

Introduction

Going back at least to Grice, it has been theorized in pragmatics that cooperative communicators should not produce more information than is necessary to clearly convey their intended meaning; indeed, a wealth of experimental evidence confirms that speakers favor linguistically reduced utterances when their meaning is contextually predictable. It is also, however, widely acknowledged that speakers are often “informationally redundant”, producing modifiers and even entire clauses which seem to convey no new information to the listener. Recent work in experimental pragmatics has attempted to reconcile a general expectation for informativity with these apparent inefficiencies, determining that redundant utterances often serve another purpose such as clarity, or else give rise to a variety of inferences. Nearly all of this work has focused on the *interpretive* process, through which speakers convey and comprehenders recover a particular meaning from an utterance. I propose that informativity expectations may also guide the *evaluative* process, through which comprehenders form beliefs and make decisions on the basis of a communicated message.

The proposed experiment would investigate whether information-theoretic pressures affect the persuasiveness of claims justified with explicit reasons. Purely cooperative conversations consist primarily of “unsubstantiated” assertions, which are nevertheless evaluated as credible on the basis of conversational norms (e.g. Grice’s maxim of Quality). In persuasive and argumentative contexts, however, *reasons* are often provided when the contents of the main premise are not so easily integrated into the listener’s belief state. Bearing this in mind, if the speaker provides explicit reasons to justify a claim which typically *would* have been acceptable on its own, those reasons might be processed as redundant: the listener might then infer that the basic claim is less assertable in this situation than it typically would be otherwise. In a behavioral experiment, I investigate whether such inferences arise, and if they affect the persuasiveness of the claim. Using *implicit causality* (IC)/non-IC claims to induce contexts where reasons are more/less informative, I collect persuasiveness judgments when more/fewer reasons are provided to substantiate assertions. If justification is indeed sensitive to informativity expectations, reasons are predicted to increase persuasiveness judgments for IC claims, and reduce persuasiveness judgments for non-IC claims, in comparison to bare assertions of the same. These results would contribute a fresh perspective to the extensive philosophical and psychological literatures on explanation and justification, which until recently have systematically neglected the communicative dimension of these phenomena.

Background

The objective of the present study is to determine whether the effects of *informational redundancy* that have been observed in the interpretation of cooperative communication might also arise in the evaluation of persuasive and argumentative speech. It has repeatedly been observed that *formal* redundancy is frequently avoided—contextually predictable items are often reduced or omitted entirely when grammatically permissible. However, an utterance might also be considered redundant if it does not contribute useful meaning to the conversation; this might include assertion of basic world knowledge, easily accessible common ground, or anything else seemingly unnecessary for recovering the speaker's intended message. Unlike formal redundancy, this so-called “informational redundancy” occurs regularly in cooperative conversation.

Two major usages of informational redundancy have been empirically attested: firstly, speakers have been shown to make a tradeoff between the economy and clarity of their speech, choosing to give more information than is *logically* required to recover their intended meaning if they suspect the *clarity* of their utterance might be compromised. For example, speakers often use overdescriptive references when referring to objects in complex scenes, when speaking to (or as) a language learner, or even when informed that miscommunication is common on a given experimental task. Secondly, comprehenders have been shown to derive pragmatic inferences to explain why an utterance which would *typically* be redundant might actually be *situationally* informative. For example, prototypical color adjectives give rise to contrastive inferences in the presence of color competitors (listeners distinguish “yellow banana” from “yellow notebook” much faster in the presence of a contrastive brown banana), and production of easily-inferable script knowledge induces atypicality inferences (“she went to the grocery store and *paid the cashier!*” suggests that the subject usually *doesn't* pay for her groceries, as one might expect in a typical shopping script).

Most prior work on informational redundancy takes it for granted that the goal of a conversation is the cooperative exchange of factual information, so “informativity” is defined only with respect to listeners' *comprehension* of a given meaning. To an extent, this assumption is reasonable. A vast amount of human belief is formed on the basis of testimony, which many have argued is only possible because communication is generally reliable. This approach has been codified in many influential pragmatic theories, including Grice's maxim of Quality and various knowledge- and belief-based norms of assertion. A purely comprehension-based information-theoretic model would then predict that any additional linguistic material that speakers use to communicate that their assertions are true and reliable are redundant on the basis of these conversational norms, and should be expected to induce inferences as previously

described. It has indeed been argued, for example, that (pseudo)evidential items such as the epistemic modal “must” and perception verbs such as “looks” and “sounds” trigger an inference of speaker uncertainty. Uttering “the dress [looks/must be] blue” over the more economical “the dress *is* blue” (which carries the truth-warrant of a cooperative assertion) enables the listener to infer that the perceptual/inferential evidence entailed by the former was not completely conclusive. This analysis is useful but intuitively incomplete. Especially in persuasive and argumentative contexts, justifying the truth of one’s assertions is commonplace– and often required– when listeners do not simply accept all assertions on the basis of norms.

