

Facts and Opinions

Alessandro Lizzeri
Princeton

Yichuan Lou
Tokyo

Jacopo Perego
Columbia

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- ▶ An informed **sender** seeks to persuade **receiver** to take favorable action

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This paper. We compare and interact these two modes of communication:

1. When is verifiability beneficial/detrimental to the receiver?
2. How do verifiable and unverifiable information interact?

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Evidence is a noisy signal about an unverifiable state (e.g., letter grades)

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Both ingredients necessary for our questions to have bite

- ▶ Expert witness testimony is governed by a set of rules that tightly constrain what can be said and how \rightsquigarrow Verifiable evidence: Consequences?
- ▶ Managers know more about their firm than what goes beyond accounting numbers
- ▶ Job applicants know more about their skills than resumes or test scores indicate

Communication with both verifiable and unverifiable information:

- ▶ Bertomeu, Marinovic ('16, AR): costly disclosure, uncertain technology, ...
- ▶ Dasgupta ('23) – state-ind nonmonotone pref, conditions for unravelling

Disclosure with CS preferences:

- ▶ Seidmann and Winter ('97, Ecma), conditions for unravelling
- ▶ Giovannoni and Seidmann ('07, GEB), Mathis ('08, JET)

Cheap talk with Mediator – Noisy talk:

- ▶ Krishna, Morgan ('04, JET), Blume, Board, Kawamura ('07, TE), Goltsman, Horner, Pavlov, Squintani ('09, JET)

model

An *unverifiable* state $\theta \in \Theta = [0, 1]$, distributed according to full-support F

A *verifiable* signal $s \in S$, from $\pi : \Theta \rightarrow \Delta(S)$, where (S, π) satisfies MLRP

A **sender** privately observes (θ, s)

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Solution concept: PBE

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2. Evidence Only:

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3. **Evidence + Cheap Talk:** Both messages available

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θ is uniformly distributed

Quadratic payoffs, with additive sender's bias $b \geq 0$

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- ▶ A **simple evidence** structure:

Binary signals, $S = \{\ell, h\}$

Parametric evidence. For today's talk: $\pi(h|\theta) = \theta$ and $\pi(\ell|\theta) = 1 - \theta$

Results apply more generally, although so far not in a substantial way...

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An outcome achieves **complete evidence disclosure** if receiver's expected payoff is

$$\sum_s \Pr(s) \max_a \mathbb{E}\left(u^R(a, \theta) \mid s\right)$$

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- In CED eqm, receiver's on-path actions: $a_\ell \triangleq \mathbb{E}[\theta|s = \ell] < \mathbb{E}[\theta|s = h] \triangleq a_h$

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For all $s \in S$, sender of type $(\theta = a_\emptyset, s)$ is better off deviating

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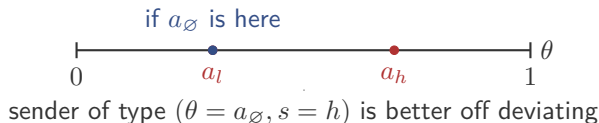
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Definition (informal)

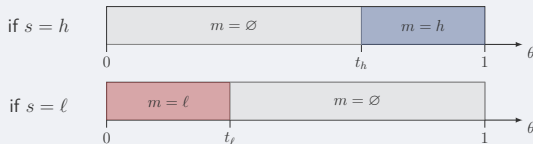
An equilibrium is **Evidence Concordant** if there are cutoffs $(t_\ell, t_h) \in (0, 1)$, with $t_\ell \leq t_h$ such that sender's eqm strategy is as follows:

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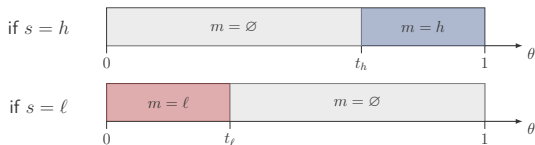
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Note that in an **Evidence Concordant** equilibrium:

