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

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## 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.

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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

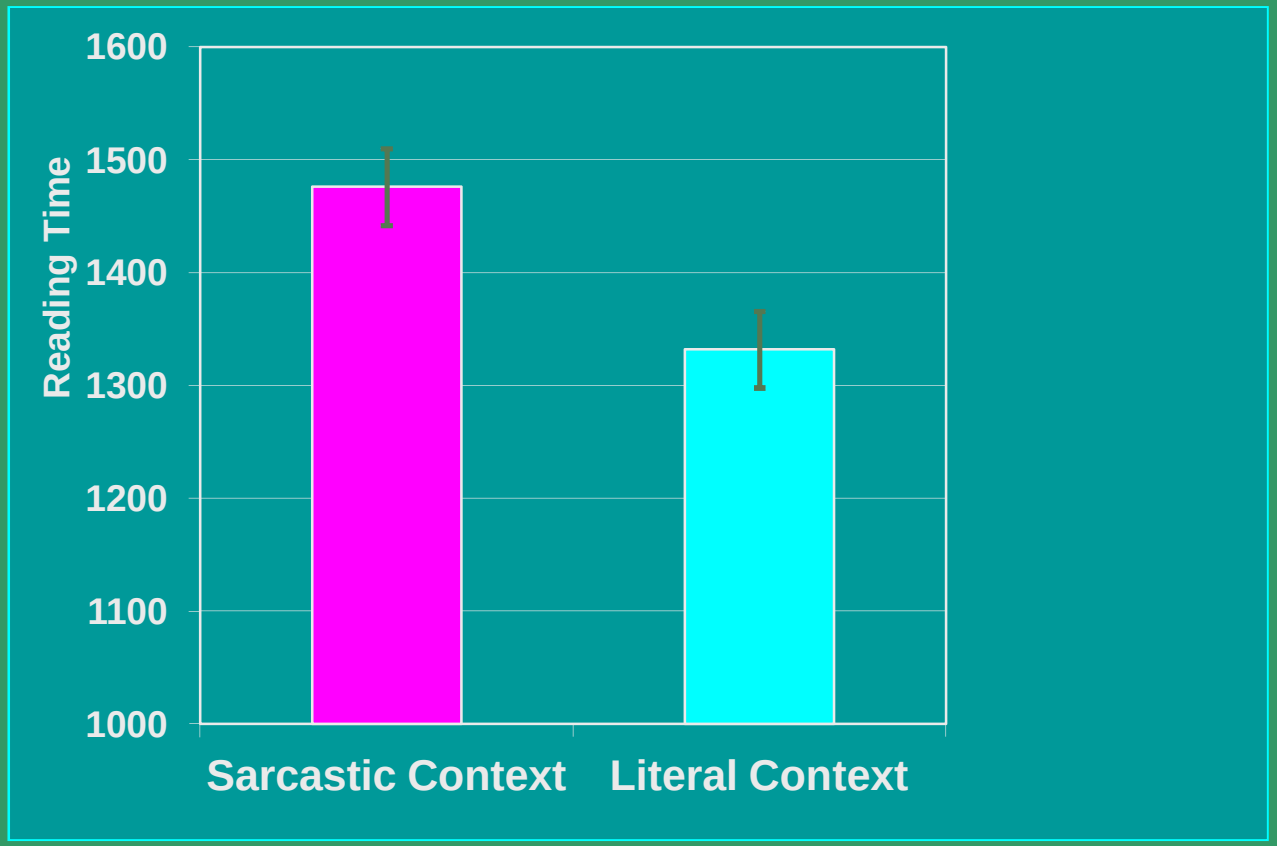
1. Reading times of target utterances.
2. Response times to probes:

