Men Don't Ask (Women): Benevolent Sexism in a Negotiation Experiment

Jennie Huang and Corinne Low

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Abstract

Prior research has suggested that situations requiring negotiation may disadvantage women ("Women Don't Ask"). In this paper, we highlight a different gendered element of communication: men behaving in a "benevolently" sexist manner towards female partners. We use a Battle of the Sexes game with unstructured chat communication to study gendered behavior in negotiations. We find that in the absence of communication, there is some gender-based strategic behavior, with men playing more hawkishly against female partners and receiving higher payoffs. However, when communication is introduced, we see actions and behavior equalize across genders. However, this apparent equality is driven by different negotiation approaches by men when facing female versus male partners. Men are less likely to use tough, but effective, negotiation tactics when paired with female partners, and more likely to offer the higher payoff to female partners. We relate these actions to psychology literature on "benevolent sexism" and posit that such "altruistic" gendered behavior has the potential to mask other gendered effects.

1 Introduction

Prior research has suggested that situations where resources are divided via negotiation may disadvantage women. Papers show both that "women don't ask" (Babcock and Laschever, 2003, 2007), and that when they do, they may be penalized for non-gender conforming behavior (Bowles, Babcock and Lai, 2007). In this paper, we highlight another potential gendered dynamic in negotiation that may in some cases cancel out or mask other effects:

That of men behaving in a "benevolently" sexist manner. Using an extremely simple (and therefore eminently replicable) setup where men and women negotiate over an unequal payoff, we show that men are actually less likely to use (effective) tough negotiating tactics when paired with female partners. Moreover, they are more likely to offer the higher payoff to their female partner. Despite these qualitative differences, negotiation outcomes between men and women are approximately equal overall, indicating that this "benevolently sexist" behavior may be masking other effects.

Our experimental design allows comparison with other settings to confirm that this is a gendered negotiation effect predicated on knowing the gender of one's partner. These differences in behavior are not present when men negotiate without knowing their partner's gender. Moreover, when men play the same game in the absence of communication, we see, if anything, the opposite treatment of female versus male partners. We then show suggestive evidence that this behavior by men is correlated with holding "benevolently sexist" beliefs, such as that women should be put on a pedestal, or that men should be willing to sacrifice for women.

These findings come from a laboratory experiment conducted in October, 2016, in which men and women played a Battle of the Sexes game, with and without communication. Battle of the Sexes is a commonly studied game with well-defined equilibrium outcomes in the absence of communication: coordination on one of the two pure Nash equilibria, or the mixed strategy equilibrium. But, its payoffs actually mirror a key feature of most negotiation games: better payoffs are possible for *both* players if players can coordinate on a set of moves, but the relative split between the payoffs is not well specified. In this way, Battle of the Sexes provides an opportunity for both "integrative"—getting to the on-diagonal of matching outcomes—and "distributive"—receiving your preferred outcome—bargaining. Its advantage over other negotiation scenarios that also have this feature is its simplicity: it requires no elaborate setup with differing interests and payoffs, and thus does not have the potential to trigger other behavioral effects. Our study is the first to use Battle of the Sexes to study negotiation outcomes, but we believe it can easily be mined to capture different features of negotiation, such as relative inequality in payoffs, differences in outside options, strong and weak bargaining positions, etc.

We manipulated at the session level whether gender was revealed, using a partner

information sheet that revealed a number of plausibly relevant but actually uninformative details about one's partner (e.g., whether they can roll their tongue), and then had partner gender or not depending on the treatment. This enabled us to reveal gender without making it overly salient. Subjects then played four rounds of Battle of the Sexes with no communication and four rounds with unstructured chat communication, using stranger matching. They therefore naturally encountered partners of different genders, but were either aware or unaware of the partner's gender.

In the absence of communication (where participants have no way of knowing what their partner will do) we see that men tend to choose their preferred outcome more frequently against women, although this result is not significant. This confirms earlier literature (Holm 2000) that showed gender may be used as a "sunspot" to create coordination. Men also get higher payoffs when playing against women than when playing against a partner whose gender is unknown. In contrast to this, in the presence of communication, such gendered strategies appear to dissipate: men and women play their preferred choice approximately equally, and equally against male and female partners (although men play their preferred choice slightly more against male partners).

However, chat data reveals that men appear to not be always "trying their hardest" against women. One typically effective negotiation strategy seen in this game is committing from the outset of the chat to choose the higher payoff for oneself. If one effectively signals their choice in a sufficiently convincing manner, the other player has an unambiguous best response to choose their less preferred option, and avoid mismatching. Men employ this strategy much more frequently than women. But, they employ it with female partners approximately half as often as they employ it with male partners, despite the fact that it yields higher payoffs when used. Additionally, some players choose to offer the higher payoff to their partner during the chat, thus at least guaranteeing a match. Men and women employ this technique about equally on average, but men are significantly more likely to make such an offer to a female, rather than male, partner, despite the fact that it virtually guarantees a lower payoff.

We relate this gendered dynamic in negotiations to literature on "benevolent sexism": a psychological theory that says some men believe women are weaker and should be protected. Benevolent sexism is the flip side of "hostile sexism," where men try to take advantage of

women. Although one tends to result in more positive outcomes for women in the short term than the other, both reflect underlying gender inequalities, and both reflect a pejorative view of women overall. This paper represents the first evidence of such "benevolently sexist" behavior in the lab.

2 Literature Review

There is a large body of literature that shows that women either enter negotiations less often, fare worse when they do, or both (Dittrich, Knabe and Leipold, 2012; Card, Cardoso and Kline, 2015; Leibbrandt and List, 2015). Research in this area started from the study of how gender stereotypes can influence negotiation behavior and has further evolved to show situational context can influence negotiations (Bowles, 2012). In a synthesized meta-analysis of 35 years of gender and negotiation research, Walters, Stuhlmacher and Meyer (1998) showed that overall, women had a tendency to be more cooperative negotiators than men, but this effect was driven by face-to-face negotiations and failed to replicate in matrix games. In fact, they hypothesized that conformity to gender stereotypes may increase with the availability of communication. A different meta-analysis of 21 studies by Stuhlmacher and Walters (1999) showed that men performed better in negotiations but particularly so for "stereotypically male" negotiation scenarios such as negotiating for a salary or the price of a car. This led to extensive research on how gender stereotypes and gendered situational context could affect negotiation behavior and outcomes.

The usage of gender to signal strategic behavior stems from the stereotype that women are more cooperative and communal while men are more competitive (Rubin and Brown, 1975; Eagly, 1987; Eckel, De Oliveira and Grossman, 2008; Kray, Galinsky and Thompson, 2002). Given these general beliefs of how men and women would behave, gender of the negotiating partner has been used to infer what the other negotiator will do and what one should offer or act (Eckel and Grossman, 2001; Solnick, 2001; Bowles, Babcock and Lai, 2007; Sutter et al., 2009). For example, Solnick (2001) used the Ultimatum game to test how men and women's offering behavior changed when gender was known and found that the negotiator offered more money to men than to women and were willing to accept lower offers from men than from women.

The current literature also documents a myriad of factors that influence how individ-

uals negotiate and ultimately the outcome of such negotiations. For example, activation stereotypes (Kray, Thompson and Galinsky, 2001), fear of backlash (Bowles, Babcock and Lai, 2007), the relative position and power in a negotiation (Andersen et al., 2015; Dittrich, Knabe and Leipold, 2012), the availability of information and who benefits from the negotiation outcome (the negotiator or a third party) (Bowles, Babcock and McGinn, 2005), the extent to which the negotiator is aware that they can negotiate (Small et al., 2007; Leibbrandt and List, 2015), the cultural context of the negotiations (Andersen et al., 2015), the communication strategies (Bowles, 2012), the ability to signal experience (Castillo et al., 2013; Busse, Israeli and Zettelmeyer, 2012), and risk and other regarding preferences (Croson and Gneezy, 2009). In addition, there is also research that shows that it might be actually costly for women to "lean-in" and negotiate (Exley, Niederle and Vesterlund, 2016).

Although gender differences in communication have been widely studied in negotiation literature, negotiation games can be difficult to assess from an economic perspective. As such, we turn to Battle of the Sexes, a well-known economics game that mirrors negotiation payoffs, in order to limit situational confounding factors. Some past experiments have tested Battle of the Sexes-type games with communication as a means to overcome coordination failure, but none, to our knowledge, have explored unstructured communication, or interacted communication and gender. One way for players to "communicate" with one another is simply to play the game repeatedly (Luce and Raiffa, 1957). An initial trial-and-error period communicates to one another each players' strategy and willingness to divide the spoils (Lau and Mui, 2008). After that, cooperation can be established, generally with an alternation strategy, with one player achieving his/her preferred outcome one round, and the other the next round.