- ▶ Sender discloses evidence only when it is “concordant” with the state θ
- ▶ Silence is used to correct discordant evidence



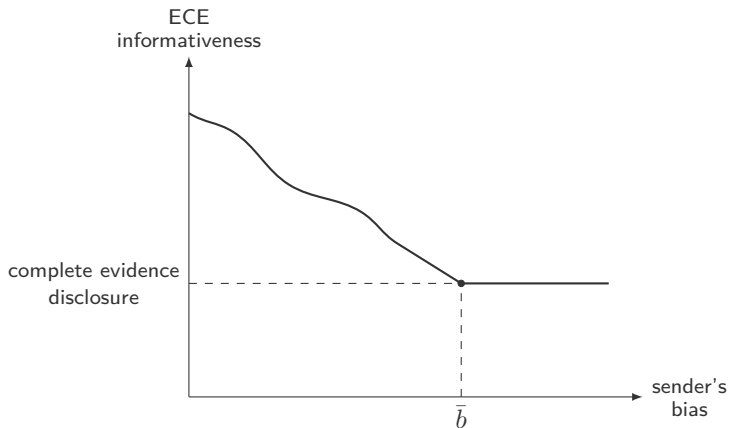
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Proposition

1. For all $b \geq 0$, an Evidence Concordant Equilibrium **exists** and is **unique**
2. For all $b \geq 0$, it is **more informative** than CED, strictly so if $b \leq \bar{b}$
3. Informativeness of ECE decreases in b , and eventually converges to CED

An illustration of Proposition 2:



There are many documented failures of unraveling in disclosure literature

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In our setting, instead, failure of unraveling is **beneficial** to Receiver

- ▶ Concealment can be used in eqm to correct misleading evidence
- ▶ Notice key role of noisy evidence and partially aligned pref

Ours is a setting in which **mandating disclosure** can harm Receiver

**comparing modes
of communication**

Our model enables meaningful comparison btw the two communication modes:

- ▶ Is welfare higher when Sender can *unverifiably* communicate state θ or when she can *verifiably* communicate signal s ?

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There exist $b_1 \leq b_2$ such that

- ▶ If $b \leq b_1$, most informative equilibrium is achieved under “cheap talk only”
- ▶ If $b \geq b_2$, most informative equilibrium is achieved under “evidence only”

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A Simple Insight:

Information verifiability acts as a constraint on sender's strategy

- ▶ This constraint enhances Sender's **credibility**, which is useful when b is large
- ▶ But, it hinders **flexibility**, which is useful when b is small

**interacting modes
of communication**

At last, we allow Sender to communicate by sending **both**

- ▶ Verifiable information about s and
- ▶ Unverifiable information about θ

I will only informally advertise two ideas

(work in progress!)

Fourth Observation: The sum can be better than its parts, although this is not necessarily the case.

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Remark

The most-informative equilibrium under “cheap talk + evidence” is weakly more informative than the most-informative equilibrium if Sender can only use one mode of communication

There are equilibria under “cheap talk + evidence” that are **less informative** than the most-informative equilibrium if Sender can only use one mode of communication

Fifth Observation: Verifiable evidence serves a **dual role** when interacted with unverifiable cheap talk

1. Verifiable evidence conveys information
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1. Verifiable evidence conveys information
2. Verifiable evidence also enables Sender to use communication strategies that are otherwise unavailable (it mimics role of a mediator)
 - We show verifiable evidence enhances cheap talk even when it is entirely uninformative

conclusions

Goal. Comparing and interacting communication with verif and unverif info

Model. A novel setting with two key features:

- ▶ Sender knows more than what her evidence can verifiably prove
- ▶ Sender and Receiver have partially aligned preferences

Results. Our results so far highlight:

- ▶ The impossibility and inefficiency of complete evidence disclosure
- ▶ The tradeoffs between flexibility and credibility in communication
- ▶ Some basic interactions between the two modes