# THE VALUE OF COMMITMENT IN COMMUNICATION: AN EXPERIMENTAL ANALYSIS

Agata Farina
Princeton University

October 2024
*Princeton Behavioral and Experimental Economics Seminar*

# STRATEGIC COMMITMENT

*Players' ability to commit to a strategy is key in game theory*

*Players' ability to commit to a strategy is key in game theory*

When players can tie their hands, they can achieve otherwise impossible outcomes

- First mover advantage in a duopoly
- Avoidance of information
- Disclosure of private information

In most models, commitment power is exogenously given

# STRATEGIC COMMITMENT

In most models, commitment power is exogenously given

In practice, commitment *endogenously* arises in interactions

# STRATEGIC COMMITMENT

In most models, commitment power is exogenously given

In practice, commitment *endogenously* arises in interactions

- Firms can make capacity investments that are more or less hard to reverse

# STRATEGIC COMMITMENT

In most models, commitment power is exogenously given

In practice, commitment *endogenously* arises in interactions

- Firms can make capacity investments that are more or less hard to reverse
- Private firms can adhere to more or less stringent accounting standards

## STRATEGIC COMMITMENT

In most models, commitment power is exogenously given

In practice, commitment *endogenously* arises in interactions

- Firms can make capacity investments that are more or less hard to reverse
- Private firms can adhere to more or less stringent accounting standards

→ If and how much to commit is a strategic choice

## STRATEGIC COMMITMENT

In most models, commitment power is exogenously given

In practice, commitment *endogenously* arises in interactions

- Firms can make capacity investments that are more or less hard to reverse
- Private firms can adhere to more or less stringent accounting standards

→ If and how much to commit is a strategic choice

→ It requires an understanding of the role of commitment in strategic interactions

## STRATEGIC COMMITMENT

In most models, commitment power is exogenously given

In practice, commitment *endogenously* arises in interactions

- Firms can make capacity investments that are more or less hard to reverse
- Private firms can adhere to more or less stringent accounting standards

→ If and how much to commit is a strategic choice

→ It requires an understanding of the role of commitment in strategic interactions

→ But this might be hard

People may not understand how to use commitment in strategic interactions

People may not understand how to use commitment in strategic interactions

- Counterintuitive choices

People may not understand how to use commitment in strategic interactions

- Counterintuitive choices
- Uncertainty over others' reactions

People may not understand how to use commitment in strategic interactions

- Counterintuitive choices
- Uncertainty over others' reactions
- Coordination issues

# RESEARCH QUESTION

*Do players strategically choose to have commitment power as predicted by the theory?*

# RESEARCH QUESTION

*Do players strategically choose to have commitment power as predicted by the theory?*

- Are players more likely to “tie their hands” when commitment is predicted to be more valuable?

# RESEARCH QUESTION

*Do players strategically choose to have commitment power as predicted by the theory?*

- Are players more likely to “tie their hands” when commitment is predicted to be more valuable?
- If not, why?

# RESEARCH QUESTION

*Do players strategically choose to have commitment power as predicted by the theory?*

- Are players more likely to “tie their hands” when commitment is predicted to be more valuable?
- If not, why?

Today: Explore this question in the context of a communication game

# RESEARCH QUESTION

*Do players strategically choose to have commitment power as predicted by the theory?*

- Are players more likely to “tie their hands” when commitment is predicted to be more valuable?
- If not, why?

Today: Explore this question in the context of a communication game

Lab experiments provide ideal conditions to isolate relevant forces

## WHY COMMITMENT IN COMMUNICATION?

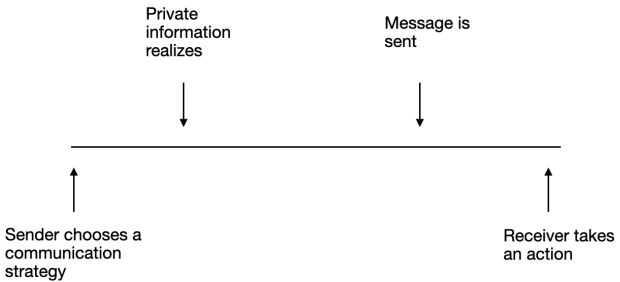
Large literature on commitment in communication

- Bayesian Persuasion — Kamenica and Gentzkow, 2011

# WHY COMMITMENT IN COMMUNICATION?

Large literature on commitment in communication

- Bayesian Persuasion Kamenica and Gentzkow, 2011
- The sender can credibly commit to a communication strategy



## WHY COMMITMENT IN COMMUNICATION?

Many relevant applications in which commitment power is not exogenous

There are ways in which the informed parties can *de facto* generate commitment power

## WHY COMMITMENT IN COMMUNICATION?

Many relevant applications in which commitment power is not exogenous

There are ways in which the informed parties can *de facto* generate commitment power

- Private firms can adhere to more or less stringent accounting standards

## WHY COMMITMENT IN COMMUNICATION?

Many relevant applications in which commitment power is not exogenous

There are ways in which the informed parties can *de facto* generate commitment power

- Private firms can adhere to more or less stringent accounting standards
- Researcher can pre-register their studies in more or less detail

## WHY COMMITMENT IN COMMUNICATION?

Many relevant applications in which commitment power is not exogenous

There are ways in which the informed parties can *de facto* generate commitment power

- Private firms can adhere to more or less stringent accounting standards
- Researcher can pre-register their studies in more or less detail
- Companies can use third-party testing to assess some aspects of their business

## WHY COMMITMENT IN COMMUNICATION?

Many relevant applications in which commitment power is not exogenous

There are ways in which the informed parties can *de facto* generate commitment power

- Private firms can adhere to more or less stringent accounting standards
- Researcher can pre-register their studies in more or less detail
- Companies can use third-party testing to assess some aspects of their business

$\rightarrow$ *Relevant to study endogenous commitment in communication*

## THIS PAPER: ENDOGENOUS COMMITMENT IN COMMUNICATION

1. Simple communication game to study sender's optimal amount of commitment
    - Build on models with **partial** commitment: the sender can revise the communication strategy with some probability

Min, 2021; Lipnowski et al., 2022; Fréchette et al., 2022; ...

## THIS PAPER: ENDOGENOUS COMMITMENT IN COMMUNICATION

1. Simple communication game to study sender's optimal amount of commitment
    - Build on models with **partial** commitment: the sender can revise the communication strategy with some probability

      Min, 2021; Lipnowski et al., 2022; Fréchette et al., 2022; ...
    - Allow the sender to choose **whether** and **how much** to commit: choose revision probability

## THIS PAPER: ENDOGENOUS COMMITMENT IN COMMUNICATION

1. Simple communication game to study sender's optimal amount of commitment
   - Build on models with **partial** commitment: the sender can revise the communication strategy with some probability

     Min, 2021; Lipnowski et al., 2022; Fréchette et al., 2022; ...
   - Allow the sender to choose **whether** and **how much** to commit: choose revision probability
   - Exploit variations in the alignment with receiver's preferences to generate rich predictions in the optimal commitment

## THIS PAPER: ENDOGENOUS COMMITMENT IN COMMUNICATION

1. Simple communication game to study sender's optimal amount of commitment
   - Build on models with **partial** commitment: the sender can revise the communication strategy with some probability

     Min, 2021; Lipnowski et al., 2022; Fréchette et al., 2022; ...
   - Allow the sender to choose **whether** and **how much** to commit: choose revision probability
   - Exploit variations in the alignment with receiver's preferences to generate rich predictions in the optimal commitment
2. Comparative statics in commitment choices to be tested in the lab