The single game setting can also be resolved through communication. Cooper et al. (1989) find that a single instance of one-way communication achieves the highest rates of cooperation in experimental settings, since the recipient of the communication has a dominant strategy to comply with the communicated message as long as he/she believes the communicator's resolve. When communication was two-way, with both players allowed to send messages, more rounds of communication performed better than fewer.

Battle of the sexes was previously studied in the context of gender by Holm (2000), who

tested various money splitting games–one of which closely followed the payoff structure of BoS. Holm found that subjects behaved more "hawkishly" in an experimental battle of the sexes game when the co-player was a woman compared to when it was a man. Holm interprets this as the subjects using sun spots or focal points to coordinate and increase payoffs. This led to higher payoffs for mixed sex pairs than for unisex pairs.

Our study allows for gender stereotypes to be used as a signal or focal point in the no communication game. However, we hypothesize that there may be diverging reactions to these gender norms when communication is available. In order to explain these diverging reactions we turn to the theory of ambivalent sexism. Although typically sexism has been described as a hostile or aggressive reaction towards a "weak" or "soft" woman, Glick and Fiske (1996) believed that this view of sexism "neglects a significant aspect of sexism: the subjectively positive feelings toward women that often go hand in hand with sexist antipathy." Instead, they proposed a theory of sexism that was compose of hostile and *benevolent* sexism. The hostile component in Glick and Fiske's definition remained the same as that defined by Allport's 1954 classic definition of prejudice. On the other had, Glick and Fiske defined benevolent sexism as: "a set of interrelated attitudes toward women that are sexist in terms of viewing women stereotypically and in restricted roles but that are subjectively positive in feeling tone (for the perceiver) and also tend to elicit behaviors typically categorized as pro-social (e.g., helping) or intimacy seeking (e.g., self-disclosure)." Glick and Fiske propose that both hostile and benevolent sexism are rooted in biological and social conditions. They have validated a corresponding measure for their theory of ambivalent sexism where their hostile sexism scale correlates with negative attitudes toward and stereotypes about women and the benevolent sexism scale correlates with positive attitudes toward and stereotypes about women.[1]

It is important to note that this type of sexism should not be viewed as positive as it stems from the same prejudice as hostile sexism. In fact, in a series of four experiments conducted by Dardenne, Dumont and Bollier (2007), the authors simulate benevolent sexism and measure the impact on women's performance. They concluded that benevolent sexism has a long term impact on women's performance. Furthermore, it allowed women to justify sexism against them and embedded gender inequality to their views of them-

[1]We received consent from Professors Glick and Fiske to use their Ambivalent Sexism Inventory (ASI) in our study. We use an abridged and slightly modified version of their ASI in the post-survey of our study.

selves and of their performance. Furthermore, in a different study by Dumont, Sarlet and Dardenne (2010), students were confronted with either benevolent sexism, hostile sexism, or neutral comments in the context of a job interview. After performing a cognitive task, they assessed the autobiographical memory for self-incompetence. The authors founds that female performance, and confidence in their abilities, declines more with benevolent sexism than hostile sexism.

3 Experimental Design

Our experimental participants played a "Battle of the Sexes" (hereafter game: BoS) where the payoffs amounted to dividing $20. Participants could choose either option A or option B—if both choose A, Player 1 gets $15 while Player 2 gets $5; if both choose B, the reverse; and if they mismatch, they each get 0. Table 1 shows the payoff table for the BoS game used in our experiment. This game has two pure strategy equilibria, AA and BB, and a mixed strategy equilibrium where each player plays their preferred choice 75% of the time.

Table 1: BoS Game Set Up

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

Our design uses a mixture of within and between subject variation. First, we randomized whether we revealed the gender of the subject's partner at the session level. Then, subjects played both non-communication and communication version of the game, and experienced random variation in the gender of their partner.[2]

In order to randomize gender without making it overly salient, all subjects were shown a table with partner information prior to making their choices. For the "No Gender Revealed" sessions, the table with partner information told the subject if their partner was left- or right-handed, if they were an only child, what was their month of birth, could they roll

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

their tongue, and did they have hitchhiker thumbs. Showing this table allowed us to give subjects their partner's gender information without cuing that the experiment was focused on gender. The additional information is potentially relevant, and plausibly related to some other research objectives, but is highly unlikely to actually influence what a person would choose in the BoS game, and thus should have little effect on strategic behavior. In contrast, for the "Gender Revealed" sessions, subjects saw all the same information as in the No Gender Revealed session but also saw an additional line of information with their partner's gender. This partner information was shown to subjects for 15 seconds before proceeding to the "choice" window, and was also displayed in the "choice" window.

Subjects played eight total rounds with, their partner randomly assigned in each round (stranger matching). In the first four rounds, subjects played the regular BoS game without communication. In the no communication rounds, subjects viewed their partner's information and they simultaneously chose how to split the $20. In the next four rounds, subjects were allowed to communicate with their partner via a chat box. In the communication rounds, subjects first viewed their partner's information, then they were allowed to negotiate with their partner on how to split the $20 for two and a half minutes, afterwards, they each made their choices simultaneously. After all eight rounds were played, subjects went through a post-survey and their payment was revealed. No information about the outcomes of each round was revealed until the very end to limit learning effects.[3] Furthermore, in order to minimize potential income effects, subjects were told that only one round would be randomly selected for payment, each round had an equal chance of being selected for payment, as such, the subject should play each round as though that was going to count for payment. Because chat rounds necessarily followed no chat rounds to minimize learning effects, we control for order effects in our regressions.

Our data comes from 24 sessions held at the Wharton Behavioral Lab in October of 2016, yielding 232 subjects.[4] The game provides both quantitative and qualitative data. For the quantitative data, we will be looking at two measures: whether subjects picked

[3]Note, prior to the eight game rounds, subjects played two practice rounds of a regular BoS game with the same payoffs against a computer so they could understand the game.

[4]In order to maximize gender balance, we restricted only an equal number of women and men to play this game, if there were additional women or men in the session, these "extra" subjects were diverted to a different branch of the game were they only played the regular BoS game against a computer. For the purpose of this paper, we omit results from these "extra" subjects.

their preferred choice, that is whether they picked $15 for themselves, and their payoff each round. We have 928 observations for choices made under the no communication treatment and 928 observations for choices made under the communication treatment. In addition, we also have qualitative data in the form of the negotiation conversations that each subject had with their partner. We have a total of 464 negotiation conversations and we will be looking at specific negotiation strategies that we have identified in these negotiations.

To analyze the qualitative data, we first de-identified each conversation, then used 310 Amazon Mechanical Turk (MTurk) workers to classify chat data based on the definitions we provided.[5] On average, 5 different MTurk workers classified each negotiation conversation. We use the average score given by the MTurk workers for each negotiation strategy in each conversation.

Table 2 presents the summary statistics of subject characteristics. There were 55 male and 55 female subjects in the No Gender Reveal treatment and 61 male and 61 female subjects in the Gender Revealed treatment. Overall, both male and female subjects had an average of 3.5 to 4.5 male and female partners across all eight rounds. Our subjects were students across various schools and fields of study at the University of Pennsylvania with an average age of 20-21 years old, with 56 to 71 percent of subjects of non-white ethnicity. Over 80 percent of our subjects were native English speakers and identified themselves between somewhat to slightly liberal. Given that each subject played four rounds of no communication and four rounds of communication, overall we have over 100 observations for each gender-pair type for the four different types of treatments.

4 Results

We first establish results with no communication as a baseline. We then show the outcome of the game when chat communication is introduced. We then show the central result, which is the stark difference in strategy employed in the presence of chat depending on the gender of the partner. Finally, we put these results in the context of other literature and

[5] Using Qualtrics, we had MTurk workers classify the different negotiation strategies. Each MTurk worker reviewed 15 randomly selected negotiation conversations. To ensure high quality of work, MTurk workers had to pass both a comprehension questions and an attention question. After viewing the negotiation strategy definitions, MTurk workers had to answer all 8 comprehension questions correctly to continue. In addition, if any worker failed to pass the attention question, we discarded their work.

Table 2: Summary Statistics of Ex-Ante Characteristics

Treatment:	**Partner's Gender Not Revealed**		**Partner's Gender Revealed**	
Subject Gender:	**Male**	**Female**	**Male**	**Female**
Number of Subjects	55	55	61	61
Avg. # of Male Partners	3.709	4.290	3.475	4.524
	(.975)	(1.083)	(.868)	(.808)
Avg. # of Female Partners	4.290	3.709	4.524	3.475
	(.975)	(1.083)	(.868)	(.808)
Age	21.145	20.327	21.836	20.283
	(5.661)	(2.632)	(6.183)	(2.329)
Ethnicity	1.8	1.563	2.131	1.883
	(1.406)	(.811)	(1.309)	(1.075)
Non-white	.562	.6	.684	.714
	(.501)	(.494)	(.468)	(.455)
Employment Status	.709	.709	.606	.8
	(.936)	(.936)	(.917)	(.970)
Native English Speaker	.927	.872	.803	.883
	(.262)	(.336)	(.400)	(.323)
Political Ideology	3.090	2.472	2.803	2.666
	(1.578)	(1.230)	(1.469)	(1.601)

Notes: Standard deviations in parenthesis.
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

potential drivers.

