Do informativity expectations affect the persuasiveness of reasons?

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, descriptive NPs, 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 perceptual utility, 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. In what follows, 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 present study investigates 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 base assertion 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 would then infer that the base 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 the claims. 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 words/morphemes are often phonetically or lexically reduced, or even 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 meaning (for example, an uninformative description like "the *yellow* banana" might be used refer to a prototypical banana, which the listener already expects to be yellow). Unlike formal redundancy, this so-called "informational redundancy" occurs regularly in cooperative conversation. A number of recent experiments have set out to characterize the contexts in which informational redundancy occurs, and how listeners tend to respond to it.

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 typically *doesn't* pay for her groceries).

Most of the prior work on informational redundancy takes it for granted that the goal of a conversation is the cooperative exchange of factual information, so speakers are expected to be informative with respect to listeners' *comprehension* of the 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-, belief-, and evidence-based norms of assertion. From an information-theoretic perspective, then, it would seem that any additional linguistic material that speakers use to demonstrate that an asserted content is true and reliable would be redundant on the basis of these conversational norms, and should be expected to induce inferences as described above. It has indeed been argued, for example, that pseudo-evidential items in English such as the necessity modal "must" and perception verbs such as "looks", "sounds", and "feels" trigger an inference of uncertainty. Applying a Gricean reasoning process, listeners infer that an utterance of "the dress [*looks*, *must be*] blue" instead of the more economical utterance "the dress *is* blue" indicates that the speaker thinks the dress is probably *but not certainly* blue. Although the speaker's evidence is strong, it is not strong enough for the truth-warrant that typically comes with a bare assertion.

However, Sperber et al. (2010) advance a different 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 is necessary *but may not be sufficient* for accepting a claim, even if the speaker is typically trustworthy. If the speaker expects that her base claim will be difficult for the listener to believe– for example, if it is an opinion rather than a verifiable fact– she can provide additional information in the form of reasons to make her claim more persuasive. 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!

In this case, providing reasons serves much the same purpose as the "clarifying" redundancy observed in the pure-cooperative cases. Although the listener can easily understand what the speaker is trying to convey in (1a)-- i.e. that she should buy the expensive shirt-- the additional reasons do make (1b) easier for the listener to *accept* than (1a). Now consider the following:

2. *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!

The situation is somewhat different in (2): buying a $10 shirt usually doesn't require as much justification as buying a $200 shirt. Since the speaker has provided several reasons anyways, the listener might be inclined to infer that (2a) is somehow unassertable on its own. This case demonstrates how the "atypicality" inferences described by Kravtchenko and Demberg might be extended to persuasive contexts– although it's typically fine to make the smaller purchase, the fact that the speaker feels the need to justify it anyways suggests that she thinks there's some reason for the listener to believe she *shouldn't* make the purchase in this particular situation. [connect to fishman and degen as well– listener uncertainty with reasons rather than speaker uncertainty with evidentials]. The following experiment will investigate whether such inferences tend to arise.

***for later– go back and make it clearer how the present argument relates to the clarity/inference dichotomy

Study Design

The present study tests whether persuasion is sensitive to informativity expectations, by measuring how participants' acceptance ratings for each claim are affected when more/fewer reasons are provided, and in contexts where reasons are typically expected/unexpected. *Implicit causality* (IC) verbs are a well-studied class of items which typically induce the REASON discourse relation. As such, IC verbs are selected to create contexts where reasons are typically informative. Non-IC verbs create contexts where reasons are typically uninformative.

[IC Case, 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!

[Non-IC Case, 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!

A naive account would predict that providing more reasons to justify a claim would *ipso facto* make the claim more persuasive– claim acceptance should increase

when more reasons are provided in both IC and non-IC conditions. However, if listeners instead process reasons with an expectation for informativity, an inference is expected to arise when the speaker provides more reasons than typically required to validate the assertion. Since reasons are typically informative in the IC case, claim acceptance is expected to increase when more reasons are provided, just as predicted by the naive account. However, the informativity account predicts that claim acceptance will decrease in the non-IC condition– since the listener would accommodate the redundancy by inferring that the claim is less assertable than usual.

Methods

Participants

200 participants will be recruited through Prolific. All participants should self-identify as native English speakers. An additional 20 participants will be recruited for a preliminary experiment.

Materials

To control for the "quality" of the reasons used in the main experiment, a preliminary trial is conducted before the main experiment, to remove reasons that participants might consider illegitimate (which would negatively affect persuasion in all conditions). For each of 12 actions, participants are prompted to rank a list of 10 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 a target claim. The dialogue establishes that the characters are friends who know each other well, to avoid biasing the participants towards potential deception. 12 target claims are constructed in the form "I should [action]-- after all, [reasons]", where half of the actions are IC verbs, and half are not. For each action, 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 stimuli across all conditions. An additional 12 filler items are also constructed [describe them].

On each trial, participants are prompted to rate their responses to the following questions on a slider from "strongly agree" to "strongly disagree". The purpose of (2) is

to measure whether the participant suspects Bob might be privy to additional context which might explain why Alice has over-justified a trivial claim.

(1) Alice should [action].
(2) Bob thinks Alice should [action].

On filler trials, the participants were instead asked [QUESTIONS].

Participants are required to click the scale once to make the slider appear, to prevent them from simply clicking through without adjusting the slider. In addition, following Ryzhova et al., participants are prompted to provide a short explanation to their answers in a free-response box before advancing to the next trial. 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.

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.

Each participant sees a total of 12 fillers and 12 experimental stimuli per session. For the experimental trials, two items are randomly selected from each of the 6 combinations of conditions (IC or non-IC, and 0, 1, or 3 reasons).

*** maybe go back and order this in a more coherent way?

Results

FIGURE HERE

Figure 1 shows the predicted results of the persuasion-rating questions. Claim-acceptance ratings for the bare assertion (i.e. 0 reasons given) are much higher for non-IC claims (blue) than IC claims (red). This result validates the experimental design–IC verbs do indeed induce contexts where reasons are more expected (and are persuasively *under*informative without them).

In the IC condition, claim-acceptance ratings steadily increase when more reasons are provided. In the non-IC condition, claim-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 claim more persuasive. In contrast, when a claim seems easy for the listener to accept, if the speaker provides reasons anyways, the listener assumes that the reasons were situationally necessary and infers that the base claim 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 be thinking 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 to".

Discussion

It is well established in experimental pragmatics that informativity expectations guide language production and comprehension in cooperative contexts. This experiment, to my knowledge, is the first to propose an information-theoretic analysis of language *evaluation* in persuasive contexts. If my hypothesis is borne out, [repeat what I said like 100x in a different way]

However, there are some possible confounds that might prevent the expected results from arising. Firstly, although the IC/non-IC distinction provides an initial guideline for claims which do and do not require additional justification, more fine-grained norming might be necessary to establish the assertability of the base claim, since there is a great deal of variability among verbs in each category– and even for the same verb in different contexts (for example, the assertability of "buy" depends on the price of the item, as previously mentioned). [Also trust is just hard to measure on a slider]

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 characterize what makes a reason "good"; such analyses typically prioritize the causal relationships between reasons and

conclusions. However, explanation is ultimately a linguistic act……write some nice ending sentence lol