## THIS PAPER: ENDOGENOUS COMMITMENT IN COMMUNICATION

1. Simple communication game to study sender's optimal amount of commitment
   - Build on models with **partial** commitment: the sender can revise the communication strategy with some probability

     Min, 2021; Lipnowski et al., 2022; Fréchette et al., 2022; ...
   - Allow the sender to choose **whether** and **how much** to commit: choose revision probability
   - Exploit variations in the alignment with receiver's preferences to generate rich predictions in the optimal commitment
2. Comparative statics in commitment choices to be tested in the lab
3. Try to identify patterns to study the strategic choice of commitment in games

## Endogenous commitment in simpler settings

Poulsen and Roos (2010); Barclay (2017); Kandel, Mugerman and Winter (2023)

## Endogenous commitment in simpler settings

Poulsen and Roos (2010); Barclay (2017); Kandel, Mugerman and Winter (2023)

## Endogenous commitment in more complex games (Stackelberg)

Huck, Müller and Normann (2002); Fonseca, Huck and Normann (2005); Fonseca, Müller and Normann (2006); Santos-Pinto (2008); Datta Mago and Dechenaux (2009); Hildenbrand (2010); Carvalho and Santos-Pinto (2014); Fonseca (2019)

## Endogenous commitment in simpler settings

Poulsen and Roos (2010); Barclay (2017); Kandel, Mugerman and Winter (2023)

## Endogenous commitment in more complex games (Stackelberg)

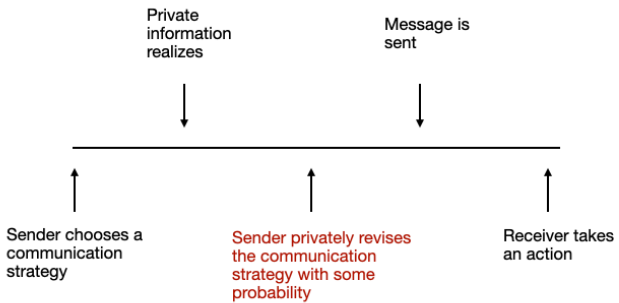
Huck, Müller and Normann (2002); Fonseca, Huck and Normann (2005); Fonseca, Müller and Normann (2006); Santos-Pinto (2008); Datta Mago and Dechenaux (2009); Hildenbrand (2010); Carvalho and Santos-Pinto (2014); Fonseca (2019)

## Commitment in communication

Nguyen (2017); Aristidou, Coricelli and Vostroknutov (2019); Fréchette, Lizzeri and Perego (2022); Zhou (2023); Au, Kwon and Li (2023); Samad and Rentschler (2024)

# MODEL

# DEPARTURES FROM STANDARD PARTIAL COMMITMENT



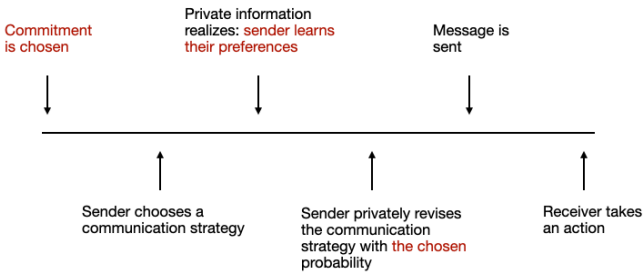
1. The sender is initially uncertain about how much their preferences are aligned with the receiver's

## DEPARTURES FROM STANDARD PARTIAL COMMITMENT

1. The sender is initially uncertain about how much their preferences are aligned with the receiver's
2. The sender chooses the probability of revising the communication strategy

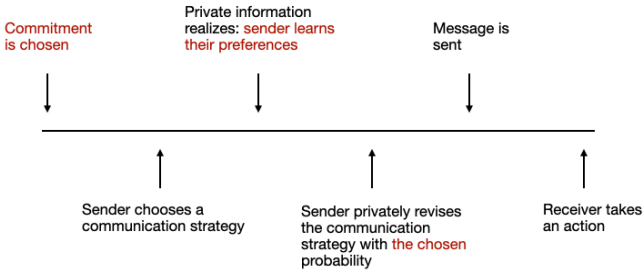
# DEPARTURES FROM STANDARD PARTIAL COMMITMENT

1. The sender is initially uncertain about how much their preferences are aligned with the receiver's
2. The sender chooses the probability of revising the communication strategy



# DEPARTURES FROM STANDARD PARTIAL COMMITMENT

1. The sender is initially uncertain about how much their preferences are aligned with the receiver's
2. The sender chooses the probability of revising the communication strategy




→ *Study how commitment choices change with ex-ante preference alignment*

- Two **states** of the world $\theta \in \{L, H\} = \Theta$, $\mu_0 = \mathbb{P}(H)$

## THE MODEL

- Two **states** of the world $\theta \in \{L, H\} = \Theta$, $\mu_0 = \mathbb{P}(H)$
- Two **actions** for the receiver $a \in \{l, h\} = A$: the action is a guess about $\theta$

## THE MODEL

- Two **states** of the world $\theta \in \{L, H\} = \Theta$, $\mu_0 = \mathbb{P}(H)$
- Two **actions** for the receiver $a \in \{l, h\} = A$: the action is a guess about $\theta$
- Two **messages** available to the sender $m \in \{m_L, m_H\} = \mathcal{M}$

- Two **states** of the world $\theta \in \{L, H\} = \Theta$, $\mu_0 = \mathbb{P}(H)$
- Two **actions** for the receiver $a \in \{l, h\} = A$: the action is a guess about $\theta$
- Two **messages** available to the sender $m \in \{m_L, m_H\} = \mathcal{M}$
- **Receiver** maximizes her payoff by choosing $a = \theta$

$$u_R(a, \theta) = \begin{cases} 1 & \text{if } a = \theta \\ 1 - (1 - q) & \text{if } a = l \text{ and } \theta = H \\ 1 - q & \text{if } a = h \text{ and } \theta = L \end{cases}$$

where $q > \mu_0$

Sender's preferences are initially unknown

**Sender**'s preferences are initially unknown

- With probability $\gamma$, sender are receiver are *fully aligned*

$$u_S^A(a, \theta) = \begin{cases} 1 & \text{if } a = \theta \\ 0 & \text{if } a \neq \theta \end{cases}$$

Sender's preferences are initially unknown

- With probability $\gamma$, sender are receiver are *fully aligned*

$$u_S^A(a,\theta) = \begin{cases} 1 & \text{if } a = \theta \\ 0 & \text{if } a \neq \theta \end{cases}$$

- With probability $1-\gamma$, sender are receiver are *unaligned*

$$u_S^U(a) = \begin{cases} 1 & \text{if } a = h \\ 0 & \text{if } a \neq h \end{cases}$$

Sender's preferences are initially unknown

- With probability $\gamma$, sender are receiver are *fully aligned*

$$u_S^A(a,\theta) = \begin{cases} 1 & \text{if } a = \theta \\ 0 & \text{if } a \neq \theta \end{cases}$$

- With probability $1-\gamma$, sender are receiver are *unaligned*

$$u_S^U(a) = \begin{cases} 1 & \text{if } a = h \\ 0 & \text{if } a \neq h \end{cases}$$

$\gamma \uparrow \implies$ higher ex-ante preference alignment

The sender makes three choices

1. Choose a **level of commitment** $\rho \in [0, 1]$, which is *the probability of not being able to revise the communication strategy*