4.1 Rate of Playing Preferred and Payoffs

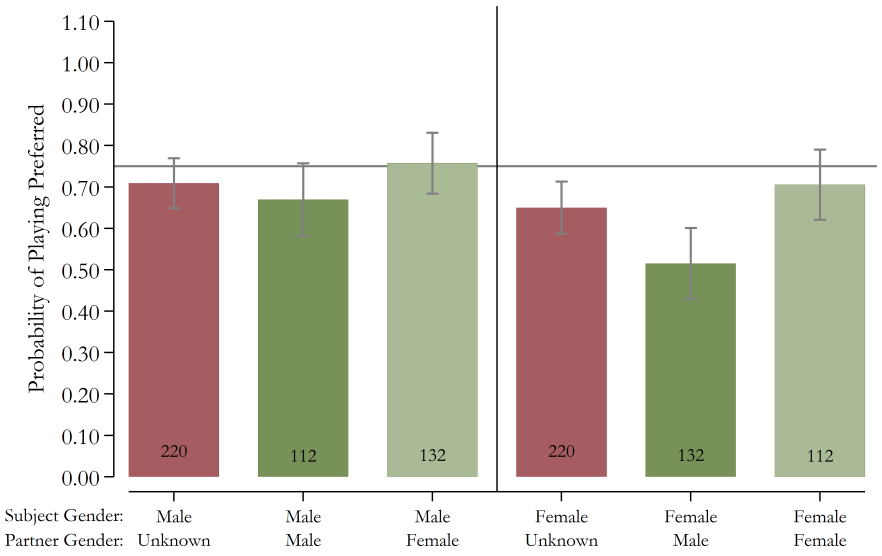

Figure 1: Playing Preferred Choice with No Communication

Notes: Bars 1-3 represents data for men by partner gender. Bars 4-5 represents data for women by partner gender. Vertical lines represent the 95 percent confidence interval. The 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 number of observations in each gender pair group is stated at the bottom.

Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

Figure 1 presents the probability of playing preferred when there is no communication by Gender Reveal treatment and gender-pair type. When gender is not revealed, both males and females looks to be playing their preferred choice 65-70% of the time, falling just short of the predicted mixed strategy equilibrium of playing preferred 75% of the time. Interestingly, the mixed strategy equilibrium results in lower payoffs than playing preferred 50% of the time, which would result in a payoff of \$5. Consistent with this, in rounds with no communication, our subjects receive an average of \$4.46—between \$5.00 and the mixed strategy predicted outcome of \$3.75.

In sessions where gender is revealed, both men and women will play their preferred

choice more against female partners than male partners, although this is not statistically significant. This results in more coordination in male-female pairs than in either male-male or female-female pairs. Given the lack of significance, this is weakly consistent with the current literature, that finds that men are more hawkish or aggressive towards female partners and women are more dovish against male partners. Note, while this could be seen as a manifestation of sexism, it is also true that men may play this way even if they do not believe women are inherently more likely to be dovish, but rather believe women are more likely to believe men will be hawkish, in which case dovishness is a best response.

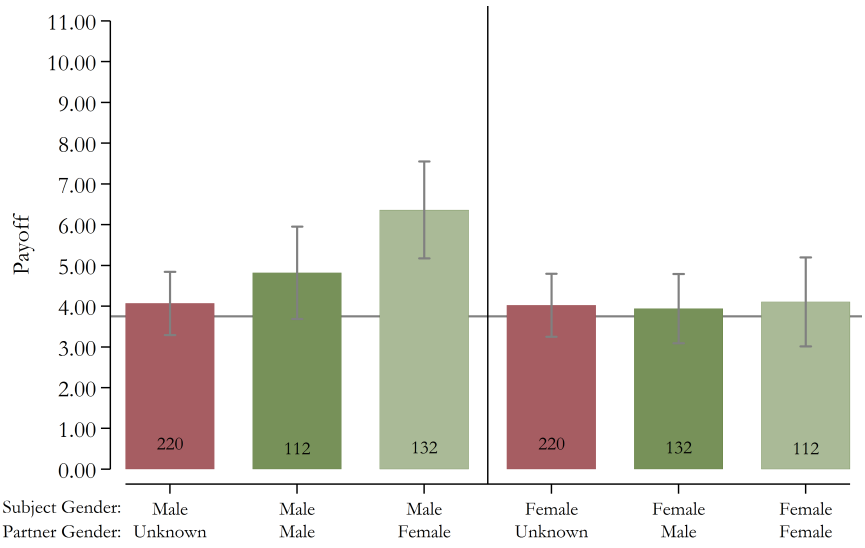

Figure 2: Payoff from No Communication Round

Notes: Bars 1-3 represents data for men by partner gender. Bars 4-5 represents data for women by partner gender. Vertical lines represent the 95 percent confidence interval. The horizontal gray line marks the theoretical mixed strategy equilibrium payoff which is $3.75. The number of observations in each gender pair group is stated at the bottom.
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

The result of men's hawkish behavior towards women and women's dovish behavior towards men leads to higher payoffs for men in mixed gender-pairs. Figure 2 presents the payoffs when there is no communication by gender reveal treatment and gender-pair type. This figure shows that when gender is not revealed, payoffs are the same for men and women, however, when gender is revealed, subjects use their partner's gender as a

focal point, and coordinate strategically. This leads to higher payoffs for men compared to woman. Notably, even though women playing more dovishly against men also experience greater coordination, they do not experience increased payoffs, as they are coordinating on the less preferred outcome. Men playing less aggressively against other men also slightly increases payoffs, as they move closer to the payoff-optimizing 50/50 randomization.

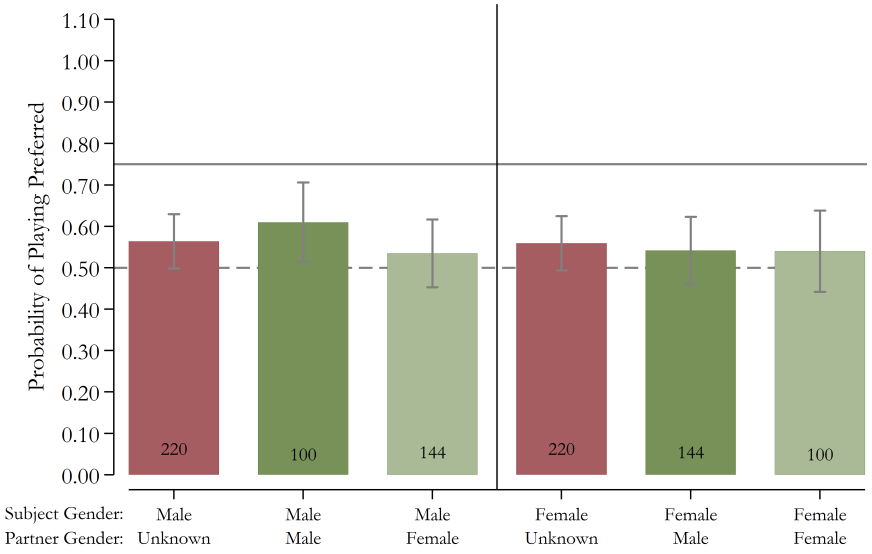

Figure 3: Playing Preferred Choice with Communication

Notes: Bars 1-3 represents data for men by partner gender. Bars 4-5 represents data for women by partner gender. Vertical lines represent the 95 percent confidence interval. 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. The number of observations in each gender pair group is stated at the bottom.
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

When communication is introduced, we find that not only is there increased coordination (average payoff increases to \$8.77), but also the gender-driven strategic behavior disappears. Figure 3 shows that both male and females are reducing their probability of playing preferred when there is communication. Moreover, when gender is revealed, men play their preferred choice a little bit more against men than against females. Furthermore, Figure 4 presents the payoffs by gender pair. We see that payoffs double due to the increased coordination and we see that there is actually no difference between the payoffs

of male and females regardless of their gender. If anything, it looks like male-male pairings are actually doing a little worse (which stems from increased mis-matching, due to playing their preferred choice more). Interestingly, by looking at sessions where gender is not revealed only, we can see that in this particular game there do not appear to be gender differences in negotiation ability or performance, since men's and women's payoffs are approximately equal.

