

Effects of intonation on the multi-dimensional interpretation of requests and offers

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Traditional accounts of the semantics of intonational contours assume compositionality, such that the meaning of a given contour depends on the combined functions of pitch accents and boundary tones [1]. This framework, however, has yet to incorporate recent research showing that affective meaning may influence the judgement of speech act (e.g., statement vs. question [2]), that the speaker may choose different tunes (e.g., for requests and offers) according to their familiarity with the listener [3], or that perlocutionary meaning is a function of both sentence type and tune [4].

The present research explores how perlocutionary meaning is influenced by tune (rising vs. falling) for two distinct, yet comparable illocutionary acts: requests and offers (e.g., *Can [you/I] bring [me/you] some water?*). A perceptual rating task elicited participants' responses along three scales: speaker MOOD, SINCERITY, and AUTHORITY (cf. [5]). In line with [4], we expected the combination of falling contour and polar question to evoke negative judgments of speaker mood and a perception of higher speaker authority. We were particularly interested in a possible asymmetry between requests and offers with respect to the effects of falling tune on perceived speaker sincerity: speakers can utter offers (*Can I bring you some water?*) without really intending/desiring to carry out the offered act, while by contrast, requests (*Can you bring me some water?*) are unlikely to be produced with no intention/desire of receiving a favor.

Two female native speakers of AE recorded 96 request-offer pairs with both rising and falling contours. Acoustic analyses of the stimuli showed similar speech rates for the two speakers, while Speaker 2 had generally larger f₀ movements than Speaker 1. In particular, the nuclear pitch accent was higher before falling contours and lower before rising contours, and both the rising and falling contours had larger f₀ movements for Speaker 2 than for Speaker 1.

A total of 22677 responses from 237 participants were elicited using a Mechanical Turk online survey. Each participant rated 96 items (6 blocks of 16 items sorted by utterance type (request/offer) and question type (MOOD/AUTHORITY/SINCERITY)). Each trial presented an audio file, then a question with a sliding scale (Figure1). Each participant received only one of the three question types (see (1) for an example) per item.

Analyses of the responses confirmed the main effect of falling tune, irrespective of speaker differences, to evoke the perception of a less happy MOOD of the speaker ($t=-16.45$, $p<.001$: Figure2), higher speaker AUTHORITY ($t=8.82$, $p<.001$: Figure3), and less SINCERITY ($t=-11.44$, $p<.001$: Figure4). In addition, we found that the falling tune raises speaker AUTHORITY to a greater degree for requests than for offers ($t=3.6$, $p<.001$: Figure3) and lowers SINCERITY to a greater degree for offers than for requests ($t=-4.67$, $p<.001$: Figure4). These results reinforce findings that intonational tune is a fundamental cue for perlocutionary/affective meaning. Moreover, they reveal that the different social ramifications of different illocutionary acts can influence how tune maps onto such meaning.

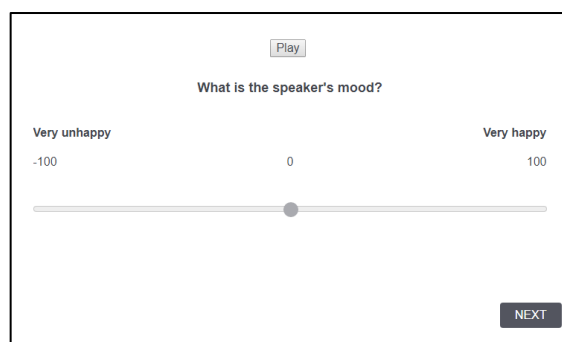


Figure 1. Example Display

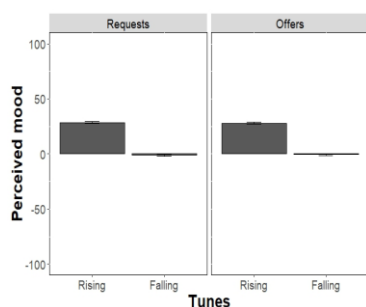


Figure 2. Mood rating.

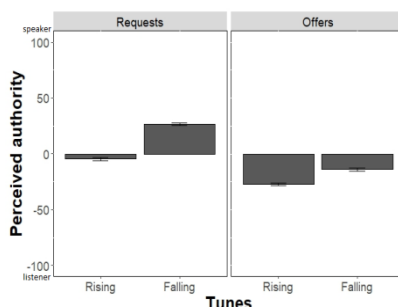


Figure 3. Authority rating.

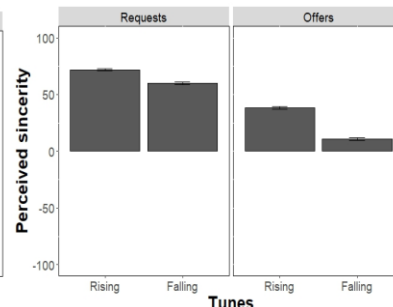


Figure 4. Sincerity rating.

- (1) Example target sentence and question set:

Target request/offer sentence:

Can [you/I] bring [me/you] some water?

MOOD question (for both request and offer):

What is the speaker's mood?

Very unhappy/happy -----Very happy/unhappy

AUTHORITY question (for both request and offer):

Who does the speaker think has more authority in this situation?

The speaker/listener ----- The listener/speaker

SINCERITY question:

(For request)

Does the speaker want the listener to bring her some water?

(For offer)

Does the speaker want to bring the listener some water?

Not at all/Very much ----- Very much/Not at all

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