The sender makes three choices

1. Choose a **level of commitment** $\rho \in [0, 1]$, which is *the probability of not being able to revise the communication strategy*
    - $\rho$ is **observable** to the receiver

## SENDER'S STRATEGY

The sender makes three choices

1. Choose a **level of commitment** $\rho \in [0, 1]$, which is *the probability of not being able to revise the communication strategy*
   - $\rho$ is **observable** to the receiver
2. Given $\rho \in [0, 1]$, choose a **communication plan** $\pi_C : \Theta \to \Delta(\mathcal{M})$

## SENDER'S STRATEGY

The sender makes three choices

1. Choose a **level of commitment** $\rho \in [0, 1]$, which is *the probability of not being able to revise the communication strategy*
   - $\rho$ is **observable** to the receiver
2. Given $\rho \in [0, 1]$, choose a **communication plan** $\pi_C : \Theta \to \Delta(\mathcal{M})$
   - Chosen **before** knowing $i \in \{A, U\}$ and the state realization

## SENDER'S STRATEGY

The sender makes three choices

1. Choose a **level of commitment** $\rho \in [0,1]$, which is *the probability of not being able to revise the communication strategy*
   - $\rho$ is **observable** to the receiver
2. Given $\rho \in [0,1]$, choose a **communication plan** $\pi_C : \Theta \to \Delta(\mathcal{M})$
   - Chosen **before** knowing $i \in \{A, U\}$ and the state realization
   - $\pi_C$ is **observable** to the receiver

## SENDER'S STRATEGY

The sender makes three choices

1. Choose a **level of commitment** $\rho \in [0,1]$, which is *the probability of not being able to revise the communication strategy*
   - $\rho$ is **observable** to the receiver
2. Given $\rho \in [0,1]$, choose a **communication plan** $\pi_C : \Theta \to \Delta(\mathcal{M})$
   - Chosen **before** knowing $i \in \{A, U\}$ and the state realization
   - $\pi_C$ is **observable** to the receiver
3. A **secret update** $\pi_R^i : \Theta \to \Delta(\mathcal{M})$ for $i \in \{A, U\}$

## SENDER'S STRATEGY

The sender makes three choices

1. Choose a **level of commitment** $\rho \in [0,1]$, which is *the probability of not being able to revise the communication strategy*
   - $\rho$ is **observable** to the receiver
2. Given $\rho \in [0,1]$, choose a **communication plan** $\pi_C : \Theta \to \Delta(\mathcal{M})$
   - Chosen **before** knowing $i \in \{A, U\}$ and the state realization
   - $\pi_C$ is **observable** to the receiver
3. A **secret update** $\pi_R^i : \Theta \to \Delta(\mathcal{M})$ for $i \in \{A, U\}$
   - Chosen **after** observing the payoff structure

The sender makes three choices

1. Choose a **level of commitment** $\rho \in [0,1]$, which is *the probability of not being able to revise the communication strategy*
   - $\rho$ is **observable** to the receiver
2. Given $\rho \in [0,1]$, choose a **communication plan** $\pi_C : \Theta \to \Delta(\mathcal{M})$
   - Chosen **before** knowing $i \in \{A, U\}$ and the state realization
   - $\pi_C$ is **observable** to the receiver
3. A **secret update** $\pi_R^i : \Theta \to \Delta(\mathcal{M})$ for $i \in \{A, U\}$
   - Chosen **after** observing the payoff structure
   - The receiver **cannot observe** the realization of $i$ and $\pi_R^i$

Given the value of $\rho$, the communication plan $\pi_C$ and $\gamma$, the receiver chooses

1. The guessing strategy: $a : \mathcal{M} \to \Delta(A)$

When indifference, we break ties towards $a = h$, so wlog $a : \mathcal{M} \to A$

# EQUILIBRIUM

## Perfect Bayesian Equilibrium

## Perfect Bayesian Equilibrium

Refinement based on Fréchette, Lizzeri and Perego (2022): *Truthful when convenient*

## Perfect Bayesian Equilibrium

Refinement based on Fréchette, Lizzeri and Perego (2022): *Truthful when convenient*

- $\pi_R^U$ breaks indifference in favor of disclosing $m = m_H$ conditional on $\theta = H$

## Perfect Bayesian Equilibrium

Refinement based on Fréchette, Lizzeri and Perego (2022): *Truthful when convenient*

- $\pi_R^U$ breaks indifference in favor of disclosing $m = m_H$ conditional on $\theta = H$
- $\pi_R^A$ breaks indifference in favor of disclosing $m = m_H$ conditional on $\theta = H$ and $m = m_L$ conditional on $\theta = L$

## Perfect Bayesian Equilibrium

Refinement based on Fréchette, Lizzeri and Perego (2022): *Truthful when convenient*

- $\pi_R^U$ breaks indifference in favor of disclosing $m = m_H$ conditional on $\theta = H$
- $\pi_R^A$ breaks indifference in favor of disclosing $m = m_H$ conditional on $\theta = H$ and $m = m_L$ conditional on $\theta = L$
- $\pi_C$ breakes ties maximizing the probability of $m = m_H$ conditional on $\theta = H$

## Perfect Bayesian Equilibrium

Refinement based on Fréchette, Lizzeri and Perego (2022): *Truthful when convenient*

- $\pi_R^U$ breaks indifference in favor of disclosing $m = m_H$ conditional on $\theta = H$
- $\pi_R^A$ breaks indifference in favor of disclosing $m = m_H$ conditional on $\theta = H$ and $m = m_L$ conditional on $\theta = L$
- $\pi_C$ breakes ties maximizing the probability of $m = m_H$ conditional on $\theta = H$

**Intuition**: *When the truth is favorable for everyone, it is convenient to disclose it*

- $\mu_0 < q \implies$ without communication $a = l$ always

- $\mu_0 < q \implies$ without communication $a = l$ always
- Sender benefits from persuading the receiver, i.e. induce $a = h$ sometimes

- $\mu_0 < q \implies$ without communication $a = l$ always
- Sender benefits from persuading the receiver, i.e. induce $a = h$ sometimes
- Without commitment power persuasive communication cannot happen if

$$\gamma < \bar{\gamma} = \frac{q - \mu_0}{q(1 - \mu_0)}$$

- $\mu_0 < q \implies$ without communication $a = l$ always
- Sender benefits from persuading the receiver, i.e. induce $a = h$ sometimes
- Without commitment power persuasive communication cannot happen if

$$\gamma < \bar{\gamma} = \frac{q - \mu_0}{q(1 - \mu_0)}$$

- When $\gamma \geq \bar{\gamma}$, commitment power is no needed for persuasion

- $\mu_0 < q \implies$ without communication $a = l$ always
- Sender benefits from persuading the receiver, i.e. induce $a = h$ sometimes
- Without commitment power persuasive communication cannot happen if

$$\gamma < \bar{\gamma} = \frac{q - \mu_0}{q(1 - \mu_0)}$$

- When $\gamma \geq \bar{\gamma}$, commitment power is no needed for persuasion
- If persuaded, the receiver chooses $a = h$ after $m_H$

## Proposition

For $\gamma < \bar{\gamma}$, the sender commits to a full disclosure strategy with partial commitment. Only the unaligned sender revises the strategy and always sends $m_H$.

The optimal $\rho$ is decreasing in the level of ex-ante preference alignment.