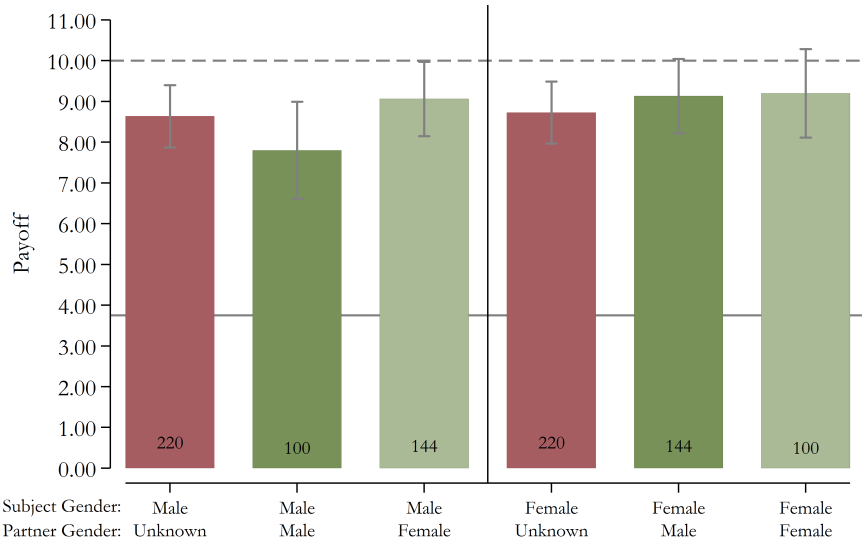

Figure 4: Payoff from Communication Rounds

Notes: Bars 1-3 represents data for men by partner gender. Bars 4-5 represents data for women by partner gender. Vertical lines represent the 95 percent confidence interval. The solid horizontal gray line marks the theoretical mixed strategy equilibrium payoff which is \$3.75. The dashed horizontal gray line marks the expected payoff under full cooperation which is \$10.00. The number of observations in each gender pair group is stated at the bottom.
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

We now examine these effects in a regression that controls for potential time trends, session effects, and individual effects. First, we compare the relationship between gender than the probability of playing preferred when there is and is not communication, using the specification:

$$PlayPreferred_{it} = \beta_0 + \beta_1 female_i + \beta_2 chat_{it} + \beta_3 female * chat_{it} + u_{it}$$

Table 3: Playing Preferred: Men versus Women

	Dependent variable: Playing Preferred			
	(1)	(2)	(3)	(4)
Female	-0.088**	-0.088**	-0.088**	-0.106***
	(0.034)	(0.037)	(0.034)	(0.034)
Female × Chat	0.073*	0.073*	0.073*	0.077*
	(0.040)	(0.041)	(0.040)	(0.039)
Chat	-0.149***	-0.149***	-0.169***	-0.173***
	(0.025)	(0.030)	(0.029)	(0.027)
Constant	0.713***	0.713***	0.696***	0.965***
	(0.028)	(0.028)	(0.056)	(0.131)
Session Cluster	YES		YES	YES
Ind. Cluster		YES		
Session Controls			YES	YES
Ind. Controls				YES
Observation	1856	1856	1856	1848
R-Squared	0.0175	0.0175	0.0177	0.0324

Notes: Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

Table 4: Men Playing Preferred: Against Male versus Female Partner

	Dependent variable: Playing Preferred				
	(1)	(2)	(3)	(4)	(5)
Partner Female	0.0879	0.0879	0.102	0.115**	0.0900
	(0.0612)	(0.0584)	(0.0614)	(0.0502)	(0.0553)
Partner Female × Chat	-0.163*	-0.163*	-0.194*	-0.218***	-0.158*
	(0.0862)	(0.0935)	(0.0879)	(0.0638)	(0.0821)
Chat	-0.0596	-0.0596	-0.180**	-0.168**	-0.0626
	(0.0530)	(0.0669)	(0.0723)	(0.0695)	(0.0506)
Constant	0.670***	0.670***	0.553***	1.022***	1.015***
	(0.0578)	(0.0490)	(0.160)	(0.217)	(0.0403)
Session Cluster	YES		YES	YES	YES
Ind. Cluster		YES			
Session Controls			YES	YES	
Ind. Controls				YES	
Ind. FE					YES
Observation	488	488	488	488	488
R-Squared	0.0321	0.0321	0.0450	0.130	0.304

Notes: Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

Table 3 compares the probability of playing preferred with and without communication between men and women. When there is no communication, women are 8.8 percentage points less likely to play their preferred choice (or choose $15). However, when communication is introduced, women are approximately equally likely to play their preferred choice (adding the two coefficients together). Thus, this regression shows that communication appears to ameliorate gender differences in strategic behavior.

Furthermore, in the raw data we saw that men played different strategies against male partners compared to female partners. In Table 4, we compare how male behave differently when they have a male versus a female partner and they are aware of their partner's gender, using the specification:

$$PlayPreferred_{it} = \beta_0 + \beta_1 partnerfemale_i + \beta_2 chat_{it} + \beta_3 partnerfemale * chat_{it} + u_{it}$$

The regression shows that, in the absence of communication, men are more likely to play their preferred choice against a female partner–although this is only significant under specification (4)– however; when communication is introduced, men are less likely to play their preferred choice against female partners, which is statistically significant at the 10 percent to the 1 percent level depending on the specification.

Next, we will look at the effect of gender on payoffs. Table 5 shows the average payoff with and without communication between men and women. When there is no communication, women are getting on average 88 cents to $1.10 less, this is significant at the 5 to 1 percent level depending on the specification. When communication is introduced, both men and women are doing better with the total payoff doubling compared to no communication. Looking at women's payoffs under communication, we see a dramatic increase of $1.25, making their payoffs approximately equal, to, or slightly higher than, men's in the presence of communication. Therefore, communication also appears to ameliorate gender differences in outcomes of this particular game, rather than exacerbate them.

Moreover, Table 6 compares the average payoff of men against male versus female partners when their partner's gender is known. Men appear to experience higher payoffs in the non-chat condition when playing a female partner, although this difference is not significant. This difference is reduced somewhat in the chat treatment, but remains present

Table 5: Payoff: Men versus Women

	Dependent variable: Payoff			
	(1)	(2)	(3)	(4)
Female	-0.884**	-0.884**	-0.884**	-1.104***
	(0.342)	(0.397)	(0.342)	(0.379)
Female × Chat	1.250**	1.250**	1.250**	1.304**
	(0.549)	(0.527)	(0.550)	(0.556)
Chat	3.685***	3.685***	3.961***	3.967***
	(0.498)	(0.402)	(0.677)	(0.679)
Constant	4.903***	4.903***	5.048***	7.323***
	(0.355)	(0.300)	(0.772)	(1.143)
Session Cluster	YES		YES	YES
Ind. Cluster		YES		
Session Controls			YES	YES
Ind. Controls				YES
Observation	1856	1856	1856	1848
R-Squared	0.122	0.122	0.122	0.131

Notes: Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

Table 6: Men's Payoff: Against Male versus Female Partner

	Dependent variable: Payoff				
	(1)	(2)	(3)	(4)	(5)
Partner Female	1.542	1.542*	1.497	1.551	1.539
	(1.161)	(0.844)	(1.126)	(1.152)	(1.311)
Partner Female × Chat	-0.280	-0.280	-0.0943	-0.195	-0.206
	(1.268)	(1.225)	(1.302)	(1.343)	(1.601)
Chat	2.979***	2.979***	2.550**	2.601**	2.935**
	(0.799)	(0.773)	(1.023)	(1.049)	(0.962)
Constant	4.821***	4.821***	3.060**	6.840***	5.122***
	(0.826)	(0.570)	(1.173)	(1.713)	(0.916)
Session Cluster	YES		YES	YES	YES
Ind. Cluster		YES			
Session Controls			YES	YES	
Ind. Controls				YES	
Ind. FE					YES
Observation	488	488	488	488	488
R-Squared	0.0632	0.0632	0.0700	0.0937	0.189

Notes: Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

because men do worse against other men in the presence of chat, given continued mismatching, as seen in Appendix Figure 10.

The impact of knowing one is playing a female partner with and without chat can perhaps be most clearly seen in Table 7. This table shows the payoffs for men who play female partners only, but with or without knowing their partner is female—either in the gender revealed treatment or not. When men are in the gender revealed treatment with no chat, their payoff is $2.5 higher than when they're playing a woman whose gender they do not know. This is driven both by their more hawkish behavior when gender is revealed, and female partners' correspondingly more "dovish" behavior. However, when chat is introduced, these gains for male payoffs are completely erased—the negative coefficient on chat interacted with gender revealed is approximately the same size as the positive one on gender revealed. In the presence of chat, men receive approximately the same payoff against women, whether the gender is known or unknown to them.

