# Deriving Social Meanings in an Extended Lewisian Model

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**Introduction** Extended Lewisian models of conversation (Lewis 1979) have emerged as powerful tools for understanding a wide range of phenomena (Gunlogson 2003, Farkas & Bruce 2010, Malamud & Stephenson 2015, Farkas & Roelofsen 2017; cf. Condoravdi & Lauer 2012, Lauer 2013, Krifka 2015). In this paper, we argue that such models can capture some of the most nuanced and complex phenomena in conversation: politeness and related social effects (McLemore 1991, Podesva 2011, Levon 2016).

Our empirical focus is English rising declaratives (henceforth RD). We first present a series of experimental studies that corroborate the existence of two different types of RDs, each associated with distinct politeness effects. We then posit two sets of conventions to capture this core distinction, as well as the observed politeness patterns. Neither set of conventions is shown to directly prescribe 'politeness' per se, but rather to accurately predict where politeness effects will arise and where they won't (cf. Gunlogson 2003, Malamud & Stephenson 2015, Jeong & Potts 2016).

**Two Types of Rising Declaratives** We hypothesize that there exist two types of RDs: assertive RDs like (1–2) and inquisitive RDs like (3–4). To probe this difference, we can study patterns in follow-up responses (that indicate different commitment statuses): while assertive RDs (1–2) allow *Oh* responses, indicating A's acknowledgment of B's commitment to the proposition (e.g., that John has a sister in (1)), inquisitive RDs (3–4) *dis*allow *Oh*, indicating a perceived lack of such commitment from the part of B (an adaptation of Gunlogson (2008)'s *Oh* vs. *Yes* diagnostics).

(1) A: Tell me about John's family.
B: *John has a sister?* They're close?
A: *Oh*, I didn't know that. / A: ?*Yes*.

(2) A: Why do you hate him so much?
B: *(Because..) He's an idiot?*
A: *Oh*, okay. If you say so. / A: ?*Yes*.

(3) A: John's sister is in town.
B: *(What?) John has a sister?*
A: *Yes*, he does. / A: #*Oh*.

(4) A: Ugh, I can't stand that ass, Don.
B: (doesn't know Don) *He's an idiot?*
A: *Yes*, a tremendous one. / A: #*Oh*.

The empirical starting point for this paper is that assertive vs. inquisitive RDs are distinct phenomena. Building on this assumption, we also have the intuition that assertive RDs generally sound more polite than standard ways of asserting (i.e., via a falling declarative: *John has a sister.*, in (1); cf. McLemore 1991, Podesva 2011, Levon 2016), whereas inquisitive RDs generally sound *less* polite than standard ways of asking questions (i.e., via a polar interrogative: *Does John have a sister?*, in (3)).

**Experiment** To test these hypotheses, we conducted perception experiments in which 1200 participants (native speakers) heard 5–8 declarative and polar interrogative stimuli systematically manipulated in their intonation (representing a variety of rises and falls), and pooled from sets sharing the same radical and the speaker: e.g., *Ellen is married., Ellen is married?, Is Ellen married?*. Upon hearing them, participants answered two types of questions. One (Q1) was a forced choice task that inquired about the more likely follow-up response between: *Oh* vs. *Yes*. Following the initial reasoning, this was used as a probe to distinguish between assertive vs. inquisitive RD interpretations. Others (Q2–5) were a range of gradient rating tasks (0–100) that inquired about various contextual inferences, one of which was the degree of perceived speaker politeness (Q4).

*Two RDs.* The results corroborate the existence of two types of RDs. All three kinds of RD stimuli (representing a variety of rising tunes) elicited significant amounts of both *Oh* and *Yes* responses[1] in Q1, in contrast with falling declaratives (henceforth FDs), which elicited near-categorical *Oh* responses and polar interrogatives (henceforth PQs), which elicited near-categorical *Yes* responses. Combined with other results that demonstrated systematically diverging inferences between RD tokens that elicited *Oh* versus those that elicited *Yes* (one of which we will examine below), these patterns suggest a core distinction between assertive vs. inquisitive RDs.