**Proposition**

For $\gamma < \bar{\gamma}$, the sender commits to a full disclosure strategy with partial commitment. Only the unaligned sender revises the strategy and always sends $m_H$.

The optimal $\rho$ is decreasing in the level of ex-ante preference alignment.

**Intuition:** Low $\gamma \implies$ commitment power needed to persuade the receiver

$\rightarrow$ The sender prefers flexibility over tying hands with a communication strategy

**Proposition**

For $\gamma < \bar{\gamma}$, the sender commits to a full disclosure strategy with partial commitment. Only the unaligned sender revises the strategy and always sends $m_H$.

The optimal $\rho$ is decreasing in the level of ex-ante preference alignment.

**Intuition:** Low $\gamma \implies$ commitment power needed to persuade the receiver

$\rightarrow$ The sender prefers flexibility over tying hands with a communication strategy

$\rightarrow$ Distortion of the information only when the preferences are unaligned

**Proposition**

For $\gamma < \bar{\gamma}$, the sender commits to a full disclosure strategy with partial commitment. Only the unaligned sender revises the strategy and always sends $m_H$.

The optimal $\rho$ is decreasing in the level of ex-ante preference alignment.

**Intuition:** Low $\gamma \implies$ commitment power needed to persuade the receiver

$\rightarrow$ The sender prefers flexibility over tying hands with a communication strategy

$\rightarrow$ Distortion of the information only when the preferences are unaligned

$\rightarrow$ Double benefit: fewer losses and easier persuasion

**Proposition**

For $\gamma \geq \bar{\gamma}$, the sender optimally chooses to have no commitment, i.e. $\rho = 0$.

The aligned sender fully reveals the state by sending $m_H$ only when $\theta = H$. The unaligned sender always sends $m_H$.

**Proposition**

For $\gamma \geq \bar{\gamma}$, the sender optimally chooses to have no commitment, i.e. $\rho = 0$.

The aligned sender fully reveals the state by sending $m_H$ only when $\theta = H$. The unaligned sender always sends $m_H$.

**Intuition:** High $\gamma \implies$ commitment power is harmful for the sender

$\rightarrow$ Ex-post communication strategy is enough to persuade

**Proposition**

For $\gamma \geq \bar{\gamma}$, the sender optimally chooses to have no commitment, i.e. $\rho = 0$.

The aligned sender fully reveals the state by sending $m_H$ only when $\theta = H$. The unaligned sender always sends $m_H$.

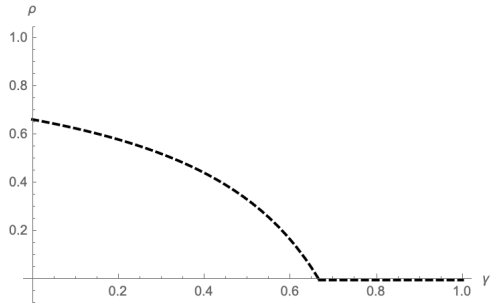
**Intuition:** High $\gamma \implies$ commitment power is harmful for the sender

$\rightarrow$ Ex-post communication strategy is enough to persuade

$\rightarrow$ Trust generated by a high level of ex-ante preference alignment

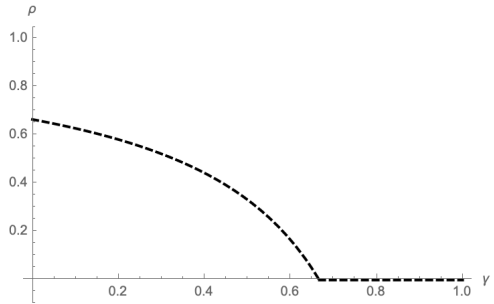
# MAIN PREDICTIONS TO TEST

- Commitment decreasing in the probability that preferences are aligned ($\gamma$)



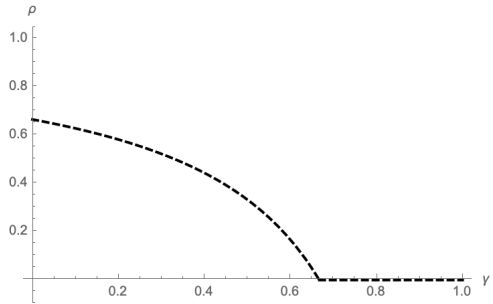
# MAIN PREDICTIONS TO TEST

- Commitment decreasing in the probability that preferences are aligned ($\gamma$)



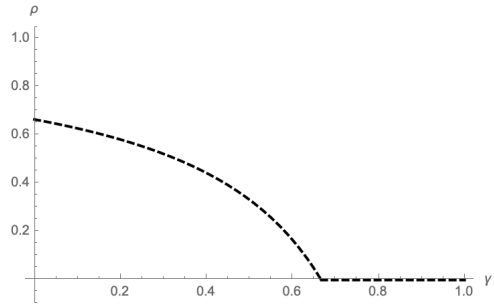

- The sender commits to *truthfully revealing the state*

- Commitment decreasing in the probability that preferences are aligned ($\gamma$)




- The sender commits to *truthfully revealing the state*
- Revision when *preferences are unaligned and* $\theta = L$: $m = m_H$

- Commitment decreasing in the probability that preferences are aligned ($\gamma$)

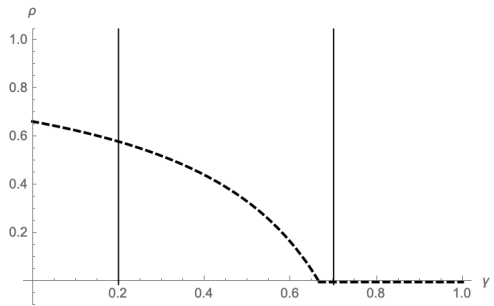



- The sender commits to *truthfully revealing the state*
- Revision when *preferences are unaligned and* $\theta = L$: $m = m_H$
- Receiver always "believes" sender's message

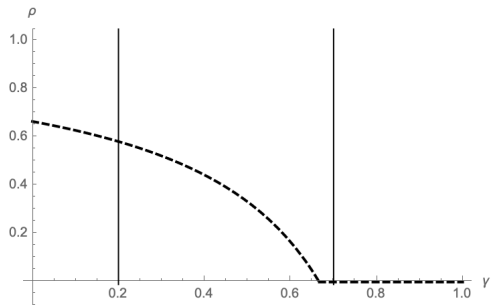
# EXPERIMENTAL DESIGN

- Implement this game in the lab, with $\mu_0 = 0.25$ and $q = 0.5$

- Implement this game in the lab, with $\mu_0 = 0.25$ and $q = 0.5$
- Two treatments: **low** and **high** preference alignment

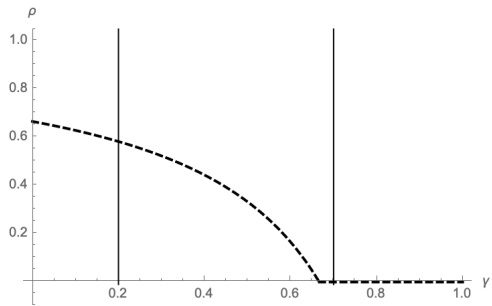


- Implement this game in the lab, with $\mu_0 = 0.25$ and $q = 0.5$
- Two treatments: **low** and **high** preference alignment




- Within subjects, 30 rounds (15 per treatment), fixed roles, random rematching

- Implement this game in the lab, with $\mu_0 = 0.25$ and $q = 0.5$
- Two treatments: **low** and **high** preference alignment