Table 7: Men Playing Against Women Payoff: With and Without Gender Reveal

	Dependent variable: Payoff			
	(1)	(2)	(3)	(4)
Gender Reveal	2.508***	2.508***	2.504***	2.788***
	(0.703)	(0.777)	(0.666)	(0.667)
Chat × Gender Reveal	-2.428**	-2.428**	-2.531**	-2.643**
	(1.147)	(1.074)	(1.183)	(1.188)
Chat	5.127***	5.127***	5.069***	4.964***
	(0.981)	(0.704)	(1.585)	(1.527)
Constant	3.856***	3.856***	2.016	4.172*
	(0.403)	(0.482)	(1.357)	(2.226)
Session Cluster	YES		YES	YES
Ind. Cluster		YES		
Session Controls			YES	YES
Ind. Controls				YES
Observation	512	512	512	512
R-Squared	0.110	0.110	0.124	0.139

Notes: Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

To summarize, our quantitative results shows that, under no communication, gender plays a role in people's strategic behavior. We see that both men and women are more hawkish when they have female partners. However, when there is communication there is increased coordination and women do not fare worse then men. Most strikingly, we see a change in men's payoffs: from gender reveal providing an advantage, to this advantage completely disappearing in the presence of chat. We now turn to the qualitative data to explain this surprising result.

4.2 Benevolent sexism in negotiation approach

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. The reason is that 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).

Therefore, one can imagine that one possible effective way to use two-way communication to one's advantage in our setting would be to essentially turn it into one-way communication. If one side intransigently insists they are choosing \$15, and refuses to entertain any discussion to the contrary, the other side becomes stuck with choosing \$5 or facing mismatch and thus \$0. In fact, some of our participants laid this out explicitly to their partners, saying "I'm choosing 15 no matter what. So if you want anything you only have one option."

We term this strategy "Hard Commitment." Of course, Hard Commitment is not always effective. It can be met with countervailing "commitment" from the other partner, or may destroy goodwill in the negotiation and result in mismatch. Therefore, one could imagine that individuals may be more likely to use this strategy against players they expect to behave more passively in response. Would the analogy of men's more hawkish behavior towards women in the no chat round be higher employment of Hard Commitment against women in the chat rounds?

In fact, we see the opposite. Men are indeed more likely to use this strategy than women, but are significantly *less* likely to use it against (known) female partners.

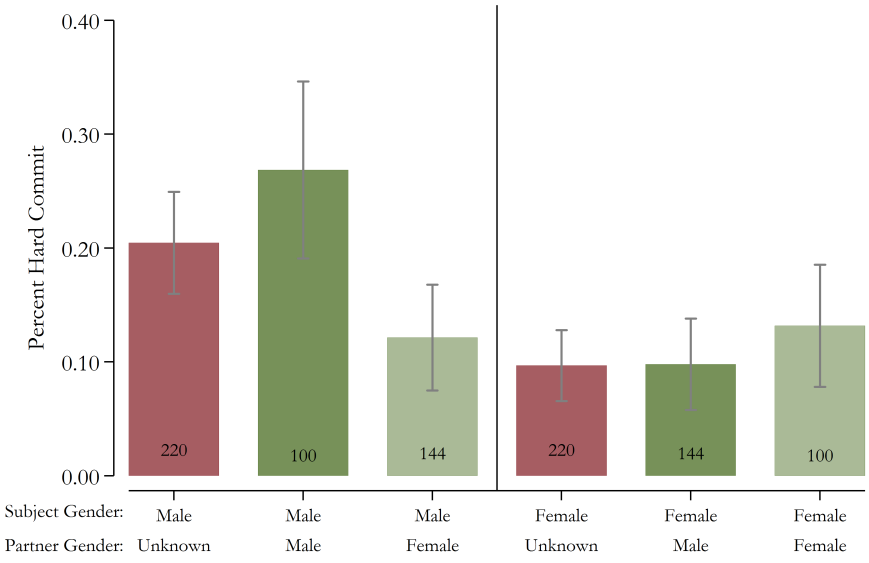

Figure 5: Rates of Hard Commitment
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

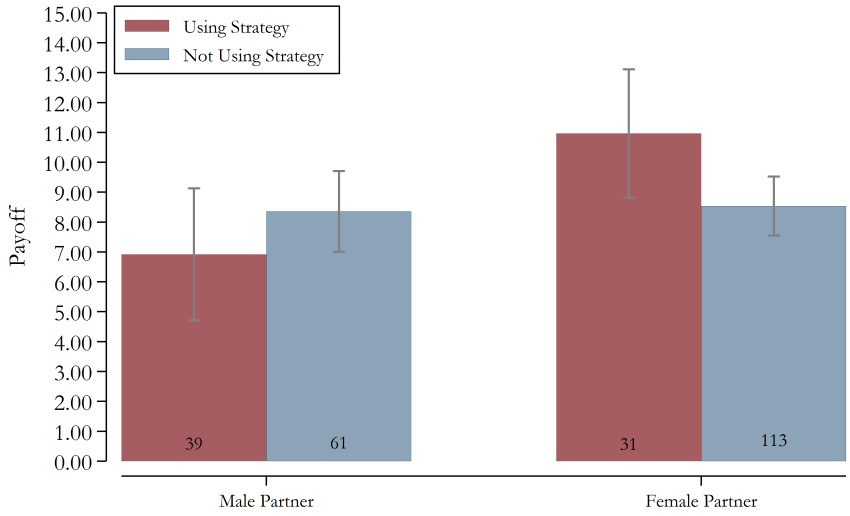

Figure 6: Men's Payoffs when Using Hard Commitment
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

Figure 5 shows the probability of using the Hard Commitment strategy by subject gender and partner gender. We find is that males are more likely to use a Hard Commitment strategy than women when their partner's gender is not known. However, when gender is revealed, men are significantly more likely to used a Hard Commitment strategy against a male partner than a female partner. In fact, men employed Hard Commitment 27% of the time when partnered with a male, but only 12% when playing against female partners. Women, if anything, use Hard Commitment slightly more against female partners.

This reluctance to use Hard Commitment is particularly surprising in light of the payoffs associated with using this strategy against male and female partners. Figure 6 shows men's payoffs conditional on using or not using a Hard Commitment strategy, when the subject's partner is a male versus female (and gender is known). Those who use Hard Commitment against male partners fare, if anything, slightly worse than those who use other tactics. But, men who use Hard Commitment against women receive higher payoffs than those not using it. This evidence is of course suggestive, as use of strategies is not randomly assigned, and so men who use Hard Commitment against female partners may be choosing partners they believe will be more receptive. However, this is unlikely given that Hard Commitment is often the "opening move" in the conversation, before much data about a partner's potential reaction can be gathered. In Appendix Figure 11, we include only men who use the Hard Commitment strategy as a "first mover," rather than in response to another strategy.

Given the payoff differences, it appears that men's behavior is driven by some kind of altruism or chivalry toward female partners that is activated only in the presence of chat. To examine this further, we additionally look at individuals who outright offer that the other partner can take the higher payoff, \$15. This guarantees coordination, but of course yields a lower payoff than the average payoff in the session. Figure 7 shows that men are more likely to offer \$15 when their partner is female, whereas women, if anything, do the opposite. Again, one could expect that Offering \$15 is the equivalent of dovish behavior, and thus individuals do it with partners against whom they expect more resistance, and therefore want to head off a potential mismatch by giving in. This matches with women's behavior, but is the opposite of men's behavior. Figure 8 shows men's payoffs that result from this strategy: Payoffs when offering \$15 are about equal across male and female