   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*

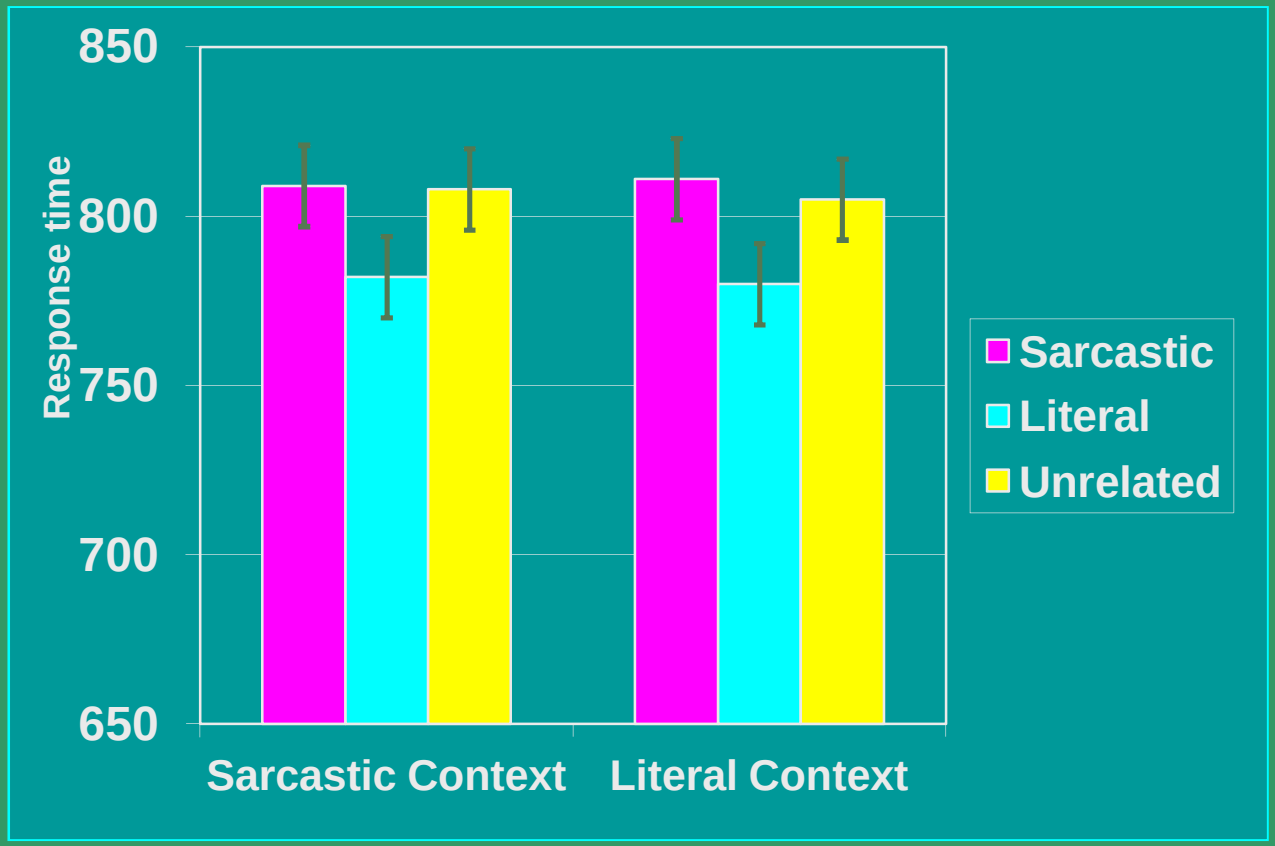


## Results - Experiments 1-3 (combined analysis)

# 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)

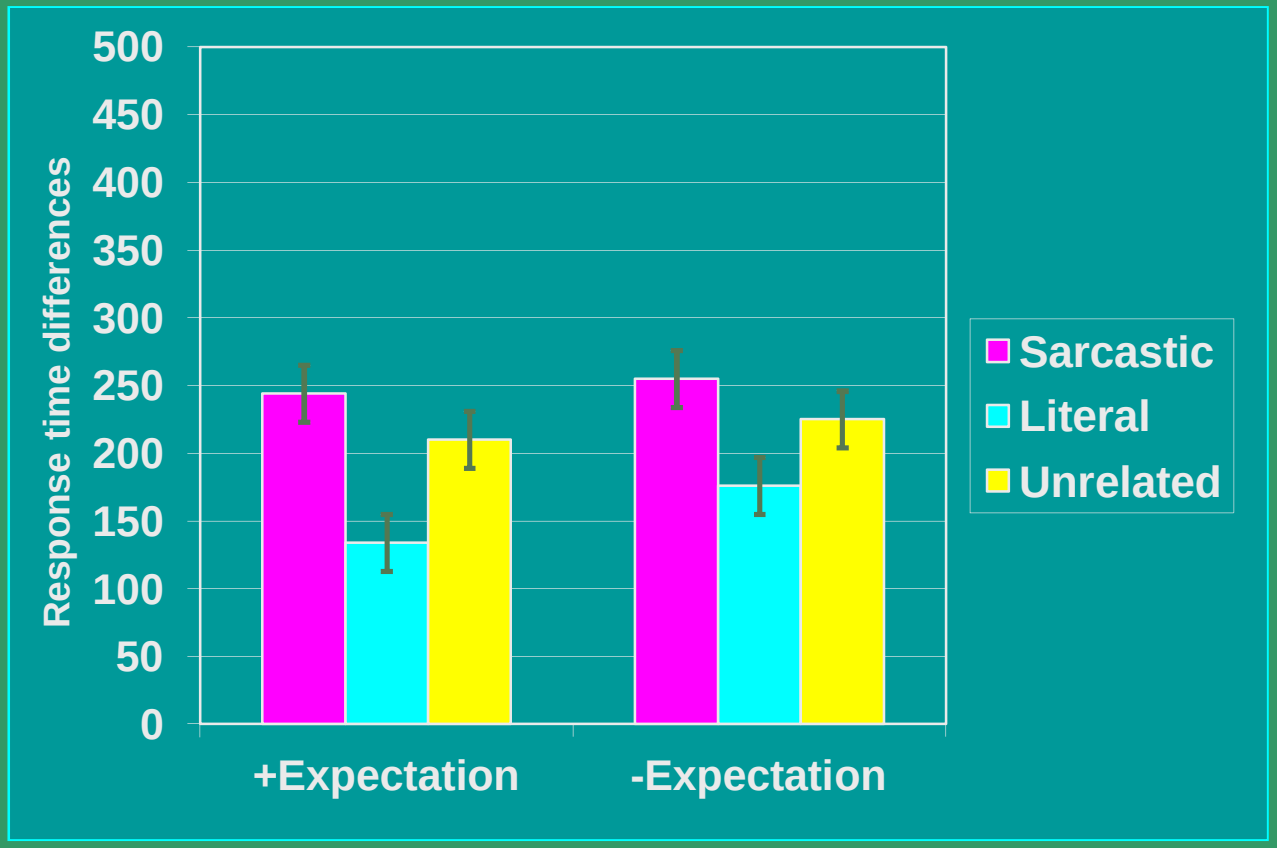
# Experiments 4-9 (combined analysis)