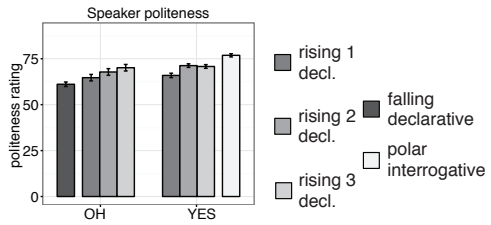

Figure 1: Summary of results

*Politeness.* The results also show that conditional on *Oh*/*Yes* responses, different politeness effects emerged. Corroborating the hypothesis, assertive RDs were perceived as significantly *more* polite than FDs but inquisitive RDs were perceived as significantly *less* polite than PQs, for the same radical and the speaker. Fig. 1 summarizes this: assertive RDs are the three RD bars plotted over 'OH' in the x-axis, inquisitive RDs are those plotted over 'YES'; FDs are the leftmost darkest bar and PQs are the rightmost lightest bar. Although in absolute terms, the politeness markings of the two RDs are about the same, their respective contrasts with PQs and FDs show that they are different pragmatically.

**Analysis** The two sets of conventions we propose in (5–6) can capture these data. Each set overlaps with the conventions for FDs on the one hand and PQs on the other, which we take to be (5a–b) for the former and (6a) for the latter (Farkas & Bruce 2010; cf. Farkas & Roelofsen 2017). The analysis synthesizes the strengths of previous Lewisian approaches to rising declaratives ((5b) is adapted from Malamud & Stephenson (2015), (6a) from Farkas & Roelofsen (2017), and (6b) from Gunlogson (2003) and Gunlogson (2008)) while overcoming their shortcomings identified in Jeong (2017).

(5) Assertive RD (content: $p$)
  a. Add $p$ to the **Table**.
  b. Add $p$ to the speaker's current commitment set, $\boldsymbol{DC}_{Sp}$.
  c. Add MLI$^p$ to the **Table**.

(6) Inquisitive RD (content: $\{p, \neg p\}$)
  a. Add $\{p, \neg p\}$ to the **Table**.
  b. Add $p$ to the addressee's projected commitment set, $\mathbf{DC}_{Ad}$*.

*Oh/Yes Effects.* (5–6) captures the observed *Oh/Yes* distinction. Assertive RDs fully commit the speaker to the proposition (5b) and thus allow *Oh* (which presuppose speaker commitment), whereas inquisitive RDs do not, and are thus infelicitous with *Oh* (resulting in *Yes* responses).

*Politeness Effects.* (5–6) can derive the politeness effects in Fig. 1 as well. First, assertive RDs sound more polite than falling declaratives because the former adds a relevant metalinguistic issue MLI$^p$ such as: *Is $p$ a relevant answer?*, or *Am I in the right social context to utter $p$?* to the Table (5c), whereas the latter doesn't (cf. Malamud & Stephenson 2015). Checking in about a MLI$^p$ with the addressee naturally gives rise to the inference that the speaker is trying to build rapport with her and be polite. Second, inquisitive RDs sound less polite than polar interrogatives because the former adds $p$ to the addressee's projected commitment (6b) whereas the latter doesn't. Attributing

[1] At the same time, there were also factors that systematically influenced participants' *Oh* vs. *Yes* responses, such as intonation (weaker rising slopes correlated with greater *Oh* responses), content, etc. (Jeong 2017)

an expected answer to the addressee (instead of leaving it entirely up to the her) often gives rise to the inference that the speaker is being less polite than asking the question in a more neutral way.

In addition, the analysis has the advantage of allowing for subtleties and variations in the ultimate social inferences drawn by the listeners. As exemplified in (2), assertive RDs can sometimes sound *impolite*. In (2), *He's an idiot?* seems to give off an air of *Duh, it's obvious; why would you ask me that?*. Since politeness is a second order inference that is derived from (5b) in certain contexts, the analysis can predict that it will not arise when the context is not of the right type (namely, when putting a MLI$^p$: *Is $p$ a good enough answer?* leads to the inference that the speaker is uncertain about $p$ being informative, because she thinks it should already be in the common ground). Our study thus suggests a more general view about politeness and other social phenomena: they do not derive from independent principles, but rather emerge from more primitive ones.

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