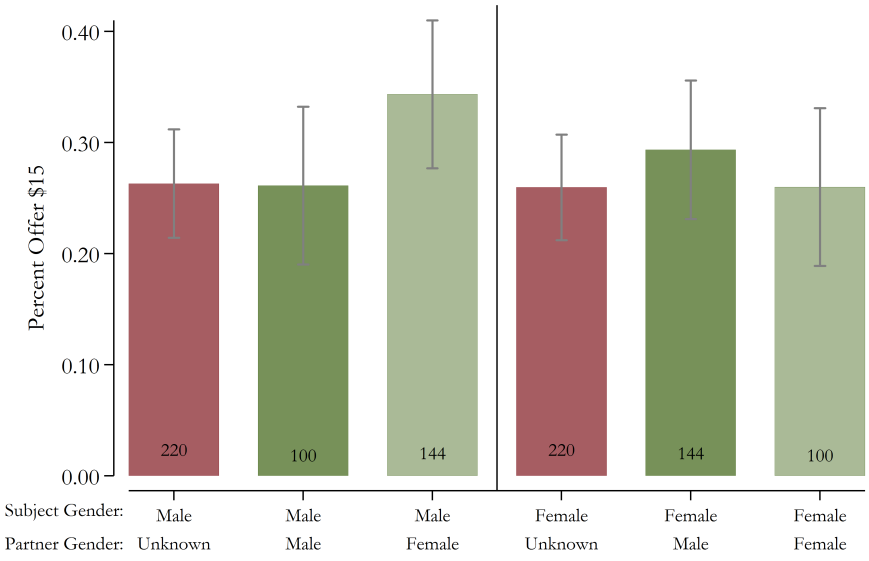

Figure 7: Rate of Offering $15 to Partner

Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

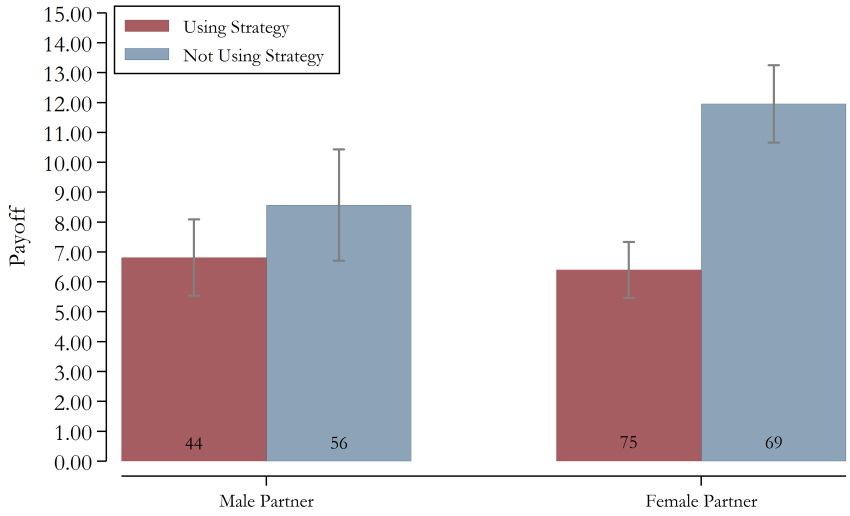

Figure 8: Men's Payoffs when Offering $15 vs. Not

Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

partners, but what is different is how much is being given up. Payoffs when *not* offering $15 are much higher against female partners, indicating again that men are choosing a strategically disadvantageous approach.

We confirm these results in a regression analysis to understand the rates of use of these strategies and their impacts, while being able to control for individual characteristics as well as potential time trends and session effects. First, we compare the relationship between gender and the probability of using the Hard Commitment and Offer $15 negotiation strategies when the gender of their partner is known, using the following specifications:

$$HardCommitment_{it} = \beta_0 + \beta_1 female_i + u_{it}$$

$$Offered15_{it} = \beta_0 + \beta_1 female_i + u_{it}$$

Table 8 shows that there is marginally significant difference in rate of use of Hard Commitment between mean and women: Women are 7 percentage points less likely to use a Hard Commitment strategy regardless of their partner's gender. There is no gender-based difference in rates of Offering $15.

Table 8: Hard Commitment and Offering $15:
Men versus Women

	Dependent variable:							
	Hard Commitment				Offer $15			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Female	-0.070*	-0.070	-0.070*	-0.078*	-0.030	-0.030	-0.030	-0.007
	(0.036)	(0.045)	(0.036)	(0.038)	(0.038)	(0.043)	(0.038)	(0.040)
Constant	0.182***	0.182***	-0.094	0.108	0.310***	0.310***	0.609***	0.227*
	(0.041)	(0.037)	(0.107)	(0.191)	(0.031)	(0.031)	(0.146)	(0.115)
Session Cluster	YES		YES	YES	YES		YES	YES
Ind. Cluster		YES				YES		
Session Controls			YES	YES			YES	YES
Ind. Controls				YES				YES
Observation	488	488	488	484	488	488	488	484
R-Squared	0.0132	0.0132	0.0278	0.0493	0.00155	0.00155	0.0172	0.0600

Notes: Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

We compare how likely men are to use each negotiation strategy when they have a male versus a female partner, and they are aware of their partner's gender, using the specifications:

$$HardCommitment_{it} = \beta_0 + \beta_1 partnerfemale_i + u_{it}$$

$$Offered15_{it} = \beta_0 + \beta_1 partnerfemale_i + u_{it}$$

Table 9 shows that, men are 14.7 percentage points less likely to use a Hard Commitment strategy against female partners and this is significant at the 5 to 1 percent level depending on the specification. Furthermore, men are also 8.2 percentage points more likely to offer the $15 to their female partners.

Table 9: Hard Commitment and Offering $15:
Men Against Male versus Female Partners

	Dependent variable:							
	Hard Commitment				Offer $15			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Partner Female	-0.147**	-0.147***	-0.148**	-0.159***	0.082*	0.082*	0.081**	0.083**
	(0.049)	(0.046)	(0.053)	(0.048)	(0.037)	(0.047)	(0.033)	(0.036)
Constant	0.269***	0.269***	-0.011	0.278	0.261***	0.261***	0.794***	0.280**
	(0.058)	(0.054)	(0.167)	(0.286)	(0.041)	(0.042)	(0.150)	(0.104)
Session Cluster	YES		YES	YES	YES		YES	YES
Ind. Cluster		YES				YES		
Session Controls			YES	YES			YES	YES
Ind. Controls				YES				YES
Observation	244	244	244	244	244	244	244	244
R-Squared	0.0450	0.0450	0.0560	0.150	0.0108	0.0108	0.0398	0.128

Notes: Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

Finally, we show that these benevolent behaviors displayed by men towards women can have significantly disadvantageous results in terms of men's payoffs. In Table 10 we compare men's average payoff between using Hard Commitment or Offering $15 versus not, against female partners when gender is known. Strikingly, the usage of these negotiation strategies can mean a significant gain or loss in payoffs. Men who choose to use the Hard

Commitment strategy against women on average gain $2.21 to $2.43 in profits compared to not using the strategy and this is significant at the 10 and 5 percent level depending on the specification. Even more remarkable, men who choose to offer $15 to their female partners on average lose $5.55 to $5.57, depending on the specification, compared to those who are not offering the $15 to their female partners and this is statistically significant at the 1 percent level. The fact that men are choosing to use these less aggressive strategies against their female partners, despite the significant financial loss in doing so, suggest that some kind of gender-driven altruism, or benevolent sexism, may be at play.

Table 10: Payoffs from Hard Commitment and Offering $15:
Men Against Male versus Female Partners

	Dependent variable:							
	Hard Commitment				Offer $15			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Hard Commitment	2.428**	2.428**	2.217**	2.257*				
	(0.913)	(1.158)	(0.969)	(1.130)				
Offer $15					-5.557***	-5.557***	-5.566***	-5.548***
					(0.770)	(0.791)	(0.755)	(0.751)
Constant	8.540***	8.540***	5.106	8.163*	11.957***	11.957***	8.294**	9.154**
	(0.274)	(0.510)	(3.736)	(4.391)	(0.620)	(0.625)	(3.336)	(3.921)
Session Cluster	YES		YES	YES	YES		YES	YES
Ind. Cluster		YES				YES		
Session Controls			YES	YES			YES	YES
Ind. Controls				YES				YES
Observation	144	144	144	144	144	144	144	144
R-Squared	0.0322	0.0322	0.0404	0.0664	0.249	0.249	0.264	0.276

Notes: Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

The theory of ambivalent sexism can help us understand these surprising results. As previously mentioned, the theory of ambivalent sexism posits that men may experience sexist impulses in two contradictory ways: On one hand, they may feel hostile toward women, while on the other hand, they may feel more benevolent behavior toward women is warranted. As part of the post-survey, we had subjects answer six questions taken from the Ambivalent Sexism Index: three regarding hostile sexism and three regarding benevolent sexism (Glick and Fiske, 1996).[6]

[6]The three hostiles questions were: (1) many women are actually seeking special favors, such as hiring

We can correlate the usage of the Hard Commitment and Offering $15 under different study arms to the hostile and benevolent sexism scores. Table 11 presents the correlation between men using the Hard Commitment negotiation strategy to the hostile and benevolent sexism scores. As the table shows, using Hard Commitment is positively and significantly correlated to hostile sexism, but, surprisingly, this correlation exists for use against both male and female partners. However, we see that while benevolent sexism is predictive of *not* using Hard Commitment against both types of partners when gender is not known, it is only predictive of not using Hard Commitment against female partners when gender is known. Thus, men who selectively choose to not employ Hard Commitment against female partners are more likely to hold benevolently sexist beliefs.

