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The myth of the male negotiator: Gender's effect on negotiation strategies and outcomes☆

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ABSTRACT

Conventional wisdom holds that women are worse negotiators than men. However, in an incentivized negotiation with explicit verbal communication, we find that women perform equally well compared to men, contrary to a control game without communication where men perform better. This is driven by men's underperformance against male partners, and more specifically when they *know* their partner is male. Using chat transcripts to classify the negotiation approaches used, we show that men over-use aggressive negotiation strategies against known male partners, increasing mis-match and reducing their payoffs. Due to this, male-male pairs capture significantly less value than any other pair type. In contrast, female negotiators create joint gains without reducing their individual payoffs. Our findings suggest that verbal communication may trigger "toxic masculinity" that undoes men's advantage in one-shot non-communication games.

1. Introduction

Conventional wisdom holds that men outperform women in negotiations. However, this popular tale has surprisingly little empirical support. We know that women negotiate *less* than men (Leibbrandt and List, 2015; Small et al., 2007; Exley et al., 2020). We also know that outside observers rate their performance worse (Bowles et al., 2007; Tinsley et al., 2009; Bowles, 2013; Bowles and Babcock, 2013; Amanatullah and Tinsley, 2013). But do they actually get less at the negotiating table?

The literature on coordination games and communication is rich (see Brandts et al., 2019 and Cooper and Weber, 2020 for recent reviews), but literature on the interaction between gender and communication in incentivized settings is more limited. Much evidence for the gender gap in negotiation performance actually comes from either one-shot bargaining games (i.e., ultimatum or dictator games) that explicitly do not have a communication feature (Eckel and Grossman, 2001; Solnick, 2001; Sutter et al., 2009; Ridgon, 2012; Demiral and Mollerstrom, 2017; Eckel et al., 2008; Park et al., 2021) or alternating bargaining with numeric offers only (Dittrich et al., 2014; Andersen et al., 2018; Hernandez-Arenaz and Iriberri, 2016;

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2018).[2] Real world negotiations, by contrast, rarely occur in a setting without verbal communication, and in particular, flexible communication, which has been shown to play a unique role (Wang and Houser, 2019; Brandts et al., 2019). The scant evidence that does focus on incentivized verbal bargaining shows that gender gaps may be either absent on average, as in Exley et al. (2020), or contextually variable, as in Andersen et al. (2018).

In this paper, we fill the gap in the literature on how gender and partner gender impacts negotiations through an incentivized verbal negotiation where we vary whether partner gender is known. We might expect that the presence of verbal communication would exacerbate the differences found in the no-communication bargaining literature, since men might exploit women's gender to target them with more aggressive communication strategies, mirroring the finding in non-communication games where men play more "hawkishly" toward female partners, anticipating a more "dovish" response (Eckel and Grossman, 2001; Holm, 2000; Ben-Ner et al., 2004; Houser and Schunk, 2009).[3] What we find is precisely the opposite: the presence of verbal communication appears to "undo" men's advantage in the control game, where we replicate the literature's findings.

The negotiation we implement involves participants bargaining via computer chat over $20. The money can be split with $15 for one party and $5 for the other, or vice versa, but if no agreement is reached both participants receive $0. Thus, in this negotiation there is scope for both value creation, by ensuring an agreement is made, and distributive bargaining, in deciding how that agreement should split the pie. The negotiation game was designed such that the payoffs mirror a Battle of the Sexes game, thus we can also implement a control game that aligns with existing literature on the role of gender information.

In the control version, men perform better than women on average, in line with one-shot bargaining literature without communication. But, the presence of verbal communication more than reverses this advantage, resulting in statistically equal payoffs in the negotiation game. Moreover, male-male pairs significantly under-perform when communication is introduced. Men playing with male partners do worse than any other pairing, including women playing with male partners, who outearn men with male partners by about a dollar per negotiation. Thus, if you knew you were facing a male opponent, you would be better off sending a female negotiator.

Male-male pairs mismatch at an astounding 244% the rate of male-female pairs and 275% the rate of female-female pairs (in the treatment with gender information), leading them to underperform all other pair types. Having at least one woman in the negotiation improves negotiation efficiency (the percent of the possible joint payoff captured) by 17%.

This is particularly striking since it is established in the literature that coordination games tend to favor the higher status party (De Kwaadsteniet and Van Dijk, 2010; Cooper and Weber, 2020), which we observe in the control game when gender is known. But, in the negotiation game, women are able to disrupt this dynamic that should favor men, and achieve equal or, if anything, higher payoffs.

By varying whether partner gender is known (via a partner information sheet), we can determine that this is driven by men's contrasting approaches with and without communication when they know their partner's gender. Without verbal communication, men use gender information to optimally tailor their strategy, in line with the literature, behaving more "hawkishly" toward women and more "dovishly" toward other men. In the negotiation game, however, men appear to amp *up* aggressiveness against other men, choosing $15 more frequently.

By analyzing the natural language data created by the negotiation chat transcripts, we can show this contrasting approach is also apparent in the choice of negotiation strategy. We find that with gender information, men choose a starkly more aggressive negotiation style toward men than women, issuing ultimatums 121% more frequently to (known) male partners than to female partners. This is likely a contributor to the higher rates of mismatch, leading male-male pairs significantly underperforming all other pair types, taking home more than a dollar less in the negotiation on average. A more measured negotiation strategy will result in the lower payoff if one fails to secure $15, but still some monetary gain. A failed ultimatum, on the other hand, may result in a game of chicken where neither party swerves, resulting in $0.

As this behavior only appears when men *know* they are facing other men, it appears behavioral, rather than payoff maximizing. In fact, the negotiation outcomes indicate that men's use of aggressive and yielding strategies are mis-paired with whom they are most effective against. The use of ultimatums, used much more with men, reduces payoffs against male, but not female, partners. Similarly, a friendly approach, used far more frequently against women, increases payoffs against male, but not female partners.

The apparent sub-optimality of these strategies suggests men may derive some social or other non-pecuniary benefit from using aggressive communication against men—a manifestation of "toxic masculinity." One possibility is that the setting of negotiating against other men directly triggers men's preferences for competition, and tendency to "over-compete" as

[2] There is evidence from other fields that examines performance in scenarios with no monetary incentives, such as classroom negotiation exercises (Bowles et al., 2005; Kray et al., 2002; 2001; Walters et al., 1998; Stuhlmacher and Walters, 1999; Mazei et al., 2015). Field negotiations such as Castillo et al. (2013) and Busse et al. (2017) use pre-designated bargaining scripts.

[3] Moreover, the fact that women have been shown to be more generous, community-minded, and inequality-averse in experimental games (Bolton and Katok, 1995; Eckel and Grossman, 1998; Andreoni and Vesterlund, 2001; Heinz et al., 2012; Croson and Gneezy, 2009a) provides further evidence that targeting them with more hawkish behavior could pay off.

Table 1
Experimental Game Payoff Matrix.

		Player 2	
		A	B
Player 1	A	(15, 5)	(0,0)
	B	(0, 0)	(5, 15)

in Niederle and Vesterlund (2007).[4] Such behavior could be evolutionary, aligning with the need to compete to reproduce (e.g., the evolution of over-sized antlers in bull elk Frank, 2011). However, behavior from a winner-take-all setting may be maladaptive in a setting with a range of monetary payoffs, and thus men could be financially worse off in settings that activate these instincts.

Our experiment thus shows that situations with communication may be fundamentally different than games with no interaction. This finding highlights that gendered results from one-shot and alternating bargaining games without communication may be limited in their external validity as "negotiation" experiments, since most negotiations involve at least some communication. Our findings *with* verbal communication show men unable to tamp down on instincts to compete aggressively against other men, resulting in more failed negotiations and lower payoffs. Further research should continue to examine whether the myth of the great male negotiator is empirically supported in incentivized games with explicit verbal communication.

