Cheap talk by multiple senders in the presence of network externalities

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The paper analyzes a cheap-talk communication setting with two speakers. It considers the particular cheap talk environment where the sender has a fixed agenda, for any state of the world θ sender utility increases with receiver action. The authors interpret it as network externalities. The authors show that the presence of multiple speakers may allow for the existence of informative equilibrium. Cross-checking strategies by the receiver, allow her to punish senders that do not send the same message. In order to construct informative equilibrium, the authors heavily rely on the use out of equilibrium beliefs to implement punishments. If both senders observe the signal without noise (or with a common noise), then there exist an equilibrium where they both tell the truth (and thus the same message). This is enforced by heavy out of equilibrium punishments if the messages disagree. However, if senders observe the signal with idiosyncratic errors, it is harder for the sender to punish the receiver, as there is no more out of equilibrium message pairs. This limits the existence of informative equilibrium in cross-checking strategies.

1 Contribution:

The main distinguishing feature from previous literature on cheap talk with multiple speakers (see Krishna and Morgan (2001) or McGee and Yang (2013) for good examples) is that senders have a common fixed agenda. The authors interpret it as network externalities. Cheap talk with fixed agenda (or transparent motives) has already been studied before. See Chakraborty and Harbaugh (2010) and Lipnowski and Ravid (2018). In particular, Lipnowski and Ravid (2018) show that—under some assumptions not satisfied in the present paper— even when the sender (one sender only) has fixed agenda, partially informative equilibrium may exist. The present paper would greatly benefit from a discussion regarding the departure made here in comparison to this previous literature, in particular discussing how multiple speakers may help, especially given that both speakers have a fixed (common and commonly known) agenda. And whether (and how) the introduction of multiple speakers may interact with the transparent motives. That is, is the way that multiple speakers help

novel in the presence of transparent motives? Is it different than how it helps in standard cheap talk?

First, consider the Noiseless Case (senders perfectly observe the state of the world). The structure of the fully informative equilibrium rely heavily on out of equilibrium belief to construct punishments to curb deviations from senders. The main issue here is that the informative equilibrium is not robust (for reasons already described in the literature). The fully informative equilibrium has both experts sending the true message. If both messages are identical, the receiver believes it. If they mismatch (out of equilibrium), the receiver believes both senders have sent an upward biased message and chooses an action below the minimum message. This equilibrium structure is quite similar to the one in Krishna and Morgan (2001), in that out of equilibrium beliefs are conditional on the observed messages, and thus it is subject to the same criticism. The intuitive refinement proposed by Battaglini (2013)—in the spirit of equilibrium perfection—would eliminate such equilibrium, as the fully revealing equilibrium requires an implausible ad hoc choice of out-of-equilibrium beliefs. The Noisy Case is more interesting and novel, and also not subject to the same criticism above. I talk more about it in the next paragraphs.

2 Comments on the Analysis

Let me concentrate on the Noisy Case (section 5). This is were most of the novel results of the paper reside. First of all, the paper would profit greatly from a better treatment of Battaglini (2003), in particular comparing the introduction of noise there (for instance page 1386) and the introduction of noise in the present paper.

In the noisy case, agents observe a signal $v_i = \theta + \epsilon_i$, $\epsilon_i \overset{iid}{\sim} N(0, \sigma^2)$. Because the normal distribution has a full support on the real line, in a truth telling fully revealing equilibrium, any signal occurs with positive probability, and thus Bayes rule disciplines the belief of the receiver for every pair of possible messages received.

Consider a fully revealing equilibrium: each sender i sends a message $m_i = v_i$. Let us focus on the receiver action. On the equilibrium path the receiver belief is given by the Bayesian update, and thus it must be $E[\theta|m_1, m_2] = \frac{m_1+m_2}{2}$. That must hold for any pair of realized messages.

The authors assume a particular strategy profile in point/assumption 3, parts I, II, and III. In particular, 3-II establishes that the on path belief, given the equilibrium truth telling messages, is distinct than the one above. In equilibrium, the receiver must have two distinct beliefs (depending on how close are the messages). I fail to see how the beliefs described in the strategy in point satisfy the weak Perfect Bayesian Equilibrium requirements.

In the best case scenario, I am wrong and misunderstood an important element of the analysis. This highlights that the analysis is very obscure about this point; although the authors spend some time on the sender best response function given the beliefs described in

3-II (and devote some of the Appendix to it), they do not provide any justification for the strategy assumed, and do not show that it is the result of Bayes update by the receiver. This is a key step in showing that the strategy is a weak-PBE. Instead, the authors take the belief as given and focus on the incentive compatibility constraint for the sender. In the worst case scenario, the analysis is wrong and the authors do not characterize a fully revealing weak-PBE.