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

*Salience-based probes took less time to respond to than nonsalient sarcastic probes*

*Salience-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) | *P* 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

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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 favored 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, & Kazmerski 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.*

http://2006.nanowrimo.org/modules/newbb/viewtopic.php?post_id=274841

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

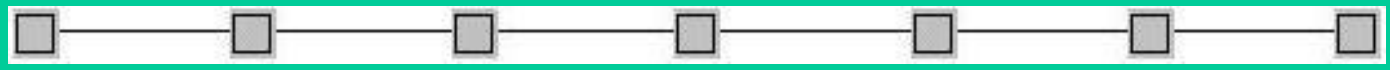
Affirmative $t(17)=10.23$, $p<.0001$

# (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:

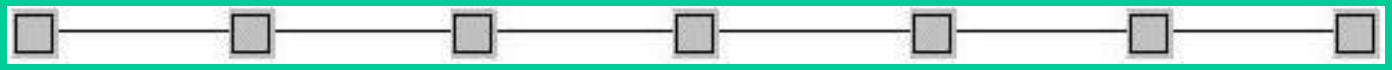
$t(17)=4.65$, $p<.005$

# (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

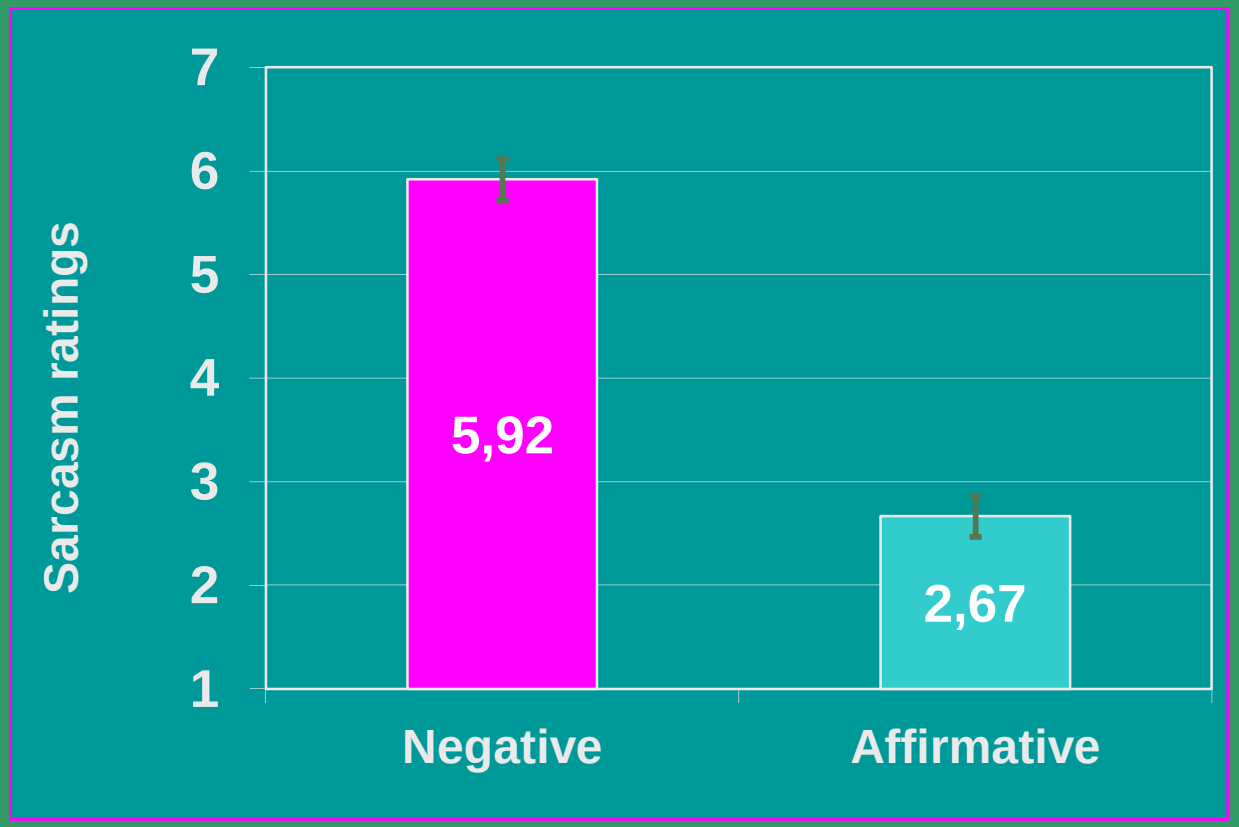
  M=5.92, SD=0.94

  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

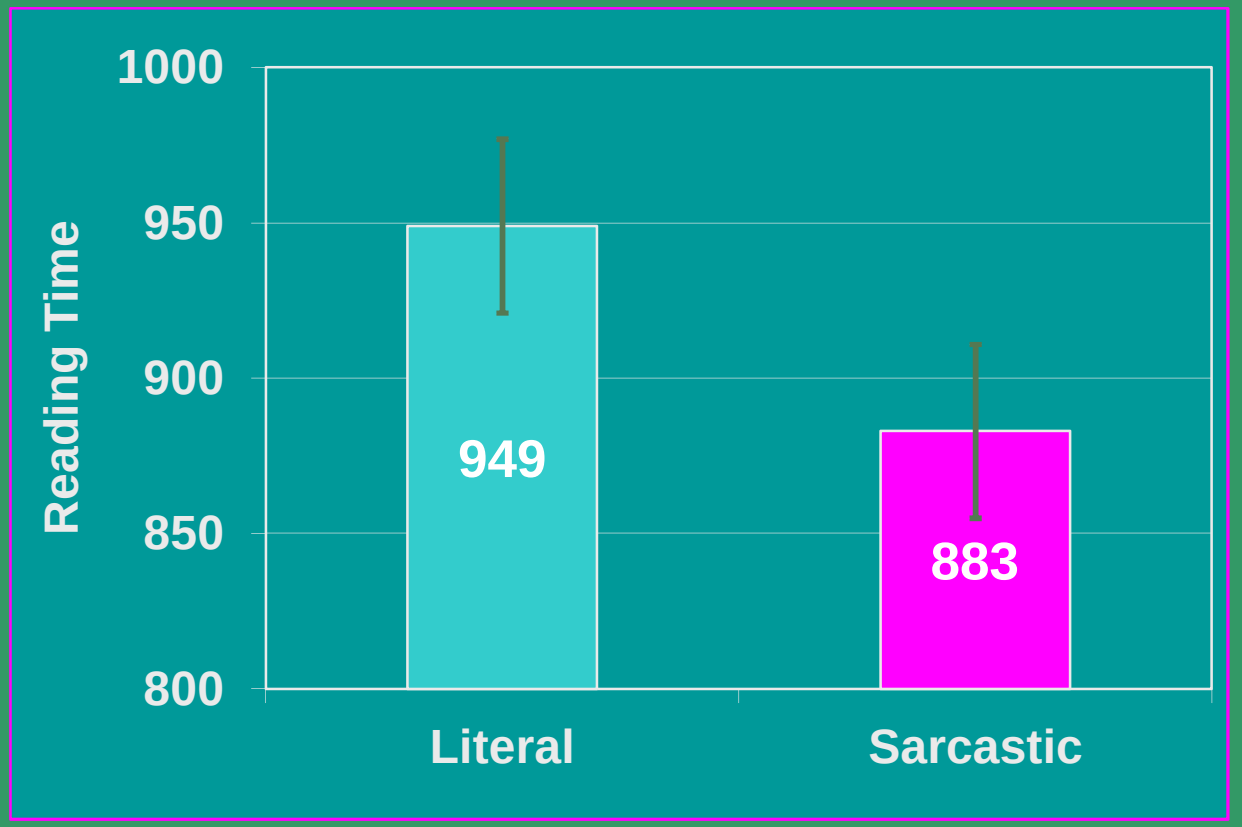
M=883 ms (SD=183)
M=949 ms (SD=234)

$t1(43)=1.75$, $p<.05$; $t2(17)=1.20$, $p=.12$

No spillover effects:
M=787 ms (SD=204);
M=811 (SD=211)
$t1(43)<1$, n.s.; $t2(15)<1$, 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.