The remainder of the paper proceeds as follows: Section 2 presents the experimental design, Section 3 describes our results, and Section 4 concludes.

2. Experimental design

Our experiment investigates the role of gender in negotiations using an incentive compatible negotiation game with a neutral frame.[5] Our design embeds Battle of the Sexes payoffs in a game with and without a negotiation setting with explicit verbal communication. Participants are matched in pairs in a given round and negotiate how to divide $20. At the conclusion of the negotiation, each participant can choose either $15 for themselves or $5 for themselves. If they agree, meaning one chooses $15 while one chooses $5, the split is implemented and participants receive their respective shares as earnings. If they fail to agree, that is, both choose $15 or $5, then they both get $0. Notice, these payoffs mirror those from a standard Battle of the Sexes game (Table 1).

In the negotiation game, partners were allowed to communicate via unstructured chat for two and a half minutes.[6] After the expiration of the chat period, participants simultaneously made their choices without further communication. All participants also played a control game without communication, where participants play the same game but simply make their choices simultaneously. This allows us to separately identify the effect of verbal communication and compare it to outcomes in one-shot bargaining literature.

We randomized whether participants were informed or not of their partner's gender at the session level. To inform participants of their partner's gender without making it overly salient, *all* negotiating pairs were shown a partner information sheet with five plausibly relevant, but actually substantively meaningless, partner characteristics prior to making their choices.[7] In the "informed" condition, an additional line containing their partner's gender was simply inserted as the first characteristic (see Appendix C Figure C2).

In total, we have four conditions (shown in Table 2): (1) an informed negotiation game, (2) an uninformed negotiation game, (3) an informed control (non-communication) game, and (4) an uninformed control (non-communication) game.[8]

The informed negotiation game can be thought of as the closest stand-in for real negotiations, since, in practice, individuals rarely negotiate without actual communication or are able to hide their gender. While the control game serves as a baseline on behavior that mirrors the literature, the uninformed negotiation game serves to isolate the role of gender information in creating the dynamics observed.

In the control game, there are two pure strategy equilibria of ($15, $5) or ($5, $15). There is also a mixed strategy equilibrium, where each participant chooses $15 for themselves 75% of the time, leading to an expected payoff of $3.75, which is a lower payoff than one would achieve choosing randomly. Like a typical negotiation, payoffs in our game are set up such that both participants prefer an agreement to their outside option of $0, but there is disagreement over whom the

[4] Additional evidence that men may value certain types of communication differently comes from evidence on gender differences in willingness to self promote (Mancuso et al., 2017; Exley and Kessler, 2019a). There is also evidence on women's more conciliatory style in persisting in a negotiation (Bowles and Flynn, 2010).

[5] The experiment was conducted using z-Tree (Fischbacher, 2007).

[6] They were instructed not to share identifiable information, and that doing so may jeopardize their participation in future Wharton Behavioral Lab studies. We did not observe instances of participants sharing identifiable information, such as gender in non-gender revealed rounds.

[7] The five characteristics revealed in the partner information sheet were: if their partner (1) is left- or right-handed; (2) is an only child; (3) their month of birth; (4) could roll their tongue; and (5) had hitchhiker thumbs. Appendix Table A1 show these characteristics are not different for men and women.

[8] Also see Appendix C for experimental sequence.

Table 2
Experimental Treatments.

		Gender Info (Between-Subject)	
		No ($N = 110$)	Yes ($N = 122$)
Communication (Within-Subject)	No (4 rounds)	Uninformed Control (51 MM, 51 FF, 118 MF Pairs)	Informed Control (56 MM, 56 FF, 132 MF Pairs)
	Yes (4 rounds)	Uninformed Negotiation (51 MM, 51 FF, 118 MF Pairs)	Informed Negotiation (50 MM, 50 FF, 144 MF Pairs)

agreement favors (that is, who will choose $15 for themselves). As there is no theoretical prediction for which one of the pure strategy equilibria will be selected, there is scope for the ultimate outcome to depend on the effectiveness of each party's communication.

2.1. Experimental procedure

A total of 232 subjects participated in the experiment, with equal gender split. 122 subjects participated in the informed condition and 110 in the uninformed condition, across 21 lab sessions, yielding over 1800 observations.[9] The "informed" condition was varied at the session level so instructions could be read out loud. Subjects in the informed and uninformed conditions are balanced on all characteristics with the exception of being a US citizen.[10]

An additional 12 sessions ran from November 14–16, 2016, following the United States Presidential election and Donal Trump's victory. Results from those sessions have been excluded from this analysis because the data showed sharp aberrations from the typical gameplay we had been observing, indicating a charged context that would confound the study of gender. Huang and Low (2017) examines the differences between the post and pre-election period, and demonstrates a marked increase in hostility toward women during the post-election period. In Appendix B we repeat our main analysis including the post-election period and show that results are robust to including these 12 sessions.

In each session, subjects played a total of eight rounds with their partner randomly assigned in each round. First, subjects answer a pre-survey to populate the partner information sheet. Then participants played four rounds of the control game, followed by four rounds of the negotiation game, thus the subject pool in both games is identical. No information about the outcomes of each round was revealed until the end.[11] Between each round, participants were re-matched at random, with replacement. Figure C1 shows the timeline of the experiment. After all eight rounds, subjects also answered a post-survey, then one round is randomly selected and subjects received their earnings from that round (in addition to a show-up fee). Average earnings were over $17 including a show up fee of $10 upon completion of the study.

The experimental design contains features to limit the effect of learning on game outcomes. First, partner actions, matching outcomes, and payoffs are not revealed until the end of the game. We position the control game first since participants cannot learn any information about partner behavior or matching likelihood through this game without outcome revelation: they simply make their own choice, and then play the next game. Although hypothetically the control game could help familiarize them with the game structure and payoffs, we minimize this impact by having participants play two practice rounds against a computer to gain experience with the payoff structure prior to the actual game. Participants were told that they would be re-matched with a random partner in each round. Although matching occurred with replacement, they had no way of knowing if they would be matched with the same partner again, or able to recognize if they were, and thus there could be no certainty of reciprocity. We control for game round in all regressions with controls. Finally, comparing different individuals or pair types that are exposed to the same game order further limits the impact of possible order effects.

2.2. Qualitative coding

The 464 negotiation conversations from the experiment provide a rich dataset to understand specific communication strategies and styles used. To analyze the negotiation transcripts, we used 310 Amazon Mechanical Turk (MTurk) workers

[9] Participants are students from the University of Pennsylvania across a wide range of disciplines. Sessions took place at the Wharton Behavioral Lab in October 2016. We restricted only an equal number of women and men to play the game, in order to have sufficient observations for male-female pairs. If there were additional women or men in the session, these extra subjects were diverted to a separate game, and excluded from our sample. The WBL subject pool skews female, and thus these exclusions were entirely female (and randomly selected). We exclude data from three sessions that had only one male participant.

[10] See Appendix Table A2. Our results are robust to controlling for a number of individual controls, including being a US citizen, and session controls.

[11] In addition, participants played two rounds of an alternate game following the conclusion of the experiment. These "add-on" rounds were a pilot for a different study and are not analyzed in this paper. Since all "add-on" rounds were played after the control and negotiation game, they should have no effect on the actions in the rounds we analyze.

Table 3
Summary of Communication Measures in Negotiation Game.

