

**Cheap talk and meaningful talk:
signaling using language**

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Outline

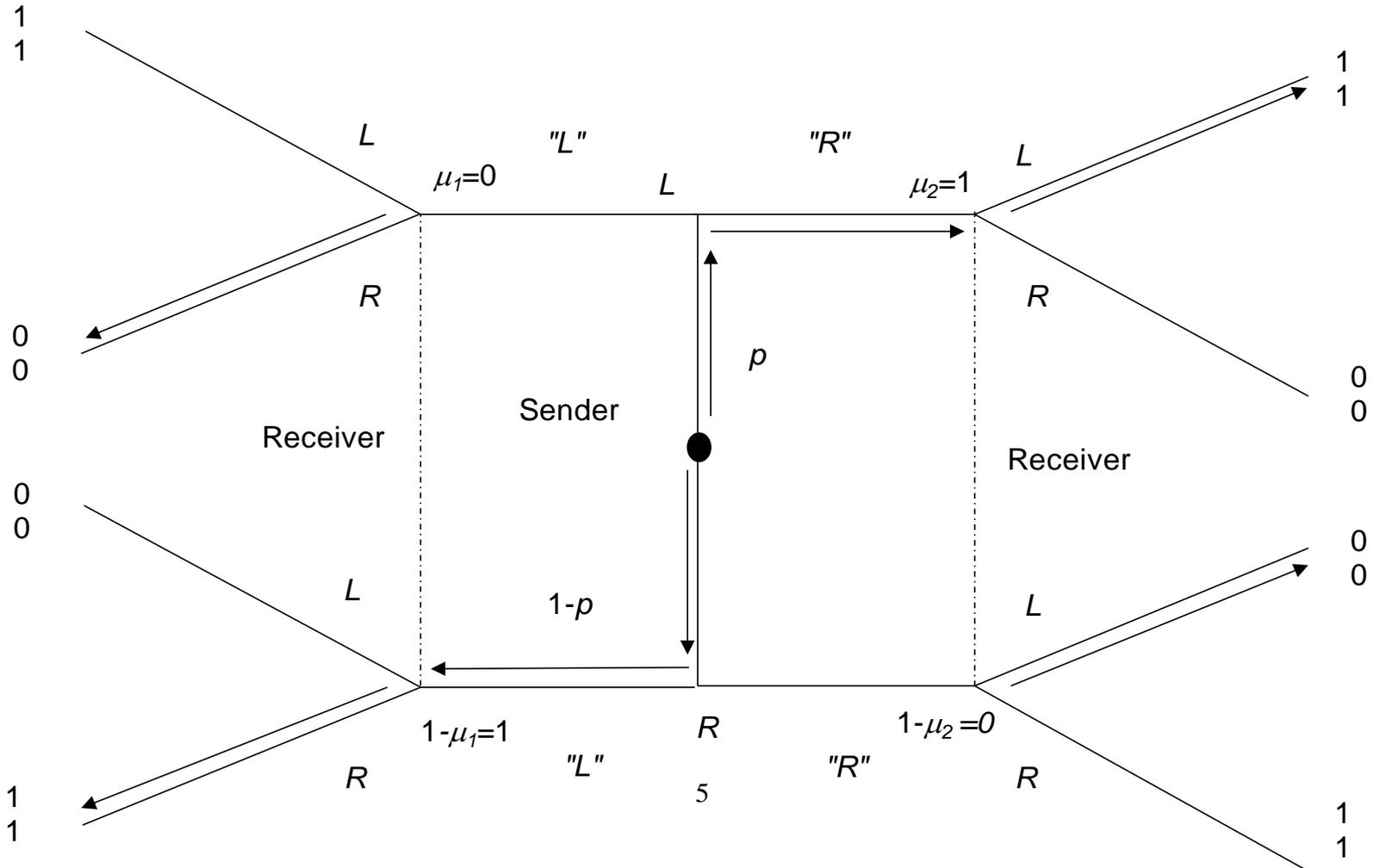
1. Cheap talk
2. Costly talk
3. Linguistics: language is not empty
4. Meaningful talk
5. Implications for unilateral communication
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1. Cheap talk

- Cheap talk: unilateral communication between sender and receiver (Crawford and Sobel 1982)
- Signals are payoff-irrelevant: special case of signaling models
- Revisit game of *rendez-vous*
- How do seller and buyer get together in decentralized market for used cars?
- Four pieces of information: a car is for sale, seller's phone number, meeting time and meeting place