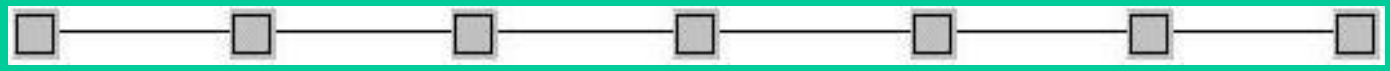
Scoring significantly lower than 2.5 on a 7 point familiarity scale:
Negative $t(13)=3.12$, $p<.005$ (one-sample t-test)
Affirmative $t(13)=3.81$, $p<.005$ (one-sample t-test)

# (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=.551, SD=.035

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

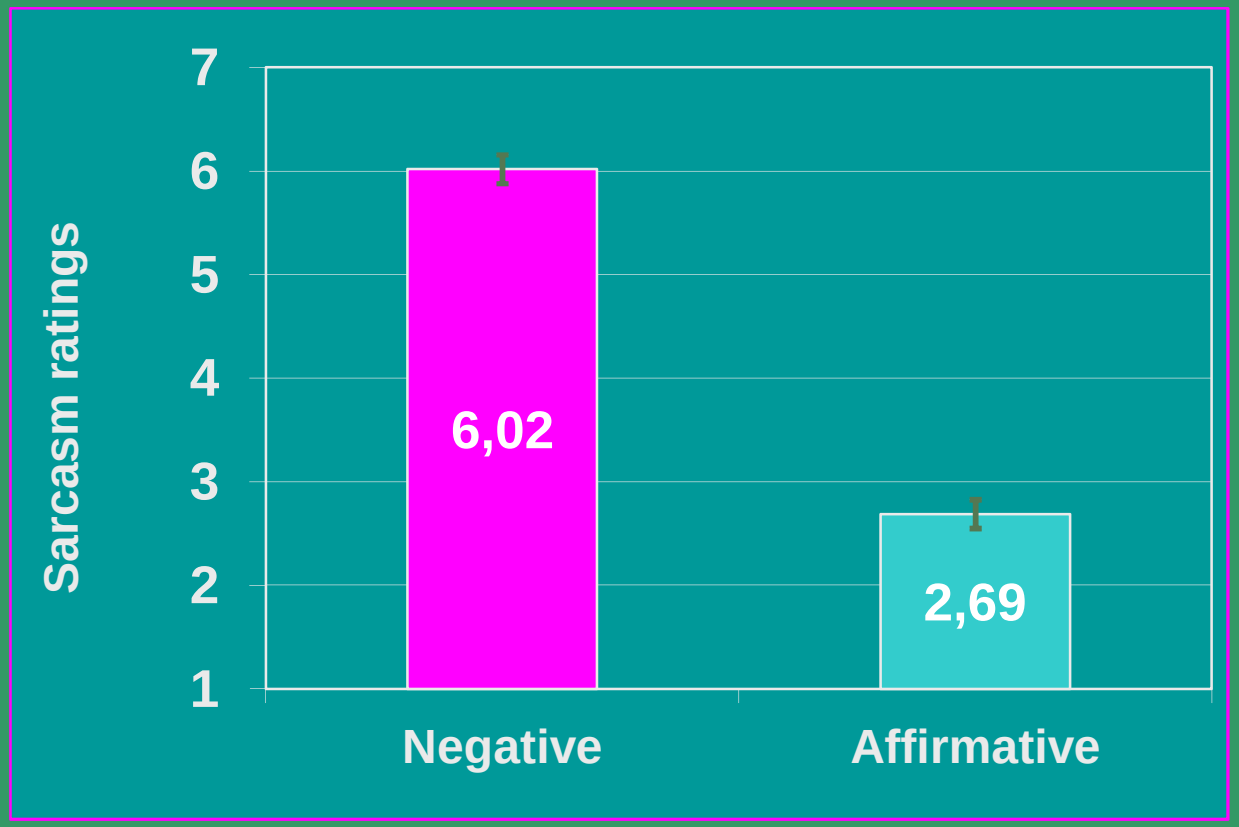
  M=6.02, SD=0.78

  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

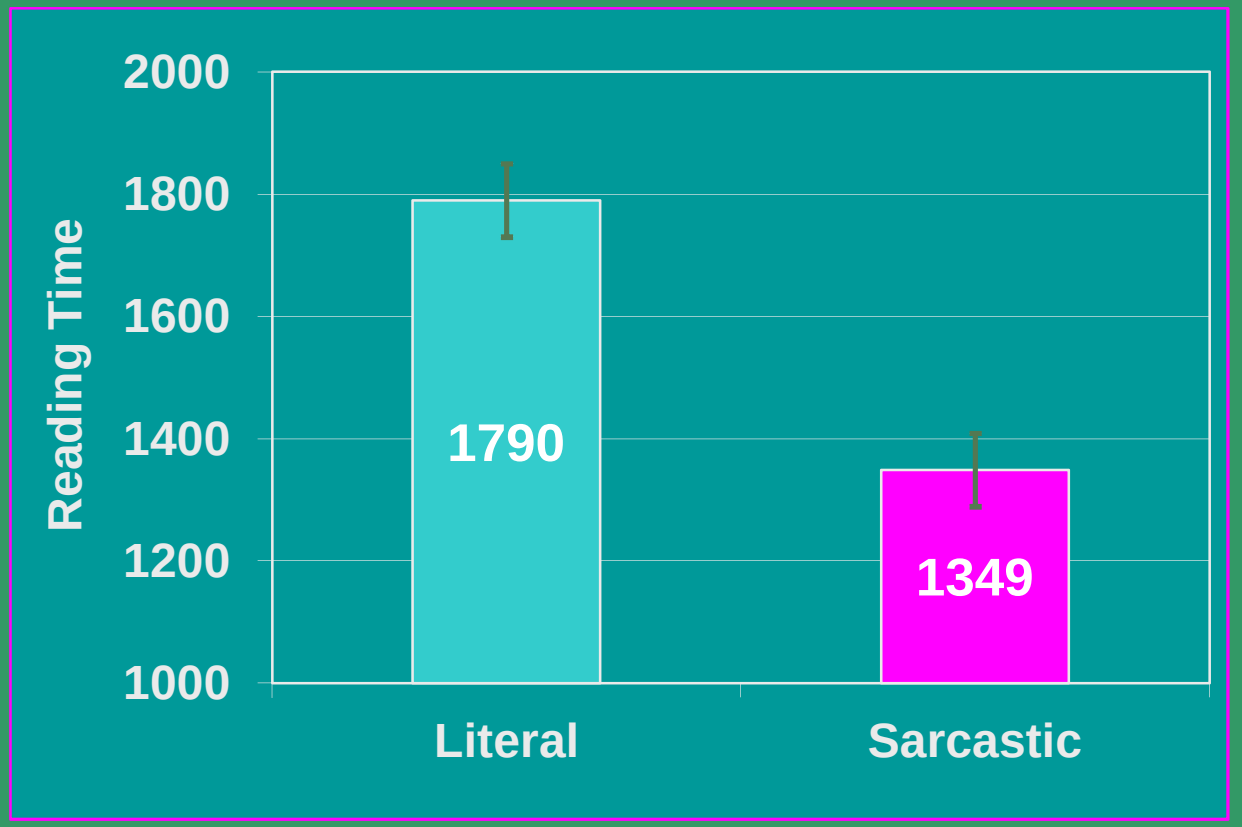
Results showed that
sarcastically biased targets were read
faster than their literally biased versions

M=1349 ms (SD=401)
M=1790 ms (SD=579)
$t1(43)=4.69$, $p<.0001$
$t2(13)=4.48$, $p<.0005$

Spillover effects:
M=647 ms (SD=192)
M=739 ms (SD=196)
$t1(43)=2.90$, $p<.0005$; $t2(13)=1.94$, $p<.05$

# 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

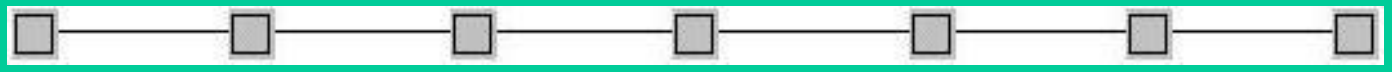
both the negative items
M=1.47 SD=0.36
and their affirmative counterparts
M=1.30 SD=0.15
were similarly novel $t(11)=1.86$, $p=.09$ (two-tail)