Strategy	Definition	Percent Using	
		Mean	SD
Ultimatum	This is when a person starts the conversation (not including saying "hi" or other pleasantries) stating that they will pick $15 for themselves regardless of what the other person is choosing. They have set their mind to this outcome and will not change.	14.87	9.49
Friendly	This is when the person tries to be friendly and build a relationship with the other person in order to gain their trust. We provided each person some information about the other person (e.g., birthday month, can they roll their tongue, do they have hitchhiker thumbs, etc) - many times, the person will comment on one of these traits.	54.68	38.72
Ultimatum: Announced First	This is the first person who used an ultimatum strategy.	7.89	7.67
Tough Talker	This is when a person is a tough negotiator and fights for the $15. They are trying hard to convince the other person to take the $5. They will use a strong tone and may seem pushy or mean.	11.85	11.80
Ask $15	This is when a person asks the other person if they can take the $15 at any point in the conversation.	18.65	14.36
Leading Concession	This is when a person starts the conversation (not including saying hi or other pleasantries) by offering the $15 to the other person or stating that they will take $5.	17.39	14.61
Offers $15	This is when a person offers $15 to the other person or offers to pick the $5 at any point in the conversation. (Note: someone offering $15 may also be doing a leading concession.)	27.89	15.93
Gave In	This is when the person gives in to the other person's ask or demands after there is an initial negotiation or back-and-forth.	21.23	21.04
Started Negotiation	This is the person that starts the negotiations on how to split the money, not including saying hi or other pleasantries.	36.27	32.28
Used the Word Fair	This is when the person mentions anything about trying to make a fair split.	4.12	5.33
Mentioned Previous Choices	This is when the person mentions what they previously chose. Individuals had to negotiate with multiple people, so sometimes they will mention what their previous choice was.	32.49	15.12
Random Game	This is the person that introduces a random game such as playing rock/paper/scissor (rps), guessing a number, using trivia questions, using birthday dates, or other similar games to choose who picks $15 for themselves.	8.63	5.74
Alternating Strategy	This is when the person claims to be alternating between 5 and 15 and that this is their strategy.	12.98	13.40
Sad Story	This is a person that uses their current (unfortunate) situation to gain sympathy from the other person and tries to get the $15.	7.46	7.83
Happy Emojis	This is when a person uses any sort of happy emojis or smiley faces.	7.48	7.07
Sad Emojis	This is when a person uses any sort of sad or angry emojis.	2.61	3.87
Summary Measures	**Definition**	**Average Score**	
		Mean	SD
Aggressive Score	Normalized (from 1 to 100) friendly to aggressive score given to each participant by the MTurk worker: "On a scale from 1 to 7, where 1 is very friendly and 7 is very aggressive, please rate how friendly or aggressive you think *this person* was overall.	24.20	15.24
Reached Agreement	Mturk worker's perception that the negotiation was successful. "Does it appear like they reached an agreement?".	84.39	6.76

Notes: Average and standard deviation for the rating of each negotiation strategy across all 464 negotiation strategies. On average, 5 MTurk workers rated each conversation for each measure blind of gender, treatment, and overall study objective.

to classify chat transcripts according to definitions we provided.[12] MTurk workers were blind to the gender of participants, whether participants were informed of their partner's gender, and the overall objective of the study.

Table 3 provides the definition of all communication measures coded, and the average rating provided by MTurkers. Each chat was rated by an average of 5.04 MTurkers.

All communications strategies (with the exception of *Aggressive Score*) are coded as binary variables indicating whether the negotiators in a given chat used each tactic. We use the average score given by the MTurk workers for each communication measure in each negotiation. Note that a subject can use multiple strategies in the same chat.[13] We find that less than 1% of negotiators did not use at least one of the pre-defined communication measures and on average negotiators used 2.8 different communication measures in a conversation.

Our key metric of aggressive negotiation strategy was the choice to issue an *ultimatum*. This is defined as one negotiating party intransigently insisting they are choosing $15, and refusing to entertain any discussion to the contrary.[14] If

[12] See Appendix D for the chat transcript coding protocol, and examples of each strategy.

[13] For example, one could be a *Friendly negotiator* and also used a sad story to gain sympathy from the other person or a negotiator could have started the negotiation with an ultimatum in which case *Ultimatum* and *leading ultimatum* would both be communication strategies used.

[14] Some participants described this trade-off explicitly to their partners, saying, "I'm choosing 15 no matter what. So if you want anything you only have one option." The definition of *ultimatum* provided to MTurk workers is as follows: using an *ultimatum* is "when a person starts the conversation (not

Table 4
Average Rate of Choosing $15, Agreement Rate and Payoff by Treatment and Gender-Pair.

	Panel A: Choosing $15			
	Control		Negotiation	
	No Info	Gender Info	No Info	Gender Info
Men playing men	0.75	0.67	0.59	0.61
Men playing women	0.68	0.76	0.54	0.53
Women playing men	0.67	0.52	0.54	0.54
Women playing women	0.63	0.71	0.58	0.54
	Panel B: Agreement Rate			
	Control		Negotiation	
	No Info	Gender Info	No Info	Gender Info
Men playing men	0.43	0.48	0.82	0.78
Men playing women	0.38	0.52	0.90	0.91
Women playing men	0.38	0.52	0.90	0.91
Women playing women	0.43	0.41	0.84	0.92
	Panel C: Payoff			
	Control		Negotiation	
	No Info	Gender Info	No Info	Gender Info
Men playing men	4.31	4.82	8.24	7.80
Men playing women	3.86	6.36	8.98	9.06
Women playing men	3.77	3.94	8.98	9.13
Women playing women	4.31	4.11	8.43	9.20

Notes: Summary of results for all treatments and gender pairings. Panel A presents the rates of choosing $15 for oneself, Panel B presents rate of "agreement" on either split at the pair-level, and Panel C presents the resulting payoffs.

credible, this makes the other party's best response to choose $5, or face mismatch and thus $0, essentially turning two-way communication into one-way communication.[15] Of course, ultimatums are not always effective. They can be met with countervailing "commitment" from the other partner, or may destroy goodwill in the negotiation and result in mismatch.

On the other side of the communication strategy spectrum are negotiators who choose a non-aggressive, or "friendly" approach. We defined being *friendly* as a negotiator who is trying to build up-front rapport, and acts friendly towards their negotiating partner.[16] A friendly negotiator aims to ingratiate themselves with their partner without automatically giving up and taking the lower payoff.

Additional strategies coded were used to examine mechanisms and test the robustness of our results. The usage rates by gender and partner gender of additional communication strategies can be found in Appendix Table A5.

3. Results

3.1. Summary of all games

Results are from 232 subjects — 122 in the informed condition and 110 in the uninformed condition, with equal gender distribution — yielding over 1800 individual-level observations. Table 4 shows a summary of results for all treatments and gender pairings. Panel A presents the rates of choosing $15 for oneself, Panel B presents rates of "agreement" on either split at the pair-level, and Panel C presents the resulting payoffs.[17]

Figure 1 summarizes the payoffs in all treatments by treatment and gender-pair type. The payoff split between male and female partners is shown in mixed-gender pairs.

Our results without communication replicate the one-shot game literature where gender information acts as a focal point, increasing coordination and joint payoff, but primarily benefiting men (e.g., Holm, 2000). In the control game without com-

including saying 'hi' or other pleasantries) stating that they will pick $15 for themselves regardless of what the other person is choosing. They have set their mind to this outcome and will not change." Also see Appendix D.

[15] Previous work on coordination games has shown that while one-way communication can be very effective, two-way communication can sometimes fail to resolve the issue, and becomes, in a sense, no communication. In the presence of one-way communication, if one side communicates their move, the other side has a clear best response to choose the coordinating move. However, with two-way communication, a tussle can develop over who receives their preferred outcome (Cooper et al., 1989).