Sperber et al. (2010) advance an alternate approach, contending that listeners exercise a suite of cognitive mechanisms referred to collectively as *epistemic vigilance* to evaluate the reliability of testimony. On this account, comprehension alone is not sufficient for the listener to accept a claim, even if the speaker is typically trustworthy. To bypass the epistemic vigilance of her interlocutor, a speaker can provide additional information in the form of “reasons” to make her primary assertion easier to believe. Consider the following example:

1. Context: the shirt costs \$200.

- a. I should buy this shirt.
- b. I should buy this shirt– after all, it fits me perfectly, I’ve been saving a lot lately, and I just got a raise!

Although the main premise (the speaker should buy the expensive shirt) isn’t any easier to *interpret* in (1b) than in the more economical (1a), the additional reasons are obviously still informative in that they help the listener *accept* the premise, which might seem suspect otherwise. No atypicality inferences are expected to arise here, if informativity is computed with respect to acceptance rather than comprehension alone. But this is also not the whole story. Consider a slightly different example:

1. Context: the shirt costs \$10.

- a. I should buy this shirt.
- b. I should buy this shirt– after all, it fits me perfectly, I’ve been saving a lot lately, and I just got a raise!

Unlike (1a), (2a) typically *is* uncontroversial enough to be accepted just on the basis of conversational norms. Prior work shows that listeners often interpret utterances that would typically be unnecessary as situationally informative by updating their background assumptions. Following that analysis, since the speaker of (2b) has provided several reasons seemingly unnecessarily, it’s plausible that the listener might

be inclined to infer that the speaker judged (2a) to be unassertable on its own/ in need of further explanation for acceptance in this specific situation. By contrast, if she'd simply asserted (2a), a typical listener would have no reason to doubt her. As such, an information-theoretic model of persuasion makes the (somewhat surprising) prediction that justifying a claim with reasons does not *ipso facto* make it more credible. In fact, assertions might become *less* persuasive if more justification than typically required is nevertheless produced.

Study Design

This experiment tests whether the persuasiveness of reasons is sensitive to informativity expectations. I measure how participants' acceptance ratings for a set of claims are affected when more/fewer reasons are provided, in contexts where reasons are typically expected/unexpected. *Implicit causality* (IC) verbs, a well-studied class of items which typically precede the REASON discourse relation, are selected to induce contexts where reasons are typically informative. Non-IC verbs are selected for contexts where reasons are typically uninformative. As part of a pilot study, qualitative responses to the stimuli are also elicited.

[IC, reasons expected]: I should scold this student– after all, she is always late for class, she distracts the other students, and she never turns in her assignments!¹

[Non-IC, reasons not expected]: I should buy this (\$10) shirt– after all, it fits me perfectly, I've been saving a lot lately, and I just got a raise!

Since reasons are typically informative in the IC case, the proposed model predicts that claim acceptance should increase when more reasons are provided. However, claim acceptance should decrease in the non-IC condition– since listeners are expected to accommodate the apparent redundancy by inferring that the basic premise is less assertable than usual.

Methods

Participants

700 native English speakers are recruited through Prolific. An additional 50 participants are recruited for preliminary norming.

¹ My sympathy to her on the latter, of course.

Materials

To control for the “quality” of the reasons used in the main experiment, a preliminary experiment is conducted to remove reasons that participants might consider illegitimate (which would negatively affect persuasion in all conditions). For each of 12 selected verbs (6 IC, 6 non-IC), participants are prompted to rank a list of 10 preselected reasons in terms of how well they justify the action. The 3 highest ranked reasons for each action are retained for the main experiment.