- Within subjects, 30 rounds (15 per treatment), fixed roles, random rematching
- Full feedback, except receiver not observing secret update

# PLAYERS' PAYOFF

**Round xx of 30** **Tables to Determine Points**

### Sender's Points

In the next 5 rounds, the Sender's points will be determined by:

Table **Match**, with probability **xx%**

| Table Match | Red Ball | Blue Ball |
|---|---|---|
| Red Guess | 100 | 0 |
| Blue Guess | 0 | 100 |

Table **Red**, with probability **xx%**

| Table Red | Red Ball | Blue Ball |
|---|---|---|
| Red Guess | 100 | 100 |
| Blue Guess | 0 | 0 |

### Receiver's Points

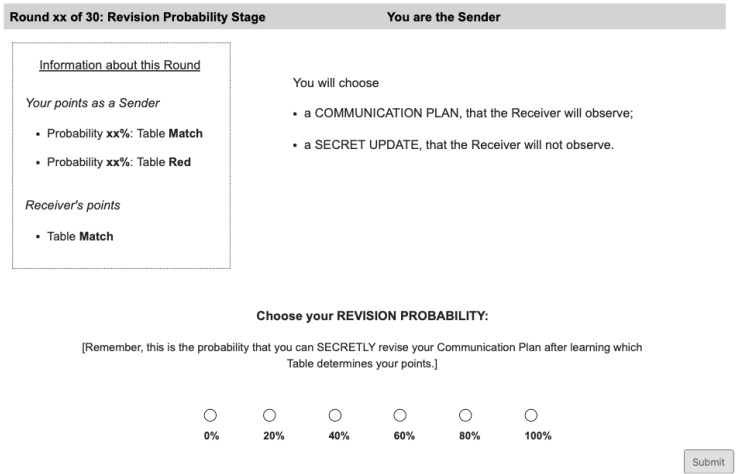
In all rounds, the Receiver's points will be determined by:

Table **Match**, with probability **100%**

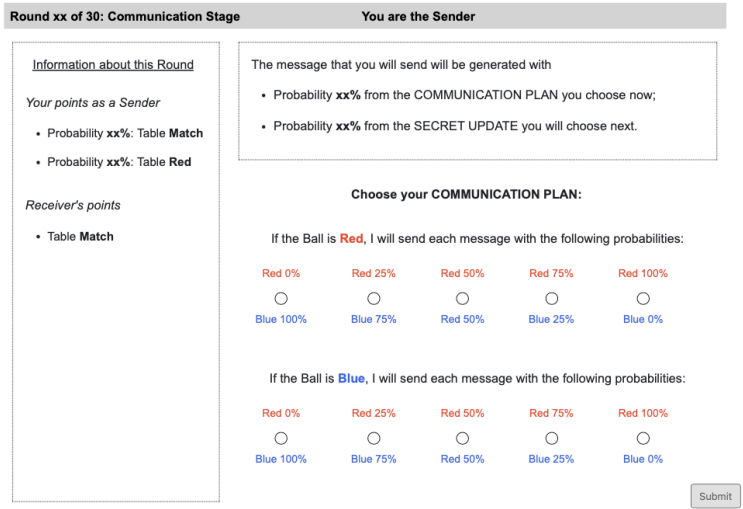
| Table Match | Red Ball | Blue Ball |
|---|---|---|
| Red Guess | 100 | 0 |
| Blue Guess | 0 | 100 |

Next

# SENDER'S CHOICE (1): COMMITMENT



# SENDER'S CHOICE (2): COMMUNICATION PLAN



# SENDER'S CHOICE (3): SECRET UPDATE

**Round xx of 30: Revision Stage** | **You are the Sender**

Information about this Round

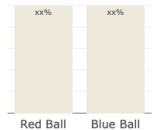
*Your points as a Sender*

- Table **xx**

*Receiver's points*

- Table **Match**

This is your previously chosen COMMUNICATION PLAN:




The message that you will send will be generated with

- Probability **xx%** from the previously chosen COMMUNICATION PLAN;
- Probability **xx%** from the SECRET UPDATE you choose now.

**Choose your SECRET UPDATE:**

If the Ball is **Red**, I will send each message with the following probabilities:

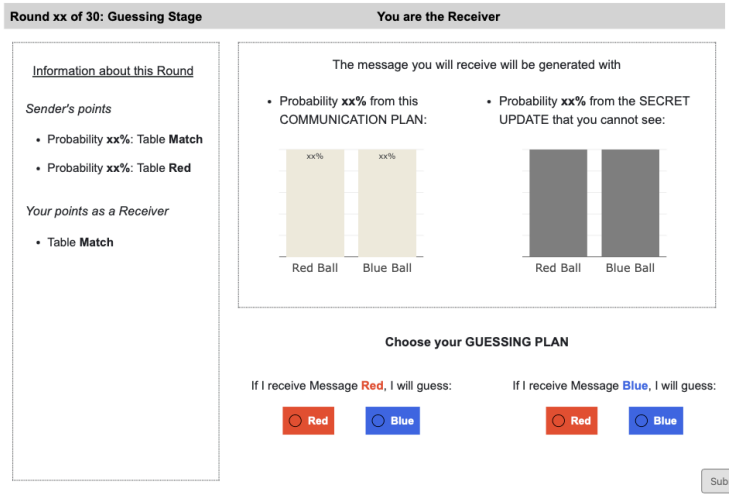
| Red 0% | Red 25% | Red 50% | Red 75% | Red 100% |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |
| Blue 100% | Blue 75% | Red 50% | Blue 25% | Blue 0% |

If the Ball is **Blue**, I will send each message with the following probabilities:

| Red 0% | Red 25% | Red 50% | Red 75% | Red 100% |
|---|---|---|---|---|
| ○ | ○ | ○ | ○ | ○ |
| Blue 100% | Blue 75% | Red 50% | Blue 25% | Blue 0% |

Submit

# RECEIVER'S CHOICE: GUESSING PLAN

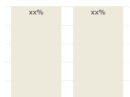


# SENDER'S FEEDBACK

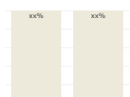
**Round xx of 30: Summary** **You are the Sender**

| Table Match Probability | Sender's Table | Ball Color | Revision Probability | Message Origin | Message | Guess | Your Points |
|---|---|---|---|---|---|---|---|
| xx% | Table xx | xx | xx% | xx | xx | xx | xx |

You selected the following COMMUNICATION PLAN:




You selected the following SECRET UPDATE:




[The Receiver cannot see your SECRET UPDATE.]