[16] The definition of *friendly negotiator* provided to MTurk workers is as follows: being a *Friendly Negotiator* is "when the person tries to be friendly and build a relationship with the other person in order to gain their trust. We provided each person some information about the other person (e.g., birthday month, can they roll their tongue, do they have hitchhiker thumbs, etc.), many times, the person will comment on one of these traits." Also see Appendix D.

[17] For a summary of results including all session see Table B1.

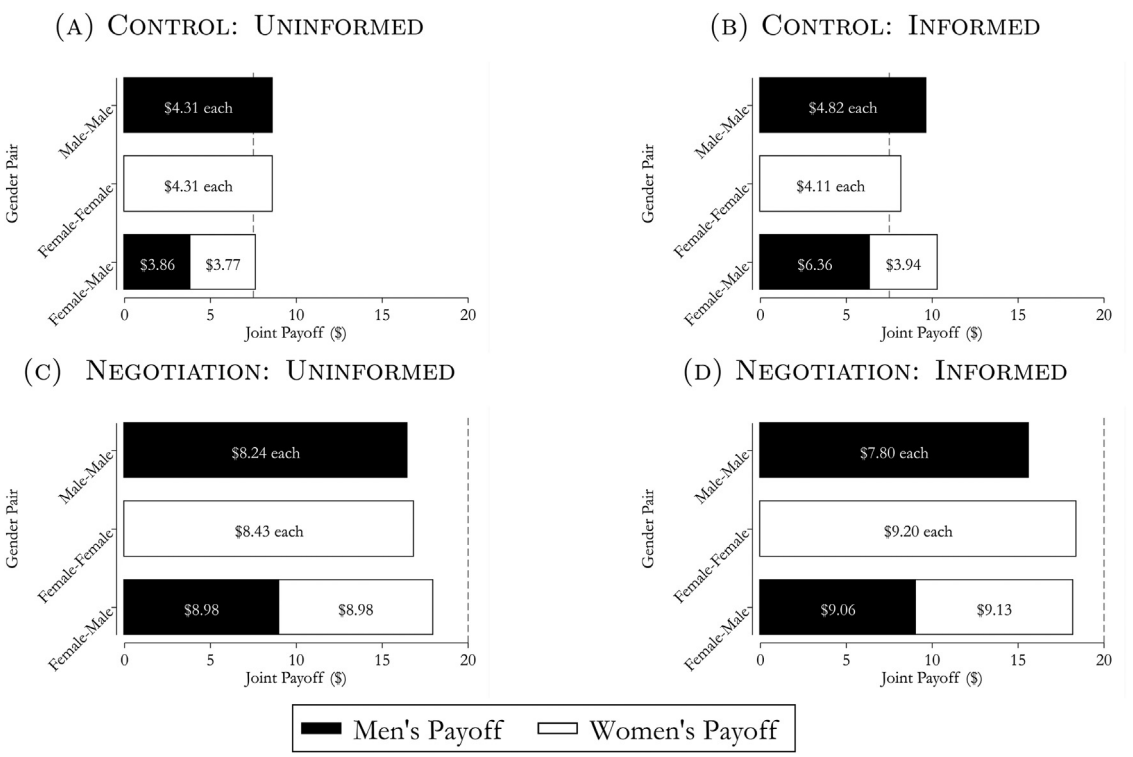

Fig. 1. Payoffs by Treatment and Gender-Pair Type.
Notes: Average joint payoff by treatment and gender-pair type. The payoff split between male and female partners is shown in mixed-gender pairs. Men's payoffs are presented in black and women's payoffs are presented in white. Panel A presents results from the uninformed control game, Panel B presents results for the informed control game, Panel C shows results from the uninformed negotiation game, and Panel D show the results from the informed negotiation game

munication, results are close to the mixed strategy equilibrium.[18] When informed about gender, men play more hawkishly against female partners, who also play more dovishly, which increases rates of agreement and payoff for these pairings. Men also gain slightly against male partners by reducing their rate of choosing $15.[19]

As expected, communication reduces rates of choosing $15, increases reaching an agreement, and increases joint payoffs regardless of gender information. Without gender information, there are no notable gender asymmetries in the communication arm. Men and women receive similar payoffs, and in mixed gender pairs, "split the pot" exactly equally. Introducing gender information in the negotiation game, by contrast to the control game, does not change the payoff allocation between male and female partners in mixed gender pairs. Figure 1 shows that while men have a significant advantage in male-female pairs with no communication (see Panel (B)), they have no advantage in the negotiation game (see Panel (D)). Moreover, when informed about gender, men playing men have notably lower agreement rates and lower payoffs than other pair types. These results create doubt as to the inherent superiority of male negotiators, since in this incentivized negotiation, women perform equally well. Appendix B replicates this Table and all main results including the sessions that took place following the 2016 presidential election, and finds our results unchanged.

3.2. Performance of male - male pairs in negotiation game

We now further examine the performance of male - male pairs in the negotiation game. Table 5 Panel A shows the payoffs by participant gender and partner gender for all negotiation rounds, both pooled and split into the uninformed and informed conditions. Looking at the pooled sample in columns (1) and (2), men do significantly worse when paired with male partners compared to all other gender pairs, taking home $0.96 less. This is true even relative to women with a male partner, who are the omitted category in columns (3) and (4). This means that if you knew you were sending a negotiator to face a male partner, you would be better off sending a female, versus male negotiator.

[18] The mixed strategy equilibrium is to choose $15 75% of the time, enough to eliminate the advantage to the other person of choosing $15 100% of the time, but ironically producing a smaller payoff than both choosing randomly.

[19] Figure A1 shows the frequency of reaching each possible outcome, $5, $15, or $0, by each gender and partner type.

Table 5
Performance of Gender-Pair Types in Negotiation (Negotiation Game Only).

	Panel A: Individual Payoff							
	All				Informed		Uninformed	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Men with male partner	-0.961**	-0.888*	-1.045*	-0.941*	-1.324**	-1.280**	-0.581	-0.577
	(0.451)	(0.453)	(0.540)	(0.544)	(0.633)	(0.644)	(0.642)	(0.666)
Men with female partner			-0.038	0.099				
			(0.500)	(0.511)				
Women with female partner			-0.253	-0.324				
			(0.476)	(0.474)				
Constant	8.981***	11.767***	9.065***	11.918***	9.124***	11.700***	8.817***	12.058***
	(0.205)	(1.859)	(0.347)	(1.907)	(0.268)	(2.345)	(0.316)	(3.399)
Pair Clusters	232	231	232	231	122	121	110	110
Controls		YES		YES		YES		YES
Observations	928	924	928	924	488	484	440	440
R-Squared	0.005	0.019	0.005	0.019	0.009	0.027	0.002	0.020
	Panel B: Joint Payoff							
	All				Informed		Uninformed	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Male-Male Pair	-1.922**	-2.134**	-2.052**	-2.350***	-2.647**	-3.478**	-1.163	-1.239
	(0.856)	(0.898)	(0.875)	(0.906)	(1.245)	(1.446)	(1.183)	(1.211)
Female-Female Pair			-0.468	-0.791				
			(0.742)	(0.741)				
Constant	17.961***	20.263***	18.092***	20.788***	18.247***	18.129***	17.633***	33.046***
	(0.318)	(4.063)	(0.364)	(4.072)	(0.408)	(4.745)	(0.499)	(9.739)
Pair Clusters	464	464	464	464	244	244	220	220
Controls		YES		YES		YES		YES
Observations	464	464	464	464	244	244	220	220
R-Squared	0.015	0.056	0.015	0.059	0.028	0.082	0.005	0.108

Notes: Columns (1) to (4) shows results using informed and uninformed negotiation game rounds; columns (5) and (6) use negotiation rounds in the informed treatment; columns (7) and (8) use negotiation rounds in the uninformed treatment. Panel A shows the payoff conditional on being a negotiation round where gender-pairs includes Men with male partner, men with female partner, women with female partner, and women with male partners (the comparison pair). Panel B shows the joint payoff by gender-pair type where gender-pairs include Male-Male pairs, Female-Female pairs, and mixed-gender pairs (the comparison pair). Robust standard errors clustered at the individual level are in parentheses. Odd columns shows results without controls, even columns shows regressions results with controls. Regression control variables are: session controls including day of the week, within day trend, and game round as well as individual controls include subject's age, being nonwhite, begin politically liberal, being a US citizen, being a native English speaker, employment status, and the number of sessions completed. Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

The under-performance of men with male partners is driven by the informed condition, where they take home $1.32 less than other gender pairs. These payoff differences are illustrated in Appendix Figure A2.[20]

These lower payoffs are driven by negotiation breakdown, or mismatch. Figure 2 shows that male-male partners receive zero in the negotiation game dramatically more often than other pair types in the informed condition, mismatching 2.5 times as frequently as other pair types.[21] In the uninformed condition, both male-male and female-female pairs are somewhat more likely to mismatch than mixed gender pairs.