- Focus here on meeting place: this is pure coordination game
 - Two sender types: left (L) and right (R)
 - Priors: both types equally probable
 - No communication: there is a Bayesian Nash equilibrium where receiver plays each pure strategy half the time
 - Effect of talk: allow coordination, i.e., allow to select equilibrium

CHEAP TALK: UNNATURAL INFORMATIVE EQUILIBRIUM

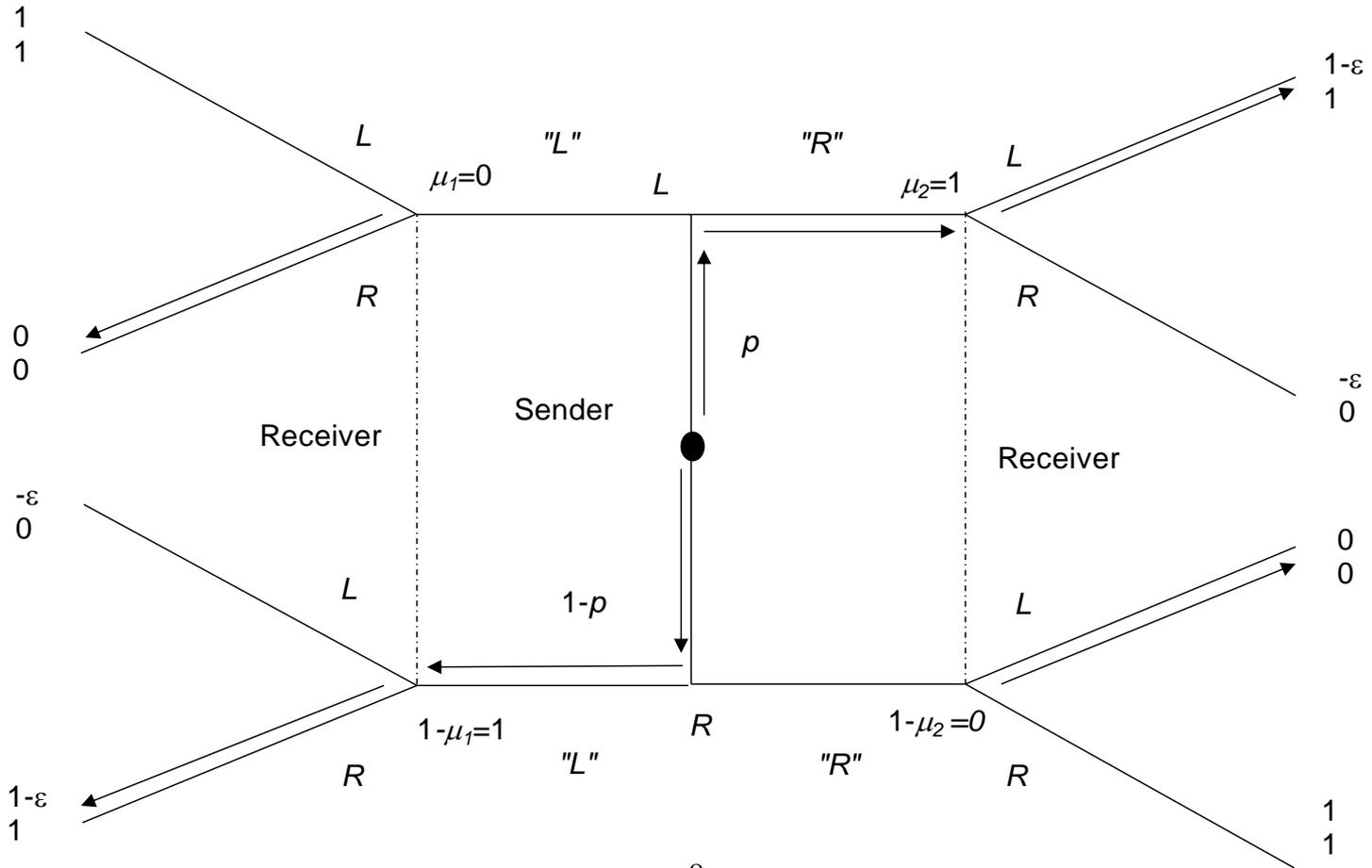


- There is always uninformative (babbling) equilibrium where the message does not depend on types: e.g., in a pooling equilibrium, priors are not affected by the message
- There is also informative equilibrium where “ R ” refers to R and “ L ” refers to L
- Cheap talk allows informative equilibria where language is used in non-standard (“unnatural”) way
- Epistemic problem: verbal information — only information actually added through communication — not taken into account in updating priors