The Receiver selected this GUESSING PLAN:

If I receive Message **Red**, I will guess:

◯ Red ◯ Blue

If I receive Message **Blue**, I will guess:

◯ Red ◯ Blue

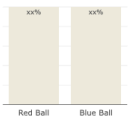
Next

# RECEIVER'S FEEDBACK

**Round xx of 30: Summary** **You are the Receiver**

| Table Match Probability | Sender's Table | Ball Color | Revision Probability | Message Origin | Message | Guess | Your Points |
|---|---|---|---|---|---|---|---|
| xx% | Table xx | xx | xx% | xx | xx | xx | xx |

The Sender selected the following COMMUNICATION PLAN:




The Sender selected a SECRET UPDATE that you cannot see:


You selected this GUESSING PLAN:

If I receive Message **Red**, I will guess:

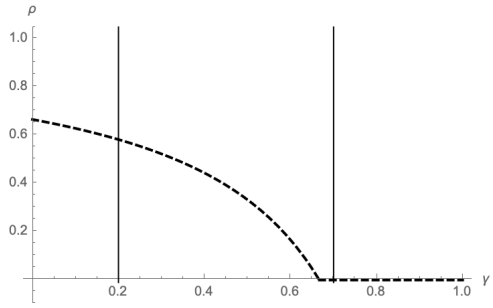
○ Red ○ Blue

If I receive Message **Blue**, I will guess:

○ Red ○ Blue

Next

- When $\gamma = 20\%$, $\rho = 60\%$; when $\gamma = 70\%$, $\rho = 0\%$




- The sender commits to *truthfully revealing the state*
- Revision when *preferences are unaligned and* $\theta = L$: $m = m_H$
- Receiver always "believes" sender's message

# SENDERS' RESULTS

# ROAD MAP

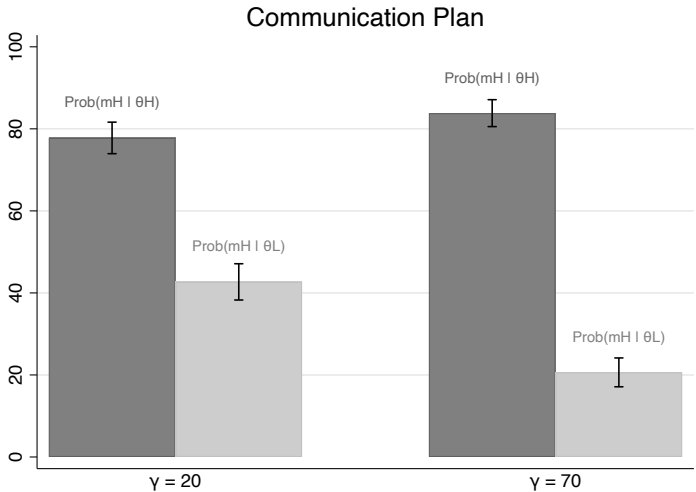
1. Sender's Choice (2): Communication Plan
2. Sender's Choice (3): Secret Update

   $\rightarrow$ Incentives broadly in line with the theory

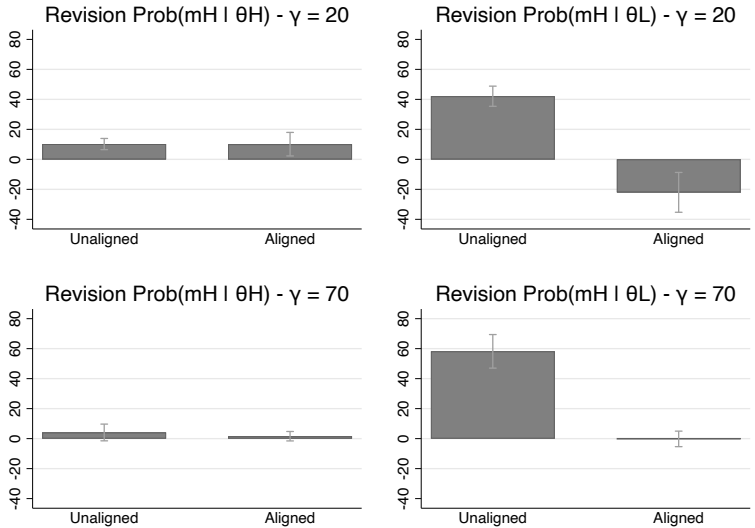
3. Sender's Choice (1): Commitment

   $\rightarrow$ Important deviations from the theory

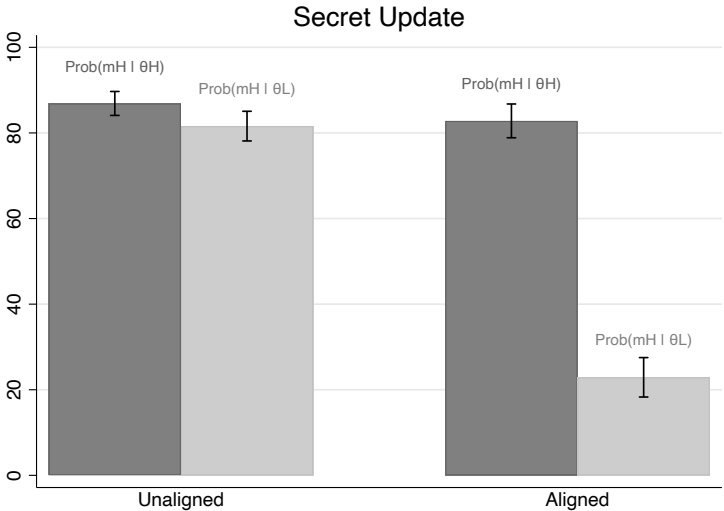
# SENDER'S CHOICE (2): COMMUNICATION PLAN



# SENDER'S CHOICE (3): SECRET UPDATE



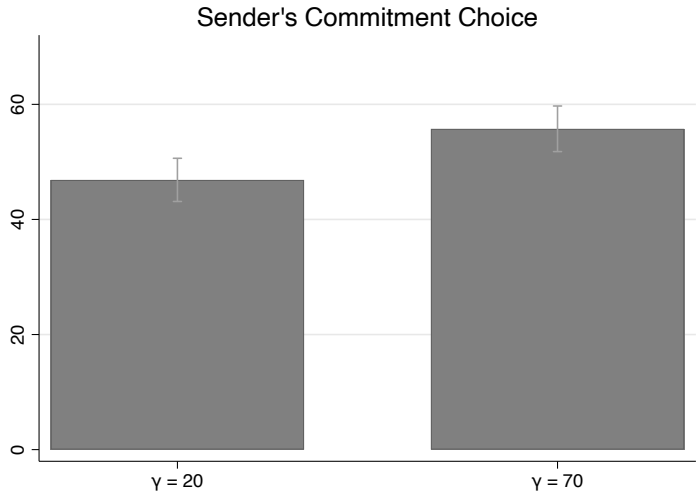
# SENDER'S CHOICE (3): SECRET UPDATE



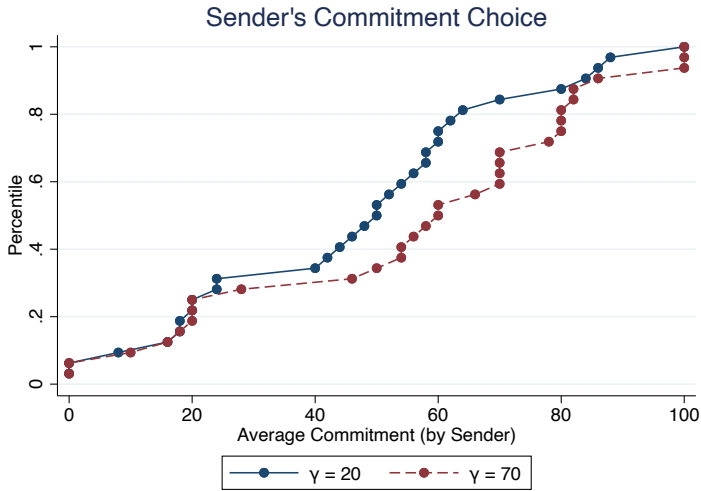
**Result 1.** Senders' disclosure choices are *qualitatively* consistent with the theoretical predictions

- Main deviation: communication plan less informative than predicted
- Consistent with previous experimental evidence