These results are additionally supported by subjective ratings by MTurk workers, showing that men fail to reach a conclusive agreement in the negotiation transcript with known male partners at 296% the rate that they do against known female partners, shown in Appendix Table A5.

This means that not only do male negotiators destroy value for themselves, but they also decrease the social efficiency of negotiation, seen in the pair-level analysis in Table 5 Panel B. A male-male pair receives a payoff that is $1.92 lower than any other pair type across the pooled sample, and $2.65 lower in the informed condition. Another way to think about this is the value of adding a woman to the negotiation: adding at least one woman into the negotiation increases the joint expected payoff by 17%.

Importantly, the joint gains created by female negotiators do not come at a personal cost: female negotiators perform just as well as or slightly better than male negotiators on average, and significantly better when facing male partners.

[20] This table is repeated including the sessions that took place following the 2016 presidential election in Table B2, and the underperformance of male-male pairs is, if anything, stronger.

[21] Figure B1 shows rates of mismatch are even greater when including sessions following the 2016 presidential election, and a large gap remains between male - male pairs and other types, although mismatch among male - female pairs is somewhat elevated.

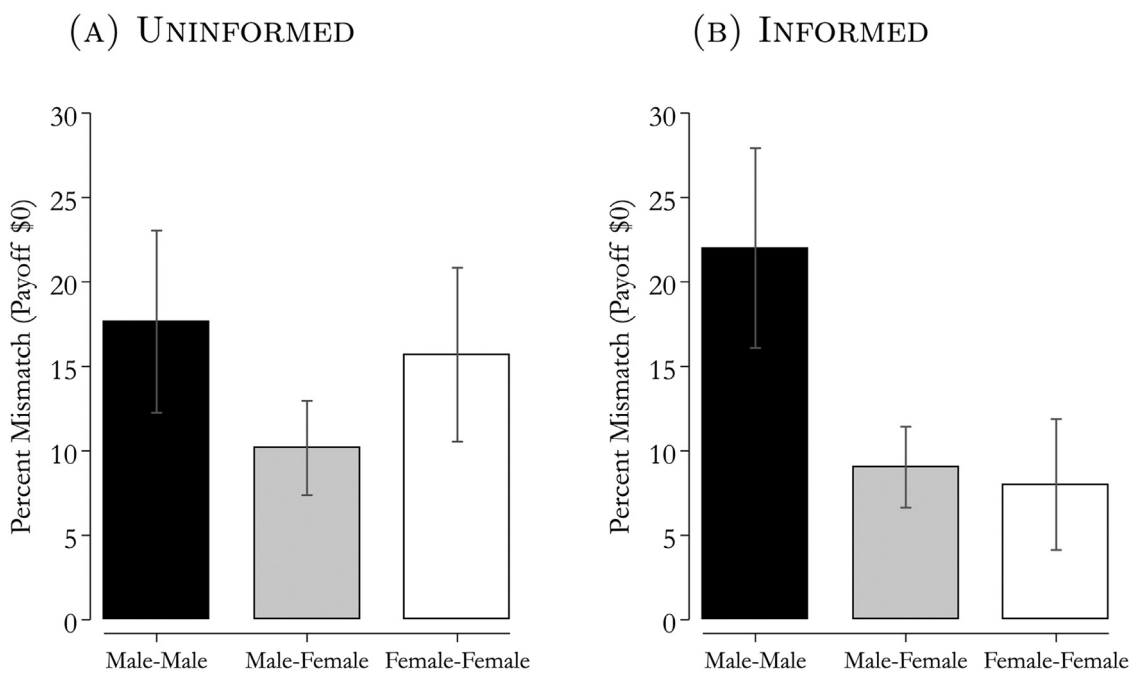

Fig. 2. Mismatch Frequency by Gender-Pair by Information Condition (Negotiation Game Only).
Notes: Frequency of mismatch (leading to payoff of $0) by gender-pair and information condition in the negotiation game. The black bars are for male-male pairs, the gray bars are for male-female pairs, and the white bars are for female-female pairs. Panel A shows results from the uninformed negotiation game and Panel B shows results from the informed negotiation game. Standard error bars shown around each mean.

3.3. Impact of gender information and verbal communication

We now compare men's performance in the negotiation game to the control game. If men were especially skilled negotiators, one might think that the presence of verbal communication in the game would serve as an advantage to them. To examine this, we use the following specification:

$$Payoff_i = \beta_0 + \beta_1\, male_i \times negotiation_i + \beta_2\, male_i + \beta_3\, negotiation_i + \beta_4 X_i + \epsilon_i,$$

where $negotiation_i$ represents the communication treatment; $male_i$ reflects whether the subject is male, and X_i reflects controls for session timing, round order, and subject characteristics, added in even columns.

Table 6, columns (1) and (2), show that men perform worse relative to women in the negotiation game compared to the control game, pooling the informed and uninformed condition. Column (1) shows that men earn $0.88 more than women in the control game, but in the negotiation game, this effect is more than reversed: their relative payoff is reduced by $1.25, making their payoffs directionally smaller than women's, although the difference is not significant. Thus, the presence of verbal communication disadvantages men.

Regressions (3) and (4) show results under the informed treatment whereas regressions (5) and (6) restrict to the uninformed treatment. This analysis demonstrates that the effect is entirely driven by the setting with gender information. When informed of gender, men outperform women in the control game, earning on average $1.64 more (a substantial effect when average payoffs are around $4). Relative to this, men earn $2.25 *less* in the negotiation game. Meanwhile, the uninformed treatment shows that in both games men have no inherent edge over women—both genders perform equally well in terms of payoff.

Regressions (7) and (8) use all the data and interacts the games and information conditions to confirm that the difference between the informed and uninformed treatments is statistically significant. Viewing the effects this way is informative: the presence of gender information is an advantage without communication, but actually presents a handicap to men when they can communicate. And, the ability to verbally communicate is no advantage to men without gender information, and a disadvantage with gender information.

The differing results from a game with the same payoff structure with and without verbal communication demonstrate that non-communication bargaining games may be limited in their external validity as a proxy for "real-world" negotiations, which involve direct communication. Indeed, in this incentivized negotiation with verbal communication, men do not outperform women, and gender information appears to be a hindrance, rather than a benefit to men. The next section delves into communication strategies used to understand why gender information in a negotiation may disadvantage men, especially in male - male pairs.

Table 6
Payoff by Treatment and Gender.