Materials are presented as a dialogue between two characters (e.g. Alice and Bob), each ending in either an IC or non-IC assertion. The dialogue establishes that the characters are good friends, to avoid biasing the participants towards a strategic/manipulative interpretation. The 12 target claims are structured as “I should [action]--after all, [reasons]”. The “should” formulation is chosen to enable interpretations where the characters persuade one another toward a different opinion (i.e. in contrast to the equivalent “will” formulation, which would restrict “manipulative” interpretations to outright lies).

For each verb, 3 separate stimuli are constructed– one for each number of reasons (0, 1, or 3– taken from the previous experiment), for a total of 36 possible stimuli across all conditions. An additional 24 fillers are also constructed, where the final assertion is instead either a redundant or informative script completion (adapted from K&D). A total of ### lists are constructed, assigning each participant randomly to 12 targets and 12 fillers.

Procedure

Following Kravtchenko and Demberg & Ryzhova et al., the experiment is conducted over the course of two experimental sessions with two weeks in between. Reducing the number of trials per session limits any “learning” effects which might result from exposure to repeated trials.

On each trial, participants view the dialogue and are then prompted to rate their responses to the following questions on a slider from “strongly agree” to “strongly disagree”. The purpose of (3-4) is to measure whether the participant infers that Bob might be privy to additional context (i.e. hidden from the participant) which might explain why Alice has justified a seemingly trivial assertion. Participants are required to click the scale once to make the slider appear, to prevent them from simply clicking through without adjusting the slider.

(1) Alice should [action].

- (2) Alice will [action].
- (3) Bob thinks Alice should [action].
- (4) Bob thinks Alice will [action].

In addition, following Ryzhova et al., participants are prompted to provide a short explanation for their answers (i.e. “Why did you place the slider in this position?”) in a free-response box before advancing to the next example. This response helps determine whether participants’ ratings are actually due to noticing and accommodating informational redundancy. Any specific inferential patterns that might emerge here can be tested directly in a follow-on experiment.

Results

Figure 1 shows the predicted results of the slider ratings. Acceptance ratings for bare assertions are significantly higher for the non-IC condition than the IC condition. This validates the experimental design— IC verbs do induce contexts where reasons are more necessary.

In the IC condition, acceptance ratings steadily increase when more reasons are provided. In the non-IC condition, acceptance ratings diminish when more reasons are provided. These results are in keeping with the hypothesis that informativity expectations guide evaluation as well as comprehension. When a claim is difficult for the listener to accept on its own, the speaker can provide reasons to make her assertion more persuasive. In contrast, when a claim seems easy for the listener to accept, if the speaker provides reasons anyways, the listener infers that the premise might not be as easily acceptable as it might seem.

For the free-response questions, if the participants’ ratings are in fact guided by informativity expectations, predicted responses in the non-IC condition might include “Bob might actually think that Alice shouldn’t buy the shirt, since it seems like she’s trying really hard to convince him...”. For the IC condition, predicted responses might be more like “It’s okay if Alice scolds the student. At least she has a good reason.”

Discussion

It is well established in experimental pragmatics that cooperative communicators interpret utterances with an expectation for informativity, and frequently draw inferences to accommodate apparent redundancies. This experiment, to my knowledge, would be the first to extend this notion to the evaluation of persuasive speech. If IC claims bolstered with reasons are indeed more persuasive than basic IC

claims, it would seem that listeners expect enough information to *accept* an assertion (which might be substantially more than required to *comprehend* it). Likewise, if non-IC claims are *less* acceptable than basic assertions of the same, it may be concluded that listeners draw inferences about the situational assertability of seemingly over-justified claims, analogous to the atypicality inferences associated with basic script completions.

However, some possible confounds might complicate the predicted results. Although implicit causality is a suitable preliminary guideline for establishing contexts where reasons are typically (un)/informative, future work might implement a more fine-grained norming procedure to verify the assertability of each individual claim. Such a procedure could account for the considerable variation in assertability within each category– and between different contextual usages of the same verb (recall that the assertability of “buy” often depends on the price of the item). Furthermore, atypicality inferences are often sensitive to emphasis. If it is unclear to participants that the speaker is *effortfully* justifying a trivial assertion, the anticipated inferences might be suppressed.

This study also demonstrates that experimental pragmatics has an important role to play in the study of explanation and justification more broadly. Much ink has been spilled by philosophers and psychologists to determine what makes a reason “good”, but this literature prioritizes characterization of causal relationships between reasons and conclusions. Explanation, however, is ultimately a linguistic act. If my proposal is correct, the “goodness” of a reason depends crucially on the communicative context in which it is deployed.