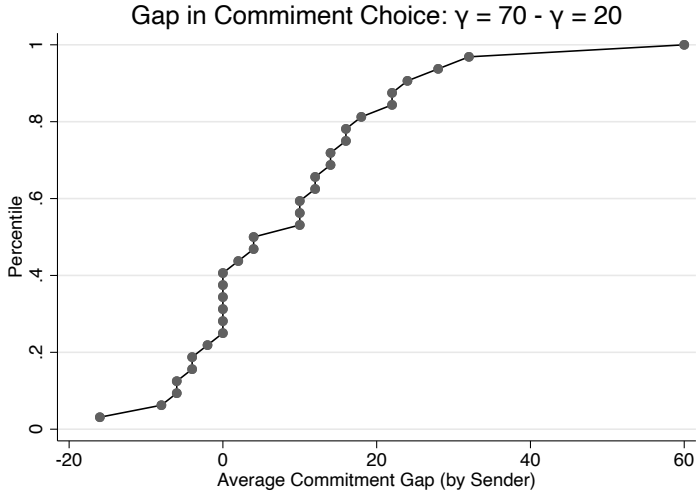
# SENDER'S CHOICE (1): COMMITMENT (AGGREGATE)



# SENDER'S CHOICE (1): COMMITMENT (SUBJECT)



# SENDER'S CHOICE (1): COMMITMENT (SUBJECT)

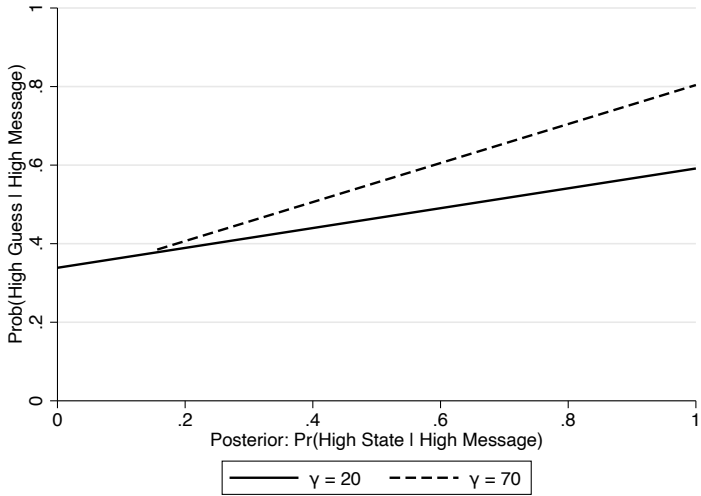


**Result 2.** Senders' commitment choices are not consistent with the theoretical predictions

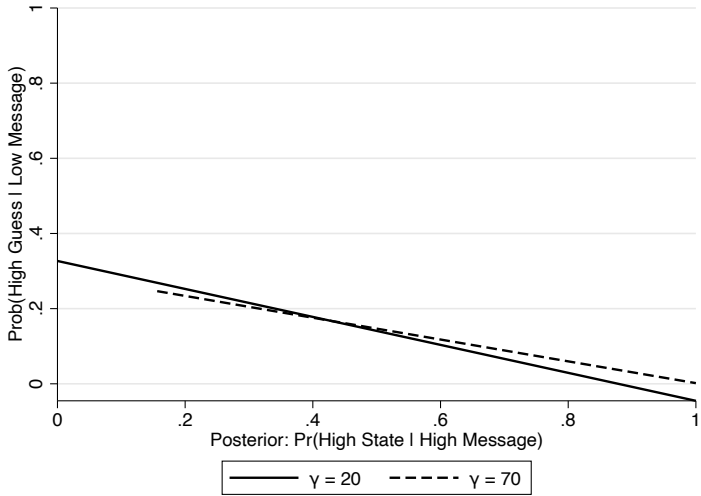
- Senders *under-commit* when commitment is predicted to be valuable
- Senders *over-commit* when commitment is predicted to have negative value

# RECEIVERS' RESULTS

# PROBABILITY OF HIGH GUESS | HIGH MESSAGE



# PROBABILITY OF HIGH GUESS | LOW MESSAGE



# PROBABILITY OF HIGH GUESS | HIGH MESSAGE: ALL

| | Guess \| High Message |
|---|---|
| Posterior | 0.522* |
| | (0.293) |
| Posterior $\geq 0.5$ | -0.104 |
| | (0.076) |
| Commitment | -0.008 |
| | (0.041) |
| High Alignment | 0.055* |
| | (0.029) |
| High Alignment $\times$ Commitment | 0.113** |
| | (0.052) |
| Constant | 0.259* |
| | (0.140) |

# PROBABILITY OF HIGH GUESS | HIGH MESSAGE: $\gamma = 20$

| | Guess \| High Message |
|---|---|
| Posterior | 0.750*** |
| | (0.113) |
| Posterior $\geq 0.5$ | -0.191** |
| | (0.080) |
| Commitment | -0.026 |
| | (0.046) |
| Constant | 0.199** |
| | (0.083) |

# PROBABILITY OF HIGH GUESS | HIGH MESSAGE: $\gamma = 70$

| | Guess \| High Message |
|---|---|
| Posterior | 0.316 |
| | (0.346) |
| Posterior $\geq 0.5$ | 0.012 |
| | (0.124) |
| Commitment | 0.231*** |
| | 0.082) |
| Constant | 0.286* |
| | (0.156) |

Other Specifications

**Result 3.** The choice of commitment may directly affect the behavior of the receiver, even if the theory predicts it should not

- When the alignment is low, receivers tend to react to changes in the posterior induced by the sender
- When the alignment is high, receivers tend to react to changes in senders' commitment power

# CONCLUSION

This paper studies the *strategic choice commitment* in communication

## CONCLUSION

This paper studies the *strategic choice commitment* in communication

Key prediction: *The sender's optimal level of commitment decreases as the ex-ante preference alignment with the receiver increases*

# CONCLUSION

This paper studies the *strategic choice commitment* in communication

Key prediction: *The sender's optimal level of commitment decreases as the ex-ante preference alignment with the receiver increases*

- In the data, senders choose more commitment when alignment grows

This paper studies the *strategic choice commitment* in communication

Key prediction: *The sender's optimal level of commitment decreases as the ex-ante preference alignment with the receiver increases*

- In the data, senders choose more commitment when alignment grows
- When preferences are more aligned, receivers are more likely to choose the high guess when commitment is higher

This paper studies the *strategic choice commitment* in communication

Key prediction: *The sender's optimal level of commitment decreases as the ex-ante preference alignment with the receiver increases*

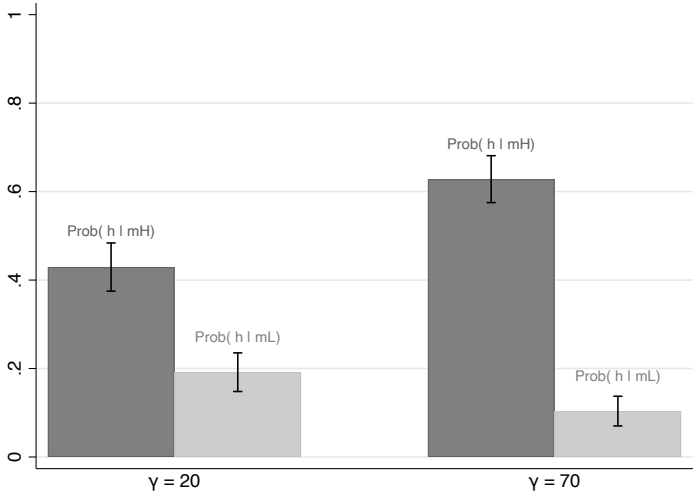
- In the data, senders choose more commitment when alignment grows
- When preferences are more aligned, receivers are more likely to choose the high guess when commitment is higher