Table 12 shows a comparison of means of the hostile and benevolent sexism scores for men who used the Hard Commitment negotiation strategy with their female partners compared to those who did not used that strategy against their female partners. As the table shows, men who chose not to used the Hard Commitment strategy against their female partners had an average benevolent sexism score of 3.3.27 while men who chose to use the Hard Commitment negotiation strategy against women had an average benevolent sexism score of 3.05. This difference is statistically significant at the 10 percent level.

Appendix Tables 16 and 17 repeat this examination for "Offering $15". The results are directionally consistent but more marginally significant.

To provide an overall view of men's behavior, we next categorize men's behavior toward women as either "hawkish" or "chivalrous": Hawkish men choose $15 for themselves every time they play a female partner, whereas chivalrous men do not.[7] Table 13 shows a difference in mean for the hostile and benevolent sexism scores for chivalrous versus hawkish

policies that favor them over men, under the guise of asking for "equality"; (2) women are too easily offended; and (3) when women lose to men in a fair competition, they typically complain about being discriminated against. The three benevolent sexism questions were: (1) in a disaster, women ought not necessarily to be rescued before men; (2) women should be cherished and protected by men; and (3) men should be willing to sacrifice their own well being in order to provide financially for the women in their lives. Subjects answered whether they agreed or disagreed with each statement using a 5-point likert scale where 1 was "Strongly Agree" and 5 was "Strongly Disagree". Hostile and benevolent sexism questions were shown in alternating order in the survey. Subsequently, the answers were reversed and cleaned accordingly such that 1 was least hostile or benevolent and 5 was most hostile or benevolent in the hostile and benevolent sexism score, respectively.

[7] This is a conservative measure that one could assume that a men who only chose $5 when they played against a women would be considered even more chivalrous.

Table 11: Correlation: Hard Commit to Sexism Scores (Males Only)

	Correlation with Hard Commitment	**Count**
Hostile Score:		
No Reveal, Male Partner	0.066	102
No Reveal, Female Partner	0.033	118
Reveal, Male Partner	0.173*	100
Reveal, Female Partner	0.185**	144
Benevolent Score:		
No Reveal, Male Partner	-0.272***	102
No Reveal, Female Partner	-0.201**	118
Reveal, Male Partner	-0.112	100
Reveal, Female Partner	-0.245***	144

Notes: *** p<0.01, ** p<0.05, * p<0.1
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

Table 12: t-test of Sexism Score for Men Who Play Hard Commitment Against Women v. Not

	Do Not Use Hard Commitment		**Use Hard Commitment**		**Diff**
	Mean	**Obs**	**Mean**	**Obs**	
Hostile Sexism Score	2.345	113	2.613	31	0.268
Benevolent Sexism Score	3.274	113	3.054	31	-0.221*

Notes: *** p<0.01, ** p<0.05, * p<0.1
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

men. The table shows that men who exhibited more chivalrous behavior had a statistically significantly higher benevolent sexism score (as well as a lower hostile sexism score, but this difference is not significant).

Table 13: t-test of Sexism Score for Chivalrous versus Hawkish Men

	Chivalrous Men		**Hawkish Men**		**Diff**
	Mean	**Obs**	**Mean**	**Obs**	
Hostile Sexism Score	2.267	40	2.571	21	0.305
Benevolent Sexism Score	3.308	40	3.000	21	-0.308**

Notes: *** p<0.01, ** p<0.05, * p<0.1
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

Communication and knowing the gender of one's partner appears to allow men to act on "benevolently sexist" instincts: displaying altruistic behavior toward women, despite the fact that it is strategically disadvantageous. Men are less likely to use a Hard Commitment strategy against female partners, despite the fact that using a Hard Commitment strategy against female partners leads to higher payoffs. We also find, that men are more likely to Offer $15 to their female partners rather than male partners, despite the fact that this will lead to a lower payoff. Correlations between the usage of these negotiation strategies and hostile and benevolent sexism scores as well as the statistically different average benevolent sexism score between men who choose to be more hawkish compared to those who chose to be chivalrous suggest that benevolent sexism may play a role in this behavior.

It is interesting, however, that these "benevolently sexist" actions emerge only in the presence of communication. When there is no communication, men could choose to allow female partners to have the higher payoff as well, but do not do so. One possibility is that men are only predicting the likely actions of their female partners, and thus choosing $15 to avoid mismatch. However, it is also possible that benevolent sexism, or "chivalry," only becomes activated in the social environment created by chat. This is consistent with public goods literature, that shows people are more likely to give when their contributions can be recognized (Rege and Telle, 2004; Grossman, 2015).

5 Conclusion

Using a simple Battle of the Sexes game with and without communication, we demonstrate that, in this setting, communication appears to lessen gender differences in strategic behavior and outcomes. When there is no communication, men are more hawkish towards female partners and women are more dovish against male partners which is consistent with the literature. This leads to higher payoffs for men than women. When there is communication, not only is there increased coordination, but we find that gender driven strategic behavior disappears. When there is communication, coordination significantly increases were most gender pair types are choosing close to 50 percent. Moreover, men do not seem to be playing their preferred choice more against women and women are no longer playing their preferred choice less against male partners. Coordination leads to significant increases in payoffs, however, there is no significant difference in payoffs between man and women, contrary to the no communication rounds.

Mining the qualitative data, though, we find that this apparent equality is driven by gendered altruistic behavior by men toward female partners. When gender is revealed, men choose to use effective tough negotiation strategies less against women, and choose to "fall on their sword" and offer the higher payoff to women more. We relate this behavior to literature on "benevolent sexism," and show that indeed men playing more "chivalrously" toward women is correlated with higher benevolent sexism scores. This paper is the first to demonstrate the presence of "benevolent sexism" in the lab.

How should we interpret these results? Does this mean that women have a hidden advantage in negotiations? Unfortunately, this benevolently sexist behavior is likely to be highly context-specific, and still reflects underlying sexist attitudes, such that women need to be protected. And, it may mask other gendered effects in negotiations that may disadvantage women (such as some men taking advantage of perceived "weaker" women). Given that benevolently sexist behavior can be withdrawn at any time, it is unlikely to provide much advantage in higher stakes situations, such as the workplace. In the appendix, we show results from another experiment, run just after the election of Donald Trump, that show that when hostility increases in general, benevolent sexism tends to dissipate (see Appendix B.). We suggest future work should examine what it takes to "turn off" benevolent sexism, and how its consequences for women. We also make the novel contribution

of using Battle of the Sexes to study negotiation, and suggest that its clean design, along with payoff structure that mirrors negotiation payoff, could make it a fruitful tool for future negotiation studies.

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A Other Results

A.1 Mismatching on $15 or $5

While communication is able to increase coordination there appears to be gender differences in how effectively communication can dissipate mismatching. Figure 9 shows the percentage of all individuals who mismatched because either both negotiators picked $5 (mismatch on $5) or both negotiators picked $15 (mismatch on $15), when there is and is not communication. When there is no communication, 45 percent of individuals are mismatching on $15 while only 11 percent are mismatching on $5. The presence of communication is able to severely reduce the amount of mismatching on $15 while it almost completely removes mismatching on $5. Figure 10 shows this for male subjects when they have male or female partners. Again, when there is no communication, we see that men mismatch on $15 38-43 percent of the time and they mismatch on $5 about 9-11 percent of the time. Note that men playing against women mismatch on $15 slightly less and mismatch on $5 slightly more compared to male partners because women tend to chose their less preferred choice more when playing against men in the absence of communication. The availability of communication is able to reduce mismatching on $15 for when men play against men and even more so when they play against women (possibly stemming from increase rates in offering $5 and lower likelihood of using a Hard Commitment strategy against women). Surprisingly, while communication is able to completely remove mismatching on $5 in male-male pairings, we see a small (but non-zero) percentage of male-female pairs who are still mismatching on $5.

A.2 Benevolent sexism in alternative negotiation approaches

Figures 5 and 7 in the results showed that men are less likely to use Hard Commitment and more likely to Offer $15 to their female partners. Now, we will look at other alternative negotiation approaches that are also suggestive of the altruistic and benevolent behavior that men are exhibiting toward female partners.

First, we do a robustness check on the Hard Commitment strategy. We will limit our analysis to the *first* person that performed a Hard Commitment.[8] We term this strategy

[8]Many times, both players stated this simultaneously or sequentially close to each other.