	Dependent variable: Payoff							
	All		Informed		Uninformed		All	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Male	0.884**	1.080***	1.639***	1.964***	0.0455	0.177	0.0455	0.166
	(0.397)	(0.396)	(0.561)	(0.531)	(0.542)	(0.539)	(0.541)	(0.555)
Male × Negotiation	-1.250**	-1.304**	-2.254***	-2.361***	-0.136	-0.136	-0.136	-0.136
	(0.527)	(0.527)	(0.697)	(0.697)	(0.784)	(0.789)	(0.783)	(0.785)
Male × Negotiation × Informed							-2.118**	-2.224**
							(1.047)	(1.048)
Male × Informed							1.594**	1.740**
							(0.779)	(0.772)
Negotiation × Informed							0.439	0.545
							(0.681)	(0.680)
Informed							-0.00633	0.0676
							(0.519)	(0.561)
Negotiation	4.935***	5.271***	5.143***	5.655***	4.705***	4.850***	4.705***	4.986***
	(0.340)	(0.614)	(0.466)	(0.877)	(0.498)	(0.860)	(0.497)	(0.695)
Constant	4.019***	5.769***	4.016***	5.362***	4.023***	6.533***	4.023***	5.305***
	(0.260)	(1.156)	(0.373)	(1.559)	(0.363)	(1.781)	(0.362)	(1.235)
Test Male + Male × Negotiation = 0:	0.332	0.553	0.206	0.417	0.878	0.944	0.877	0.346
Ind. Clusters	232	231	122	121	110	110	232	231
Controls		YES		YES		YES		YES
Observations	1856	1848	976	968	880	880	1856	1848
R-Squared	0.122	0.131	0.114	0.138	0.138	0.144	0.127	0.136

Notes: Columns (1) and (2) shows payoff results in a regression using all 4 conditions; columns (3) and (4) use control and negotiation rounds in the informed treatment; columns (5) and (6) use control and negotiation rounds in the uninformed treatment; columns (7) and (8) use rounds from all 4 conditions in a triple difference regression. Negotiation represents the communication treatment; Male reflects whether the subject is male, Informed represents the treatment with gender information. Robust standard errors clustered at the individual level are in parentheses. Odd columns shows results without controls, even columns shows regressions results with controls. Regression control variables are: session controls including day of the week, within day trend, and game round as well as individual controls include subject's age, being nonwhite, begin politically liberal, being a US citizen, being a native English speaker, employment status, and the number of sessions completed. Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

3.4. Strategy tailoring by gender

One might expect gender information to allow men to more optimally tailor their strategy toward the partner type that they are facing, as shown in the literature on non-communication games (e.g., Holm, 2000). Indeed, in the non-communication game, when men are informed of gender, they play more hawkishly against known female partners, choosing $15 for themselves more often, matching women's more dovish play, as shown in Fig. 3, Panel (A). This results in men's higher payoff in the control game when partner gender is known. However, in the communication game, shown in Fig. 3, Panel (B), this tailoring approach is actually *reversed*, with men actually choosing $15 more often against known male partners. This inversion of "choice" tailoring with the introduction of communication is statistically significant, shown in Appendix Table B2. Women, by contrast, show no tailoring in choice strategy in the communication game, and rather only a decreased propensity of choosing $15, given the ability for advance coordination. In the negotiation game, we can also examine tailoring in negotiation strategy, using the chat transcripts.

Endogenous Negotiation Strategies

As described in Section 2.2, we coded up how often men and women used different verbal communication strategies against different partners. Figure 4, Panel A shows that men are 121% more likely to use *ultimatums* against known male partners compared to known female partners. This more than doubling of the rate of issuing *ultimatums* shows a substantial response to gender information. That is, men are endogenously choosing to be considerably more aggressive against male, rather than female, partners when gender information is known. Appendix Table 7 shows that these results are statistically significant at the 1% level in a regression framework.[22]

To check that this is not specific to *ultimatums* only, we show results for the opposite communication strategy—choosing to strike a *friendly* and collaborative tone in the negotiation. Figure 4, Panel B shows that men use this strategy substantially more against female partners: men are 13.4 percentage points more likely to be *friendly* against known female partners compared to male partners (that is, a 30% increase). Table 7 shows that these results are statistically significant at the 1% level in a regression.[23]

[22] Interestingly, when men play against known women, they behave similarly to women on average. One could view this as a cooperation spillover from female negotiators.

[23] Figure B2 and Figure B3 shows results are robust to including sessions that took place immediately following the 2016 presidential election, although the gap between behavior toward male and female partners is less pronounced.

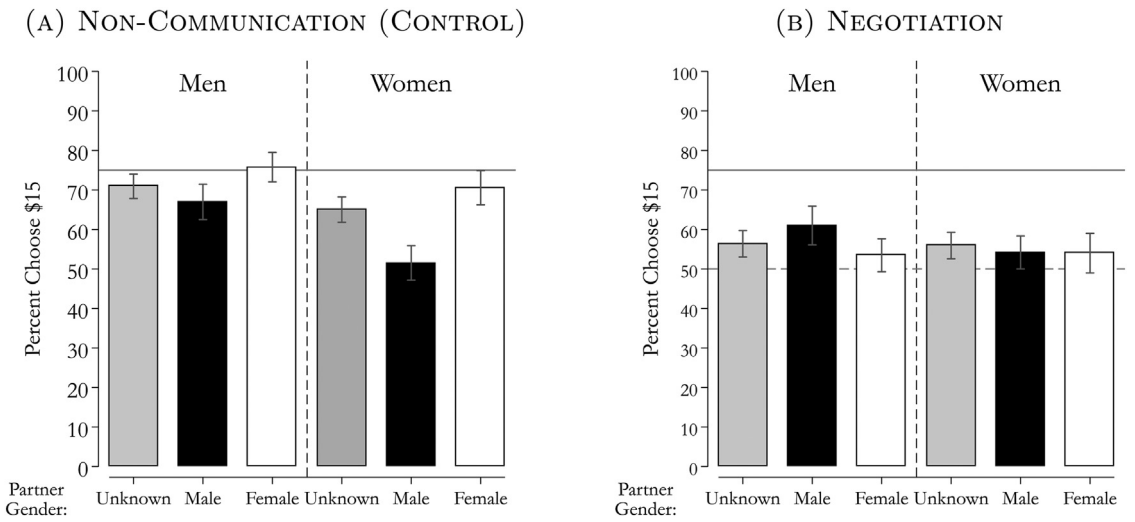

Fig. 3. Choosing $15 by Treatment and Gender-Pair.
Notes: Average rate of choosing $15 for themselves by communication, information condition, and gender pair-type. The gray bars are for subjects who are uninformed of their partner's gender, the black bars are for subjects who are informed that their partner's gender is male, and the white bars are for subjects who are informed that their partner's gender is female. The solid horizontal gray line marks the theoretical mixed strategy equilibrium which is picking $15 for themselves ($5 for their partner) 75 percent of the time. The dashed horizontal gray line marks 50 percent probability which denotes equal split and full coordination. Standard errors bars are shown around each mean.

