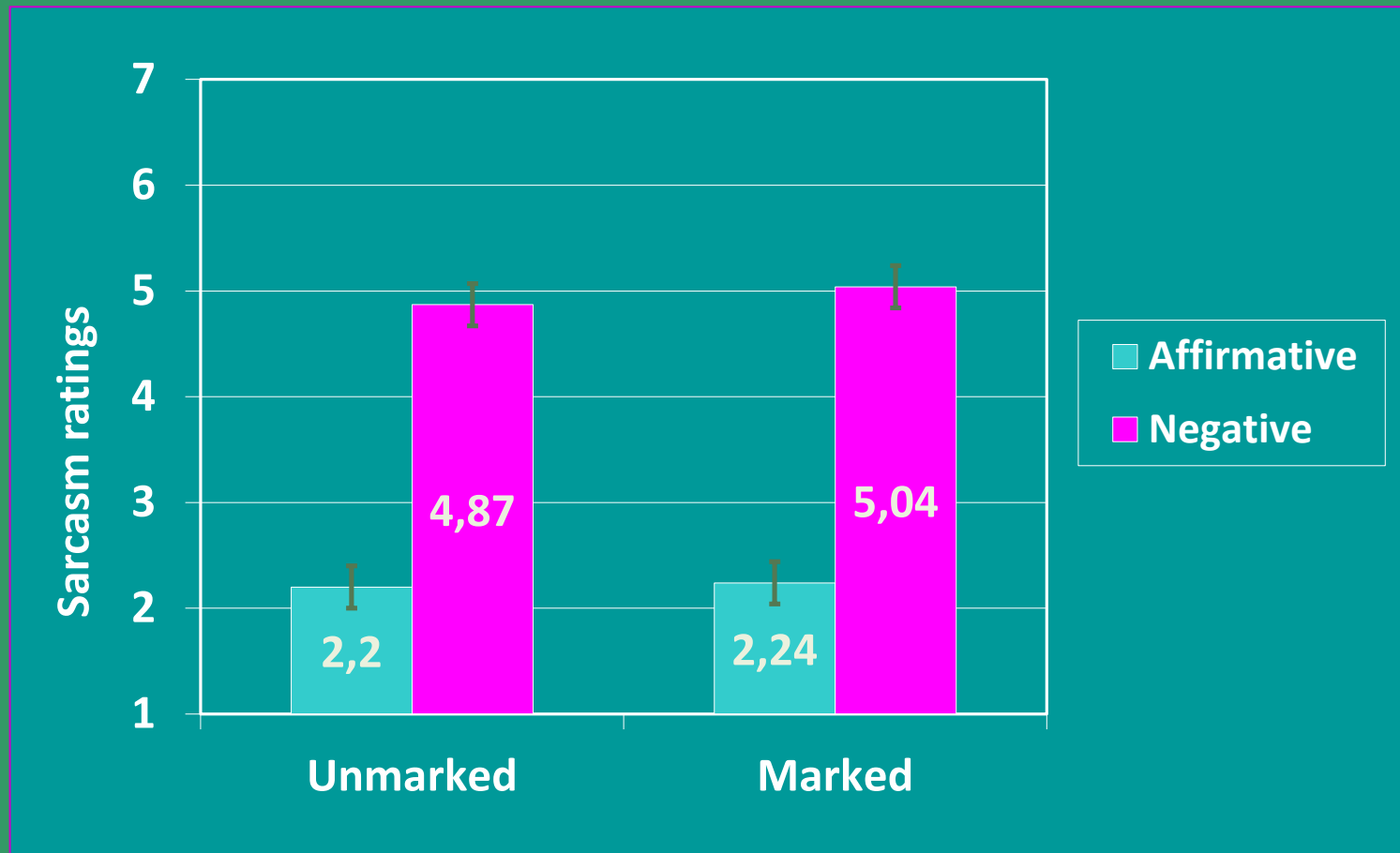
- **no significant effect of Markedness**

$$F_1(1,59)=1.80, p=.19, F_2(1,15)<1, n.s.,$$

- **no Negation X Markedness interaction**

$$F_1(1,59)<1, n.s., F_2(1,15)<1, n.s.$$

Results



Conclusions

Negation rather than structural markedness plays a determinant role in affecting **sarcastic interpretations** by default.

Summary: Experiments 10-16

On the priority of nonsalient interpretations of negative utterances

Results obtained from 7 experiments show that, unlike affirmative sarcasm, negation induces nonsalient sarcastic interpretations by default:

Novel negative items of the form *X s/he is not, X is not her forte/best attribute* are

- interpreted sarcastically by default, and are, therefore,
- understood faster in sarcastically than in salience-based literally biasing contexts,
- regardless of structural markedness.

Study 2

Resonance with negative sarcasm (Giora et al., 2010, 2013)

The view of Default Sarcastic Interpretations

Predictions

Given that **nonsalient sarcastic**
interpretations

are expected to be facilitated
immediately

The context of a **sarcastic** utterance will
resonate with its **nonsalient sarcastic**
interpretation more often than with its
salience-based interpretation

Findings

Unlike affirmative sarcasm, the environment of **negative sarcasm** exhibits resonance with the **nonsalient sarcastic** interpretation

Findings

Forte/most prominent characteristic constructions	Only sarcastic	Only literal	Both	None	Total	p-values
Patience is not my/our/his/her forte (Hebrew)	7	3	6	1	17	p=.17
English is not my/our/his/her forte (Hebrew)	13	1	2	0	16	p<.001
Humor is not my/our/his/her forte (Hebrew)	9	0	2	2	13	p<.005
Patience is not my/our/his/her forte (English)	15	4	9	0	28	p<.01
French is not my/our/his/her forte (English)	7	0	3	2	12	p<.01
Humor is not my/our/his/her forte (English)	15	2	11	3	31	p<.005
X is not my/our/his/her most prominent characteristic (Hebrew)	7	0	2	1	10	p<.01
Total	73	10	35	9	127	p<.0001

Conclusions

**Nonsalient interpretations
of negative sarcasm
do come easy.**

**They are easy to activate
probably because
they are processed
directly.**

Taken together, Experiments 1-16 and Studies 1-2

report some unprecedented results supporting the priority of

- Nonsalient interpretations over salience-based interpretations of negative utterances,
- Sarcastic interpretations over nonsarcastic interpretations of negative utterances,
- Negative sarcasm over affirmative sarcasm (the former interpreted directly)
- Negatives over affirmatives (the former understood faster).

Thank you!