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=.555, SD=.029

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

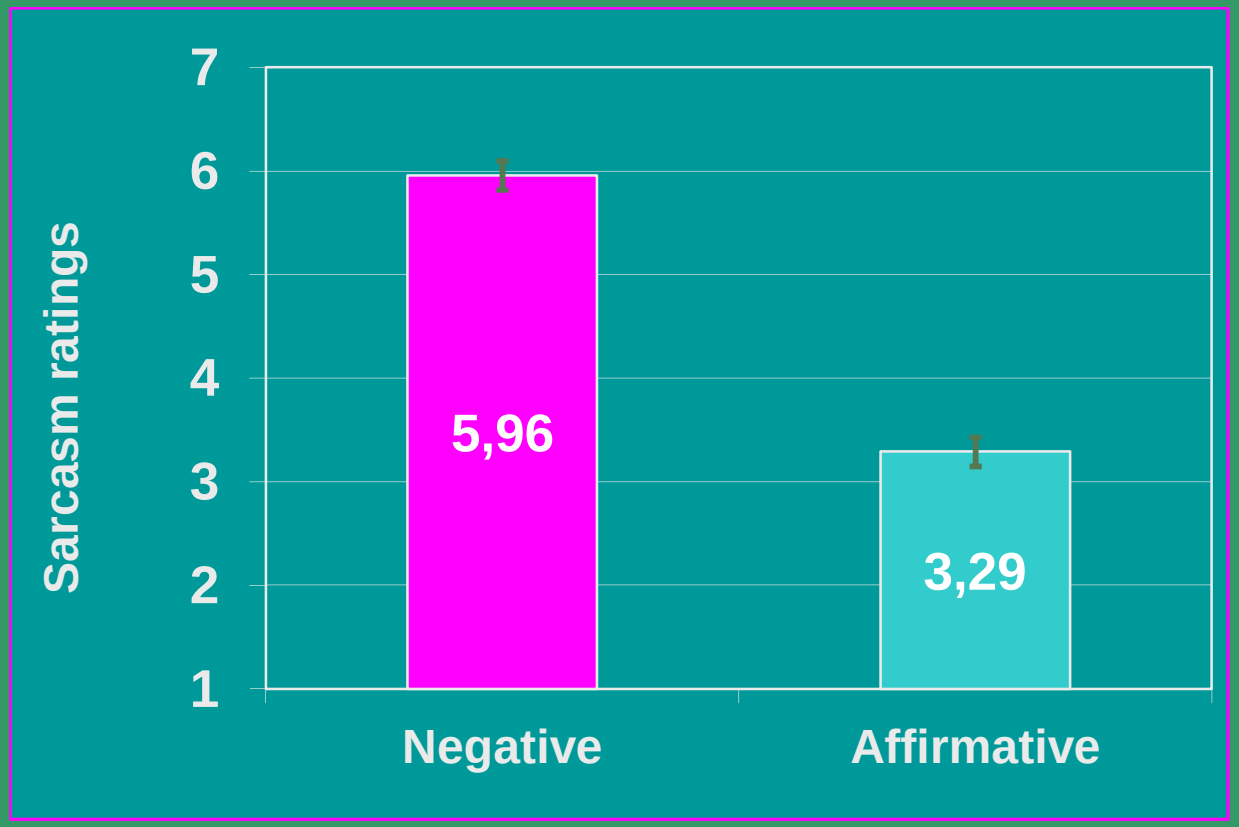
  M=5.96, SD=0.76

  M=3.29, SD=1.06

  $t1(39)=12.72$, $p<.0001$

  $t2(11)=13.95$, $p<.0001$

# 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

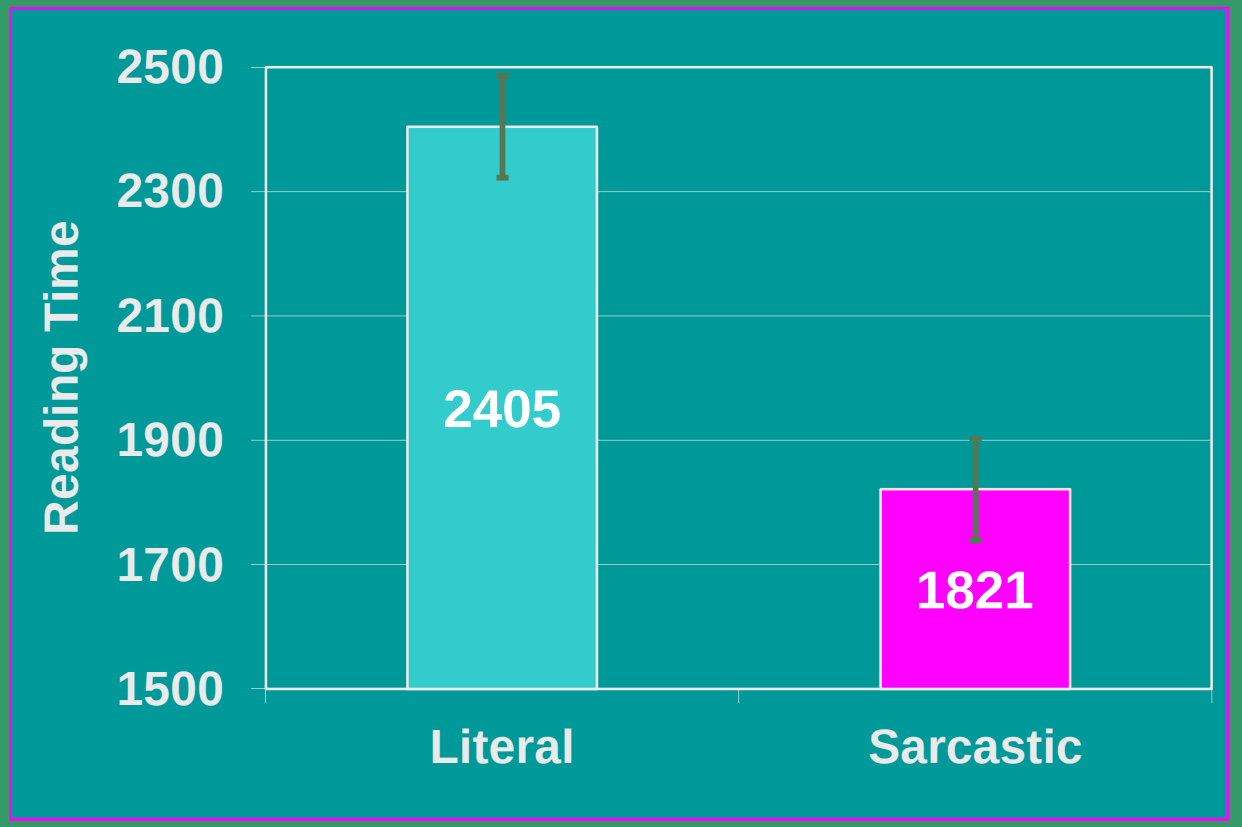
Results showed that
sarcastically biased targets were read
faster than their literally biased versions