  $\rightarrow$ This can partially explain why senders deviate from the theory

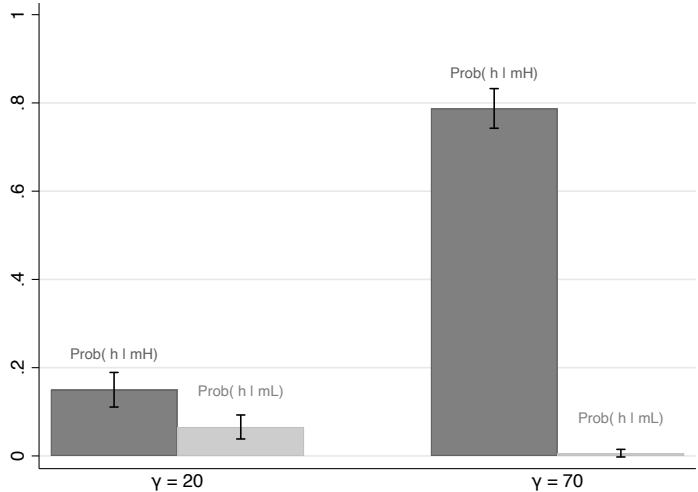
# THANK YOU!

# APPENDIX

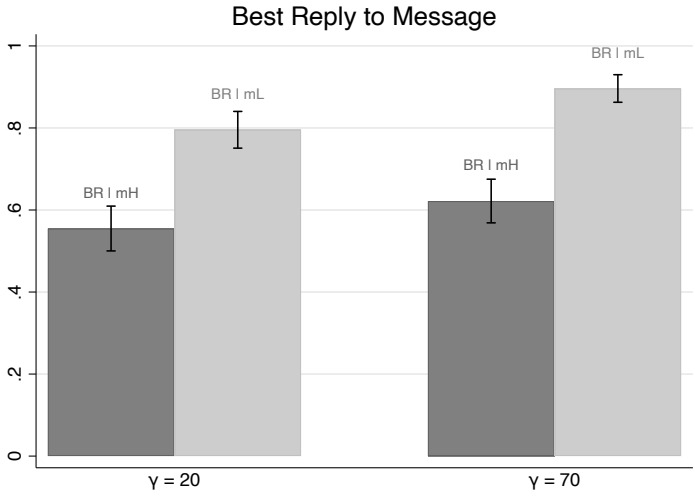
# RECEIVERS' GUESSES



# RECEIVERS' OPTIMAL GUESSES

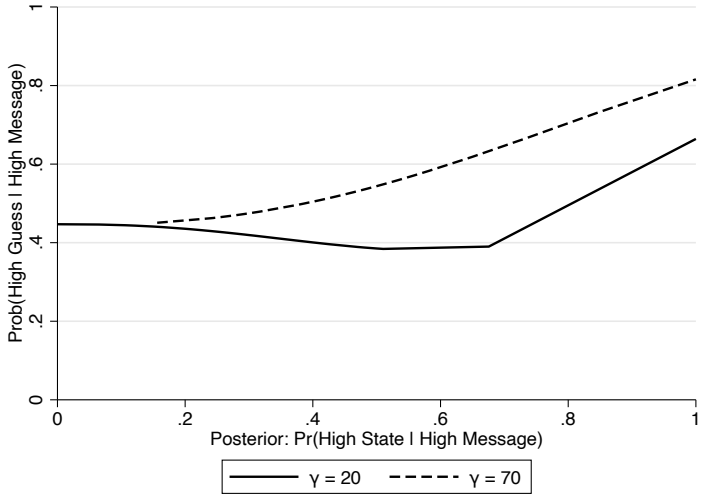


# RECEIVERS' SHARE OF BEST REPLY



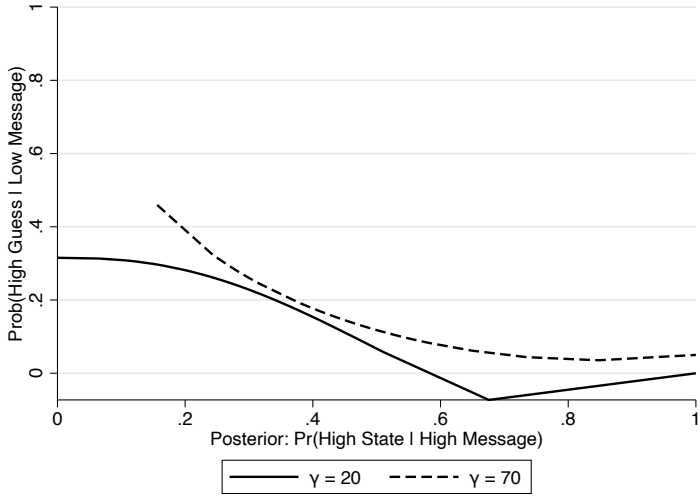

Back

# PROBABILITY OF HIGH GUESS | HIGH MESSAGE (NON LINEAR)




Back

# PROBABILITY OF HIGH GUESS | LOW MESSAGE (NON LINEAR)




Back

# PROBABILITY OF HIGH GUESS | HIGH MESSAGE: ALL

| | Guess \| High Message |
|---|---|
| Posterior | 0.374* |
| | (0.200) |
| Commitment | -0.020 |
| | (0.038) |
| High Alignment | -0.001 |
| | (0.066) |
| High Alignment × Commitment | 0.172*** |
| | (0.033) |
| Constant | 0.303*** |
| | (0.114) |

# PROBABILITY OF HIGH GUESS | HIGH MESSAGE: $\gamma = 20$

| | Guess \| High Message |
|---|---|
| Posterior | 0.487*** |
| | (0.111) |
| Commitment | -0.047 |
| | (0.053) |
| Constant | 0.275*** |
| | (0.090) |

# PROBABILITY OF HIGH GUESS | HIGH MESSAGE: $\gamma = 70$

| | Guess \| High Message |
|---|---|
| Posterior | 0.333* |
| | (0.193) |
| Commitment | 0.225*** |
| | (0.041) |
| Constant | 0.287* |
| | (0.166) |

Back

# PROBABILITY OF HIGH GUESS | HIGH MESSAGE: ALL

| | Guess \| High Message |
|---|---|
| Posterior $\geq 0.5$ | 0.080 |
| | (0.051) |
| Commitment | 0.014 |
| | (0.055) |
| High Alignment | 0.001 |
| | (0.070) |
| High Alignment $\times$ Commitment | 0.263*** |
| | (0.078) |
| Constant | 0.410*** |
| | (0.063) |

# PROBABILITY OF HIGH GUESS | HIGH MESSAGE: $\gamma = 20$

| | Guess \| High Message |
|---|---|
| Posterior $\geq 0.5$ | 0.115 |
| | (0.084) |
| Commitment | -0.001 |
| | (0.057) |
| Constant | 0.412*** |
| | (0.066) |

# PROBABILITY OF HIGH GUESS | HIGH MESSAGE: $\gamma = 70$

| | Guess \| High Message |
|---|---|
| Posterior $\geq 0.5$ | 0.112** |
| | (0.050) |
| Commitment | 0.336*** |
| | (0.097) |
| Constant | 0.353*** |
| | (0.108) |

Back