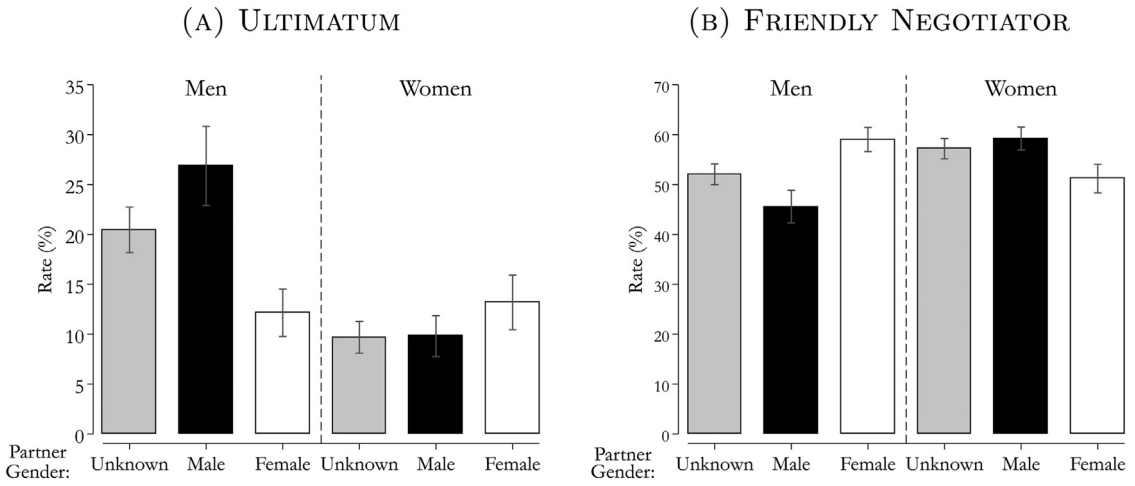

Fig. 4. Communication Strategies by Treatment and Gender-Pair (Negotiation Game Only).
Notes: Average rate that men and women use *ultimatums* and are a *friendly* negotiator by information condition and gender pair-types. The gray bars are for subjects who are uninformed of their partner's gender, the black bars are for subjects who are informed that their partner's gender is male, and the white bars are for subjects who are informed that their partner's gender is female. Standard errors bars are shown around each mean.

This paradoxical choice of aggressive strategies is a possible explanation for male-male pairs leaving significant value on the table due to negotiation breakdown. Ultimatums can result in a game of "chicken," with both partners committing to choose $15, and neither "swerving," whereas a more measured negotiation approach might result in ultimately receiving $5 if one fails to secure the $15, instead of resulting in $0.

We can demonstrate that this difference in men's approach to male versus female partners is not simply a joint product of men's and women's behavior in the negotiation, but rather an endogenous reaction to the provision of gender information, in Table 7. Focusing on participants in the uninformed treatment, in panel B, we find there is no significant tailoring of men's strategies. Furthermore, men's use of *ultimatums* and being *friendly* by partner gender is significantly different when informed versus uninformed (see Appendix Table A4). Our results are also robust to limiting to those who issue ultimatums as a first action, further ruling out that it is a response to the other player's behavior.

These findings are also supported by a subjective rating of negotiator aggressiveness by MTurk workers (men are rated as much more aggressive toward other men than women) as well as alternative measures of aggressiveness and friendliness, shown in Appendix Table A5. Moreover, men issuing ultimatums against male partners is not merely cheap talk, but

Table 7
Tailoring of Communication Strategies by Gender and Partner Gender (Informed and Uninformed Treatment).

Panel A: Informed Only				
Dependent variable:	Ultimatum		Friendly	
	(1)	(2)	(3)	(4)
Male × Partner Female	-0.181***	-0.184***	0.215***	0.199***
	(0.055)	(0.056)	(0.053)	(0.056)
Male	0.171***	0.181***	-0.136***	-0.136***
	(0.060)	(0.063)	(0.046)	(0.049)
Partner Female	0.034	0.030	-0.080**	-0.067*
	(0.029)	(0.032)	(0.034)	(0.037)
Constant	0.098***	-0.065	0.592***	0.695***
	(0.026)	(0.165)	(0.027)	(0.153)
Ind. Cluster	122	121	122	121
Controls		YES		YES
Observations	488	484	488	484
R-Squared	0.043	0.078	0.035	0.057
Panel B: Uninformed Only				
Dependent variable:	Ultimatum		Friendly	
	(1)	(2)	(3)	(4)
Male × Partner Female	-0.079	-0.081	0.036	0.043
	(0.052)	(0.051)	(0.056)	(0.053)
Male	0.147***	0.127***	-0.070	-0.059
	(0.048)	(0.046)	(0.049)	(0.046)
Partner Female	0.039	0.036	-0.006	-0.001
	(0.028)	(0.031)	(0.037)	(0.037)
Constant	0.079***	-0.135	0.575***	0.621***
	(0.020)	(0.252)	(0.033)	(0.197)
Ind. Cluster	110	110	110	110
Controls		YES		YES
Observations	440	440	440	440
R-Squared	0.038	0.158	0.008	0.129

Notes: Columns (1) and (2) shows the use of *ultimatums* and columns (3) and (4) shows the use of *friendly* negotiator strategies by subject's gender and partner's gender in a regression framework. Panel A shows results from the informed negotiation game and Panel B shows results from the uninformed negotation. Male reflects whether the subject is male and Partner Female reflects whether the subject's partner's gender is female. The dependent variable is described in the column headers. Robust standard errors clustered at the individual level are in parentheses. Odd columns shows results without controls, even columns shows regressions results with controls. Regression control variables are: session controls including day of the week, within day trend, and game round as well as individual controls include subject's age, being nonwhite, begin politically liberal, being a US citizen, being a native English speaker, employment status, and the number of sessions completed. Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

rather is highly predictive of ultimately choosing $15, with a coefficient of 0.563, significant at the 1% level (as shown in Appendix Table A6).

Optimal Strategy?

One explanation for men's selection of more aggressive negotiation strategies toward known male partners is that it is based on beliefs about who is more receptive to which type of strategy. This would not only run counter to evidence in the literature that women are expected to be more dovish, but also to men's play in our control game. Moreover, recall the type of game played was varied *within* subject, thus, men's own actions from the control game indicate they expect more aggressive play by men.

Nonetheless, it is possible that the optimal tailoring approach based on gender could be different in a setting with explicit verbal communication. For example, it might pay to try to "convince" other men aggressively, because the gain in getting the higher payoff might balance out the loss from lower coordination. Thus we look directly at whether these approaches are optimal given partner responses, although these results are only suggestive given that they are conditioned on endogenously chosen communication strategy.

Table 8 shows the payoff for men using our key communication strategies against female compared to male partners. First, *ultimatums* appears to perform far better against female versus male partners. Regressions (1) and (2) show that men using *ultimatums* against a male partner decreases payoffs by over $3, while using it against a female partner directionally increases payoffs.[24] This suggests that, when using aggressive negotiation strategies against male partners, the benefit of "forcing" the other party to concede more often does not appear to outweigh the negative impacts of negotiation breakdown.

[24] Table B4 shows results are robust to including the sessions following the 2016 presidential election, although they are somewhat attenuated as ultimatums were used more frequently, and thus to lower marginal effect, against female partners, as shown in Huang and Low (2017).

Table 8
Payoff by Communication Strategies and Partner Gender (Men in Negotiation Game, Informed Arm Only).

Communication Strategy:	Dependent variable: Payoff			
	Ultimatum		Friendly	
	(1)	(2)	(3)	(4)
Strategy	-3.029*	-3.384**	3.912*	4.499**
	(1.813)	(1.659)	(2.006)	(1.931)
Strategy × Partner Female	4.753*	5.272*	-5.268**	-5.998**
	(2.692)	(2.916)	(2.401)	(2.415)
Partner Female	0.239	0.185	3.847**	4.218***
	(0.754)	(0.797)	(1.521)	(1.507)
Constant	8.614***	7.975**	6.017***	4.251
	(0.642)	(3.491)	(1.191)	(3.477)
Ind. Cluster	61	61	61	61
Controls		YES		YES
Observations	244	244	244	244
R-Squared	0.033	0.072	0.034	0.074

Notes: Columns (1) and (2) shows the payoff for men using *ultimatums* and columns (3) and (4) shows pay of for men being *friendly* towards female partners. Strategy reflects whether a specific communication strategy was used as specified in the column headers. In this case using *ultimatums* for columns (1) and (2) and being *friendly* in columns (3) and (4). Partner Female reflects if the male subject's partner's gender is female. Robust standard errors clustered at the individual level are in parentheses. Odd columns shows results without controls, even columns shows regressions results with controls. Regression control variables are: session controls including day of the week, within day trend, and game round as well as individual controls include subject's age, being nonwhite, begin politically liberal, being a US citizen, being a native English speaker, employment status, and the number of sessions completed. Significance: $^{***}p < 0.01$, $^{**}p < 0.05$, $^{*}p < 0.1$.