2. Costly talk

- Costly talk (Kartik, Ottaviani and Squintani 2007): misrepresenting type has a cost for sender
- Misrepresentation can be because of moral costs, or simply because lies have to be fabricated (thinking costs)
- Hence, messages have a literal meaning for the sender, who pays a cost for not saying the truth

COSTLY TALK: UNNATURAL INFORMATIVE EQUILIBRIUM



- In this example, there is no uninformative (babbling) equilibrium: if receiver disregards the message, the best strategy for the sender is to tell the truth; but if the sender tells the truth, the best strategy is for the receiver to trust the message
- There is also informative equilibrium where “*R*” refers to *R* and “*L*” refers to *L*
- but costly talk also allows informative equilibria where language is used in non-standard (“unnatural”) way
- Does not take into account basic fact that language has a literal meaning for receiver too

- Callander and Wilkie (2007): similar idea as costly talk for political campaigns
- If talk is cheap, then have “lies, damned lies and political campaigns”.
- Suppose incumbent has position e_I that differs from median m
- The opposition is centrist (m) with probability q and extremist (e_{OP}) with probability $1 - q$.
- Let $(1 - q) | e_{OP} - m | > | e_I - m |$: if political campaigns are cheap talk, incumbent reelected

- But when not all politicians are dishonest, can have some revelation of information
- Also suppose opposition is truthful with probability r and deceitful with probability $1-r$

Distribution of opposition types

		Candidate honesty	
		Truthful	Deceitful
Candidate preferences (m)	Centrist	qr	$q(1-r)$
	Extremist (e_{OP})	$(1-q)r$	$(1-q)(1-r)$

- Opposition can win the elections if proportion of truthful opposition candidates is large enough
- This happens when

$$\frac{(1-r)(1-q)}{q+(1-r)(1-q)} | e_{OP} - m | < | e_I - m |$$

- when $r = 0$ (no truthfull types), boils down to the previous result
- general message: political campaigns can be relevant in post-electoral politics, despite lack of commitment, when truthful types exist

3. Linguistics: language is not empty for receivers

- In linguistics, language has literal meaning
- Costly talk only considers that for senders
- With asymmetric information, the only observable is the message (the signifier) with its accompanying meaning (the signified)
- Introduce two assumptions: (i) messages have to be comprehensible and (ii) receiver may either trust the literal meaning of the message or interpret the message in terms of the specific context (i.e., the priors of the game without communication)

4. Meaningful talk

ASSUMPTION 1: Receiver can understand literal meaning if and only if sender uses common natural language to utter message "*m*".

- This is standard assumption in linguistics
- Lost in Translation: scene where the Director speaks to Bob about Suntory Time commercial (taken from Motoko Rich, “What Else Was Lost in Translation”, *New York Times*, September 21, 2003, and Wordreference Forum)

Director [in Japanese to interpreter]: The translation is very important, okay?

Interpreter [in Japanese to director]: Yes of course

Director [in Japanese to Bob]: You're sitting in your study. There is a bottle of Suntory whiskey on the table. With wholehearted feeling, slowly look at the camera and, as if you were meeting old friends, as Bogie in Casablanca saying "Here's looking at you, kid", say "Suntory time!"

Interpreter [to Bob]: He wants you to turn and look in camera. Okay?

Bob [to interpreter]: That's all he said?

Interpreter [to Bob]: Yes, turn to camera.

ASSUMPTION 2: Receiver may either trust the message's literal meaning, $B^R("m") = 1$, to build the posterior beliefs, or not trust it, $B^R("m") = 0$, sticking to its priors.