M=1821 ms (SD=588)
M=2405 ms (SD=833)
$t1(51)=6.19$, $p<.0001$
$t2(11)=2.93$, $p<.01$

Spillover effects:
M=690 ms (SD=208);
M=726 ms (SD=275)
$t1(51)=1.48$, $p=.07$
$t2(11)=<1$, 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

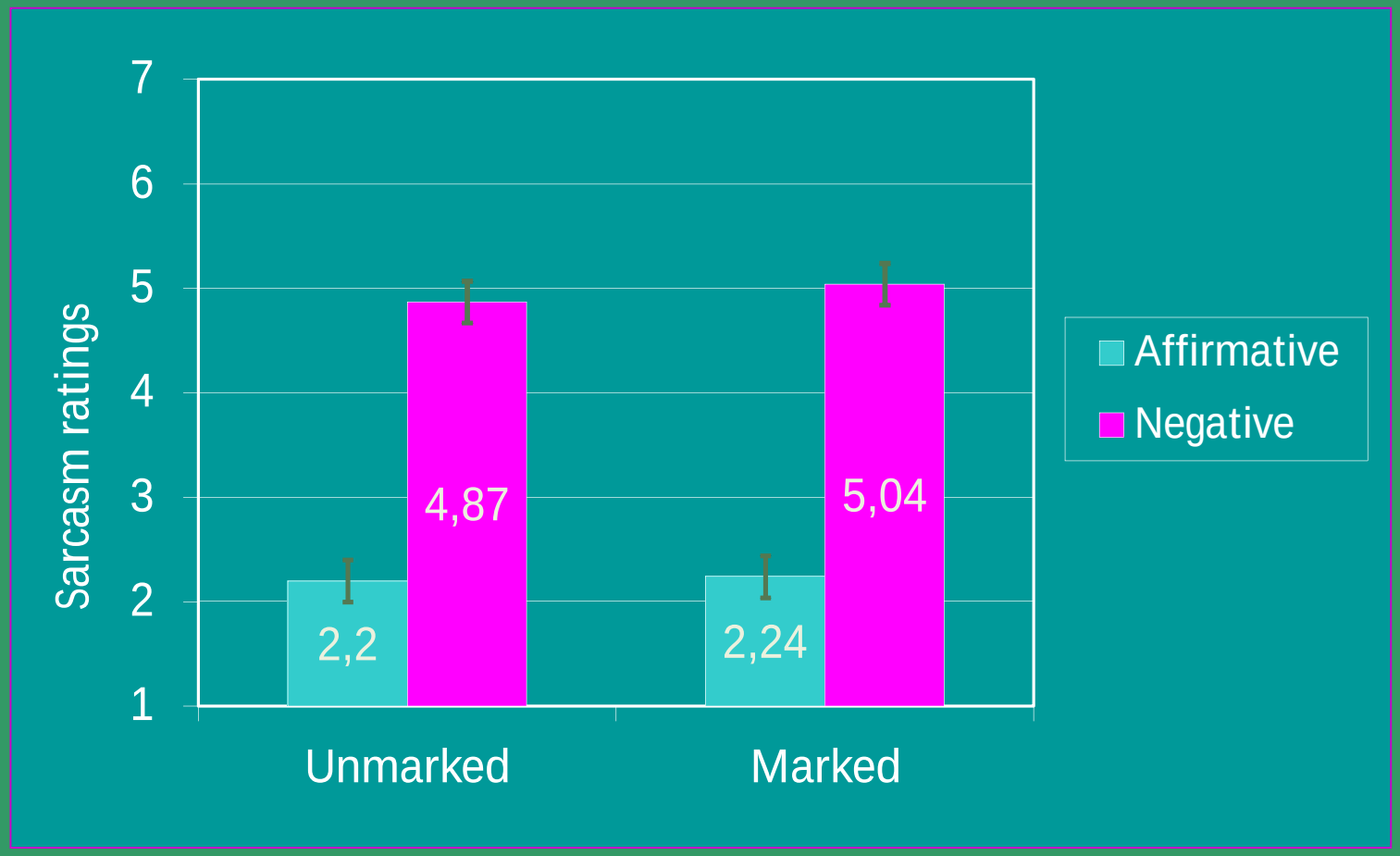
## Results

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


Sarcasm ratings
7
6
5
4
3
2
1
2,2
4,87
2,24
5,04
Unmarked
Marked
Affirmative
Negative

# 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!