We can directly see this through the association of issuing ultimatums with mismatching–it dramatically increases mismatch against male partners by more than 50% (coefficient of 0.577, significant at the 1% level, shown in Appendix Table A6, but increases mismatch much less against female partners.

In contrast, we find that being *friendly* performs significantly better against male partners. Table 8 regressions (3) and (4) shows that being *friendly* actually increases payoffs against male partners. Moreover, the interaction coefficient for using it against female partners more than cancels out this effect. That is, against male partners, simply opening with a friendly greeting is correlated with higher payoffs by almost $4, showing the deep consequences of overly aggressive communication.

Although evidence of communication strategy effectiveness is only suggestive as they may be used by the most effective people, against the most effective targets, the large effect sizes indicate that there should be some marginal people who could benefit monetarily from switching strategies.

3.5. Toxic competitiveness?

It seems clear that the choice of aggressive strategies by male partners against known male partners is not a payoff maximizing choice, and thus appears to be driven by non-pecuniary motivations. One possible explanation is that men have a preference against giving men the higher payoff, and for giving female partners the higher payoff. In other words, the negotiation setting created gender-specific altruism. However, gender specific altruism appears inconsistent with men's behavior in the non-communication game, where they are more dovish toward men and hawkish toward women. If men preferred to "punish" other men and reward women, even at the expense of their own payoffs, we would expect similar behavior in the non-communication game.

Moreover, if men truly had altruistic preferences toward women, and potentially the opposite toward men, then in the presence of communication, they could simply grant the higher payoff to women more often. Instead, we find suggestive evidence that men do try to get the higher payoff for themselves against known female partners, but merely through non-confrontational means. For example, men mention their previous choices more against female versus male partners as a way to get the higher payoff by appealing to a sense of fairness, saying they got $5 last time, and so should be allowed to take $15 this time.[25]

If participants are not optimally responding to partner gender information and are not exhibiting gender-specific altruism, what could explain this behavior?[26] The act of negotiating with other men may trigger direct preferences for competition, as shown in Niederle and Vesterlund (2007), that do not appear against women or when merely choosing an option without

[25] Mentioning previous choices is positively correlated with the strategy of asking for $15 directly, and negatively correlated with offering $15 at the outset. Additionally, men are marginally significantly more likely to claim to be alternating their choice as their strategy against female partners, which could be another way to try to get them to agree to go with the lower payoff. See Appendix Table A5.

[26] One other possibility is that participants hold mis-calibrated beliefs about which communication strategy will be most effective against men. However, if this is the case, one might expect men to change direction once they realize their tactic is failing to produce a "yielding" response from other men, and yet they do not (as shown by the high relationship between ultimatums and actually choosing $15, as well as ultimately mismatching, shown in

first negotiating. Excess male competition may be the natural product of an evolutionary process that is winner-take-all. If males need to be the best in order to reproduce, they may, for example, evolve sub-optimally large antlers to beat out the competition, as described by Frank (2011). Unfortunately, behaviors optimized for a winner-take-all setting may produce negative consequences in situations with financial payoffs, where aggressively trying and failing to win produces a worse outcome than the downside of a more moderated approach.

In regards to women, men may be constrained in their behavior by social norms that dictate chivalry or politeness toward women.[27] From an efficiency stand point, these social norms appear to provide a useful "fire break" to the toxic masculinity exhibited by male-male pairs, preventing the payoff from going up in smoke.

4. Conclusion

In this paper, we developed an incentivized negotiation experiment to study the impact of gender on negotiation strategies and payoffs. We find that situations with communication may be fundamentally different than games without verbal interaction. Relative to a control game with no communication, men do worse compared to women in the same game with communication. This effect is driven by the treatment where participants were informed of their partner's gender, which we show leads to men exhibiting more aggressive behavior toward male partners.

Men use ultimatums towards male negotiating partners more than twice as often as they do with female negotiating partners. Similarly, men are more likely to use a friendly approach toward female partners than male partners. We present evidence from payoffs that men's use of ultimatums versus friendly strategies appear mis-paired with whom they are most effective against, and contradict participants' own behavior in the non-communication game. As a result, male-male pairs perform the worst of all pair types, destroying significant value. We posit that men are influenced by behavioral factors in their negotiation behavior, leading them to be over-competitive against other men, at the expense of their own payoff.

Our results align with findings of over-competitiveness by men (Niederle and Vesterlund, 2007) as well as findings that same sex pairs may perform worse in certain games (Sutter et al., 2009). Yet our findings stand in direct contradiction to literature that suggests that men are more skilled or effective negotiators, largely based on games without explicit verbal communication. We find that men's over-aggressiveness toward other men disadvantages them in negotiations, and thus that companies may benefit from including female negotiators, especially when facing male negotiators and when there are high costs of negotiation breakdown.

The fact that men's excess aggressiveness appears tempered against female partners may in some cases be a positive for women, particularly in their ability to be effective negotiators. However, even such "benevolent" sexism has been linked to overall sexist beliefs (Glick and Fiske, 1996). Moreover, Huang and Low (2017) shows that hostile behavior by men toward women in this same negotiation setup increased dramatically immediately following the 2016 Presidential election, demonstrating that social norm constraints on male aggression may be sensitive to context.

More broadly, our results have significant policy implications for the elevation of male negotiating skills and tactics as something to be desired or emulated. There is a large body of literature examining behavioral differences between men and women, and musing on how these differences may ultimately contribute to the gender wage gap (e.g., Buser et al., 2014; Wiswall and Zafar, 2018; Coffman, 2014; Exley and Kessler, 2019b; Dohmen and Falk, 2011; Charness and Gneezy, 2012; Croson and Gneezy, 2009b). There is scanter examination of when male behavior may actually fail to maximize social welfare, such as in the production of asset bubbles (Eckel and Füllbrunn, 2015).[28] We show that toxic masculinity in negotiations could be a real threat for value creation, and that it may be wise to consider when competitive instincts are suboptimal for companies wishing to maximize profits, rather than rack up binary "wins."

Further research should examine similar incentivized, verbal negotiations with payoff structures that vary the cost of failing to reach an agreement versus the potential gain from distributive bargaining to determine how gender advantages in negotiation may vary by setting. Moreover, additional research should focus on the manifestation of "toxic masculinity" in different settings, and when it destroys value. In the meantime, firms would be wise to reconsider the assumption that men have an inherent advantage at the negotiating table, especially when the cost of negotiation breakdown is high.

Supplementary material

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.jebo.2022.07.030.

Appendix Table A6). We also can look at subsequent behavior by men who either successfully or unsuccessfully use an ultimatum strategy: these subjects persist equally in using ultimatums in subsequent rounds against other men.

[27] This is consistent with a body of literature showing that complying with norms, rules, and social considerations can create utility that might offset losses from non-payoff maximizing behavior. For example, participants stopping at (meaningless but payoff-costly) "red lights" in a timed lab game (Kimbrough and Vostroknutov, 2016), participants rejecting low or unfair offers in an ultimatum game (Kahneman et al., 1986; Thaler, 1988), and participants contributing more to public goods when identified to other players (Kessler et al., 2017).

[28] This connection has been made in the popular press. For example, Christine Lagarde mused to a reporter: "if Lehman Brothers had been 'Lehman Sisters,' today's economic crisis clearly would look quite different." See (Dealbook, 2010; NPR, 2014).

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