Meaning what you say, or saying it the way you mean it: Suprasegmental cues to non-literal meaning

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The Role of Prosody

Speakers can manipulate prosody (i.e. intonation, stress) to encode explicit communication:

• Communicate emotional states (Banse & Scherer 1996)

Prosody can also convey verbal irony. However, experimental evidence across studies has produced mixed results, because they have conflated speaker negativity, sarcasm, and irony, relied on spontaneous speech, or situated target utterances in biased contexts.

Verbal Irony

Verbal irony: The speaker’s intention is at odds with the literal interpretation of the utterance. Speaker flouts the Maxim of Quality (Grice), intending that the listener calculates the opposite truth value of the proposition expressed by the utterance.

Sarcasm: subtype of verbal irony; harsh and critical

PREVIOUS WORK

• Spontaneous speech
  • Bryant & Fox Tree 2002: Participants were able to identify sarcasm from radio excerpts, but not after the utterances had been content-filtered. Reliance on local rather than global prosodic (intonation) information.
  • Bryant & Fox Tree 2005: Sets of participants rated utterances for sarcasm, as well as anger, inquisitiveness, authority, new vs. given information, items rated more sarcastic also rated more inquisitive and more angry.
• Lab speech
  • Rockwell 2000: Speakers read target sentences in biased contexts (nonsarcasm and ‘spontaneous’ sarcasm), then asked to read target sentence “sarcastically” (‘posd’ sarcasm). Perception participants able to perceive past but not spontaneous sarcasm.
  • Cheung & Pell 2008: Target items preceded by biased context for four attitudes (sincere, sarcastic, jocular, neutral), and varied presence of enstacticemic traits (yeah right). Sarcasm may be encoded similarly to other negative affective states.
  • Across studies: average pitch (usually lower), pitch span (varying wide or narrow), speech rate (slower), intensity (higher or lower). Frequent, nonspecific mention of importance of stress.

THE PRESENT WORK controls for
(a) the positive and negative valence of the speaker’s perspective, and
(b) veridicality (intended-truth value of proposition expressed by the utterance) – literal meaning or opposite truth value – to determine the prosodic correlates of verbal irony, as opposed to a more “negative” utterance, AND determine whether listeners can use these cues to identify an utterance as ironic or sincere.

Production Experiment

PARTICIPANTS
18 undergraduate students recorded in a sound-proof recording booth. Data from 2 participants excluded (N=16)

STIMULUS
32 sentences, presented as responses to one-sentence prompts with verb of saying/reporting (key word underlined)

Target Items
1. Predicate of Personal Taste (PPT), POS/NEG perspective/That sounds like fun!
  2. Copular assertion, POS/NEG perspective (Yeah, they were menus)
  3. Minimal pairs across (S and T) created by matching key vowel and prosodic structure
  4. Scalar contrast (She’s not just nice – She’s lovely)
  5. Information vs. Contrastive Focus
  6. Target items presented in pseudorandomized order in PowerPoint.

Control Items:
Participants emulated attitudes of two different characters throughout session. (See “Recording Session” to right.)

Target sentences excised using Praat speech analysis software.

• Falling vs. non-falling contour coded by ear (MIN.3 blind coders).
• Acoustic analysis using Praat scripts

Perception Analysis

PERCEPTUAL VALIDATION
Were speakers successful at portraying +/- perspective?

METHOD: Of research assistants blindly rated all target items (128 minimal pairs) as positive [1], negative [-1], or neither [0] Random order in Superlab, blocked by speaker. Means taken across raters for each item.

Participants success rates: Ironic: 88.6%, Sincere: 91.9% Average d’ score 2.75

IRONY INTERPRETATION
Can listeners judge irony from prosodic cues alone?

PARTICIPANTS: 15 undergraduate Linguistics students participated for extra credit.

STIMULUS: 39 PPT pairs (see (1) above), presented in random order in Superlab

PROCEDURE:

That sounds like fun! said = meant said ≠ meant

Participants success rates:

Ironic: 88.6%, Sincere: 91.9% Average d’ score 2.75

Analysis

ANALYZING VERBAL IRONY

Duration of Key Syllable
Max F0 of Key Syllable
Intensity of Key Syllable

% Perceived Falling Sentence-Final Intonational Contour

Contrast Items

Target Items

% Perceived Falling Sentence-Final Intonational Contour

Control Items

THE ROLE OF PROSODY Explained

Determining Prosodic Correlates of Irony

A) IRONY = PERCEPTION

B) IRONY = INTENT

C) IRONY = SUBTLE RHETORICAL DEVICE

Analyzing Verbal Irony

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Recording Session

GOAL
Elicit two versions of the same sentence from the same speaker – one negative and one positive – while holding stimuli and context constant

METHODOLOGY
Chris and Taylor (gender neutral names, allowing for any participant to assume role)

• Chris is genuine and sincere. Chris is always honest and pleasant. When Chris speaks, you can interpret the words literally. What Chris says is what Chris means.
• Taylor is harsh and critical. Taylor has a consistently negative attitude. The words Taylor uses do not necessarily reflect how Taylor feels.
• Ppt: Experimenter

Ppt: Hannah says her date is taking her to mini golf.
Ppt: Laura said her boyfriend brought her flowers yesterday.
Chris/Taylor: That sounds like fun.
Chris/Taylor: Yeah, they were mums.

Conclusions

• Verbal irony exhibits a distinct suprasegmental signature different from positive, veridical asserted content, and from negative speaker perspective on the topic.
• This prosodic information is retrievable and used by listeners tasked with identifying speaker meaning.
• Novel methodology allowed elicitation of different prosodic contours without appeal to context.

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Selected References