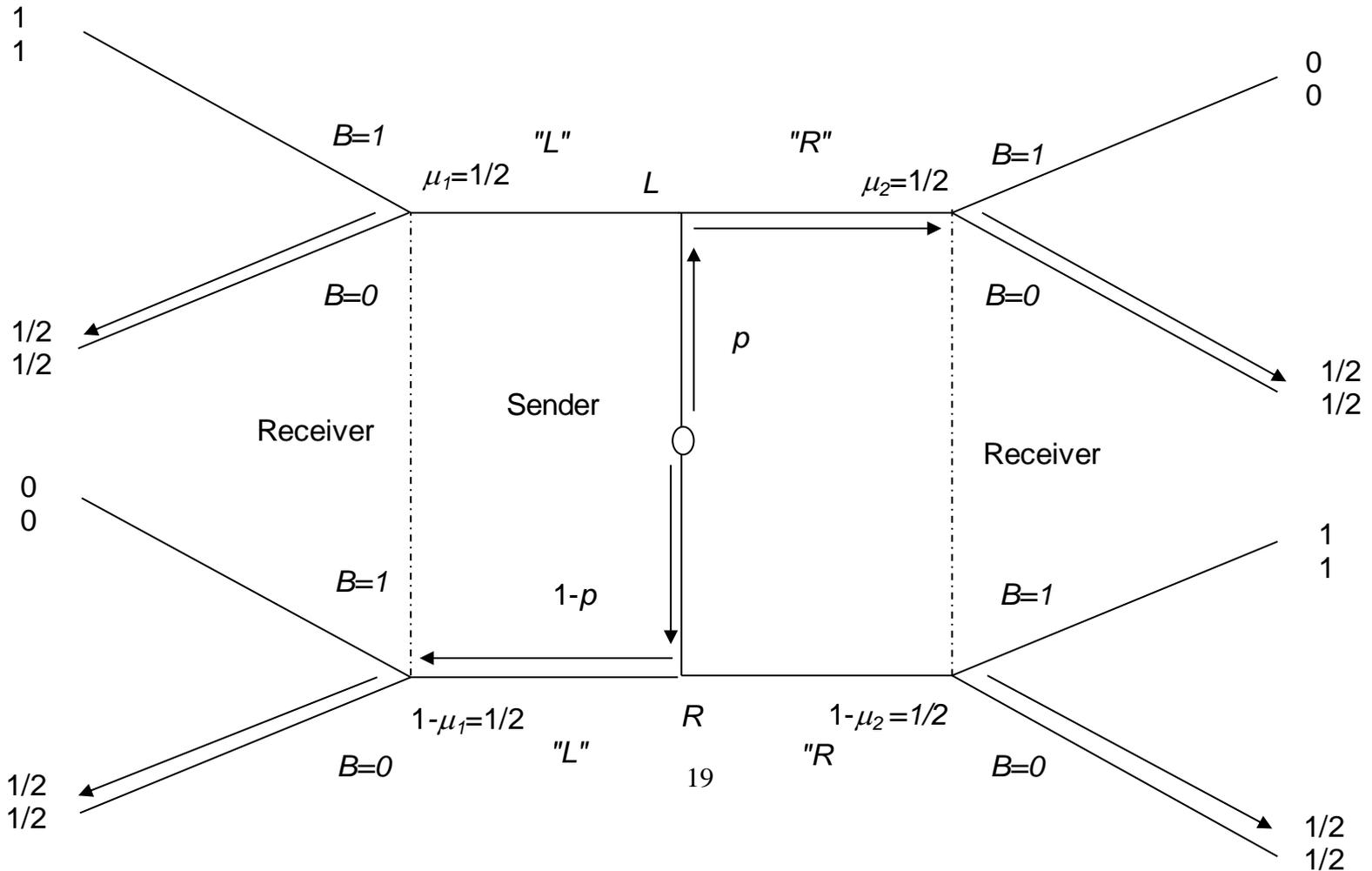
- Motivation: if the message is not taken at face value, there are infinite ways of reinterpreting a message, once one goes outside the ordinary interpretation
- There is no clear alternative interpretation of the message other than what the context leads to expect, so messages that are not trusted are interpreted in terms of the priors: see two examples

- Example (i): if the message “I am at the information booth in Grand Central Station” is not trusted in the game of *rendez-vous* seen before, instead of second-guessing whether this message might instead mean something else like “I am in the lobby of the Chrysler Building”, the receiver returns to its diffuse priors that any place is equally likely.
- Example (ii): in market for lemons, receiver mistrusts the message “This car is in great shape”. Interpreting the message in terms of the priors, as a claim that all types make regardless of quality, is natural given the strategic incentive for owners of lemons to inflate their claims.

5. Implications

- Informative equilibria use language in ordinary sense; encrypted messages no longer informative
- *Rendez-vous*: when indefinite number of meeting places, concentrate on truth and trust
- Uninformative equilibria always exist

MEANINGFUL TALK: NO UNNATURAL INFORMATIVE EQUILIBRIUM



6. Final Remarks

- Messages comprehensible if and only if common language used, but have to infer equilibrium meaning
- Literal meaning credible if message corresponds to an equilibrium of the game
- Credible message might be trusted or not: natural language may convey information about types though it provides no direct evidence

References

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