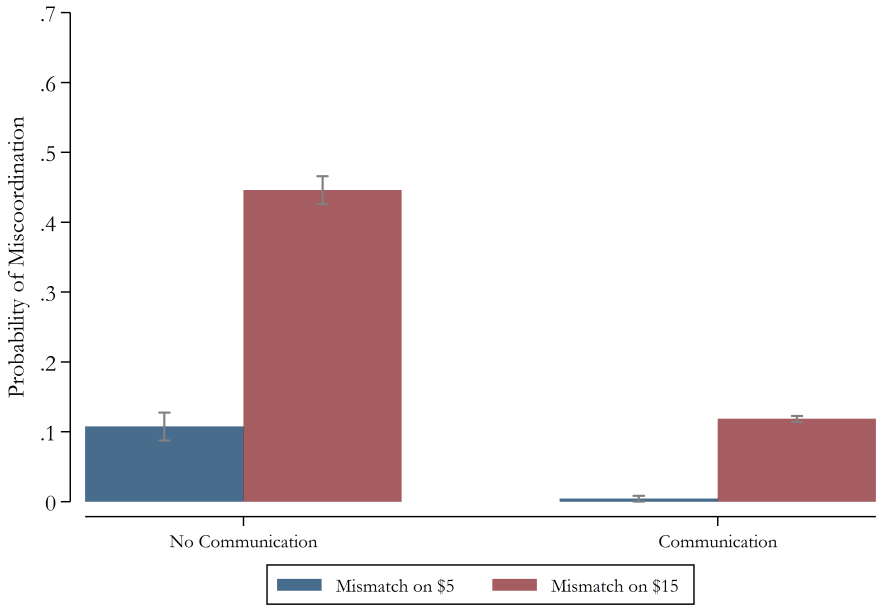

Figure 9: Misscoordination by Type

Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.
Notes: This figure shows percentage of mis-coordination with and without communication. "Mismatch on $5" means the subject picked $5 for themselves and their partner picked $5 leading to a mismatch. "Mismatch on $15"" means the subject picked $15 for themselves and their partner picked $15 leading to a mismatch.

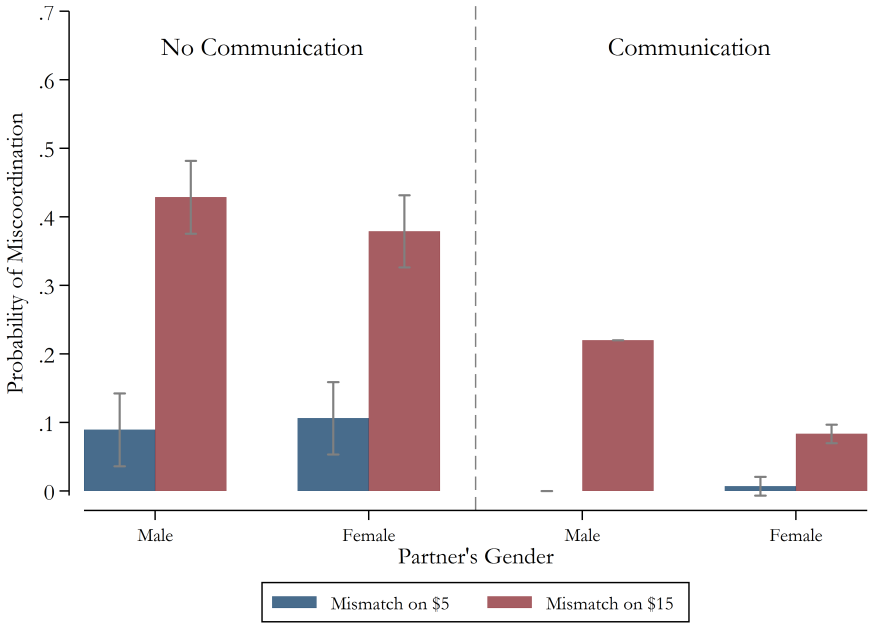

Figure 10: Miss-coordination by Type (Male Only)

Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

Notes: This figure shows percentage of mis-coordination with and without communication. "Mismatch on $5" means the subject picked $5 for themselves and their partner picked $5 leading to a mismatch. "Mismatch on $15" means the subject picked $15 for themselves and their partner picked $15 leading to a mismatch.

"Hard Commitment (First Mover)." Figure 11 shows the probability of being the first person to use the Hard Commitment strategy by subject and partner gender. Men tend to use the Hard Commitment more against male than female partners. Moreover, Figure 12 compares the payoff for the first man to use the Hard Commitment strategy by partner gender and we see that using the strategy yield slightly higher payoffs when playing against a women compared to not using the strategy. Our results are directionally consistent with the previous findings from using Hard Commitment but have a smaller magnitude.

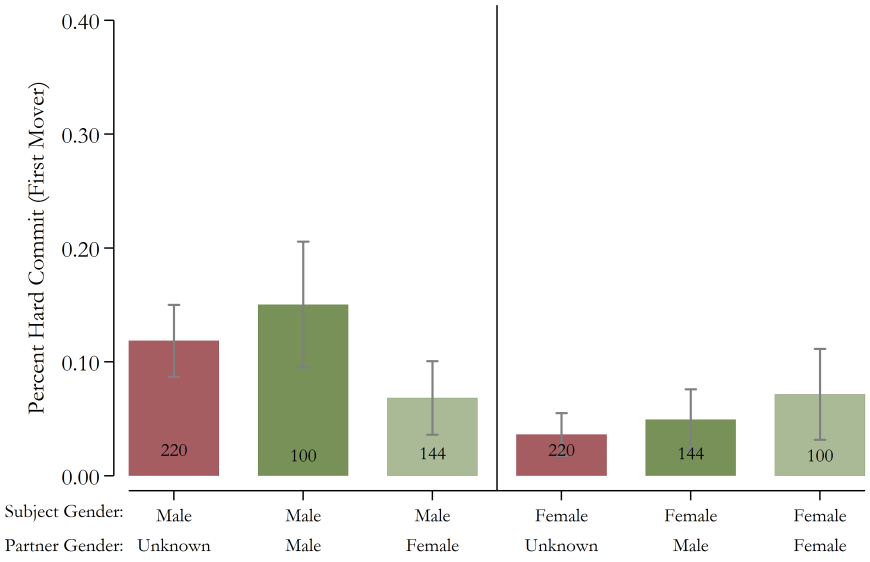

Figure 11: Using Hard Commit Negotiation Strategy (First Mover Only)
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

Some men may be tough negotiators without necessarily using the Hard Commitment strategy. To examine this, we additionally code for a strategy we call "Tough Talker."' The "Tough Talker" is a negotiator that fights for the $15 and are actively trying to convince the other person to $5 or give in. A Tough Talker may seem "pushy" or "mean," but does not necessarily lay out the "all or nothing" ultimatum implied by Hard Commitment. For example, one of our participants told their partner: "It's my turn to take $15, I let the other person have theirs."[9]

[9]We note that Tough Talker and Hard Commitment are not mutually exclusive strategies. We find

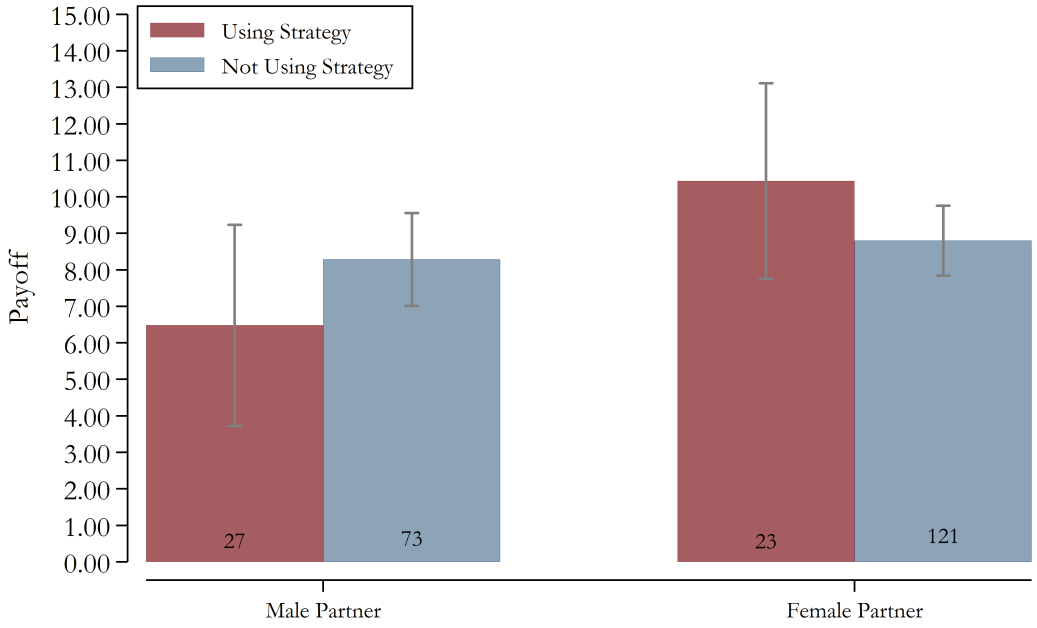

Figure 12: Payoff Using Hard Commit Negotiation Strategy (First Mover Only)

Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

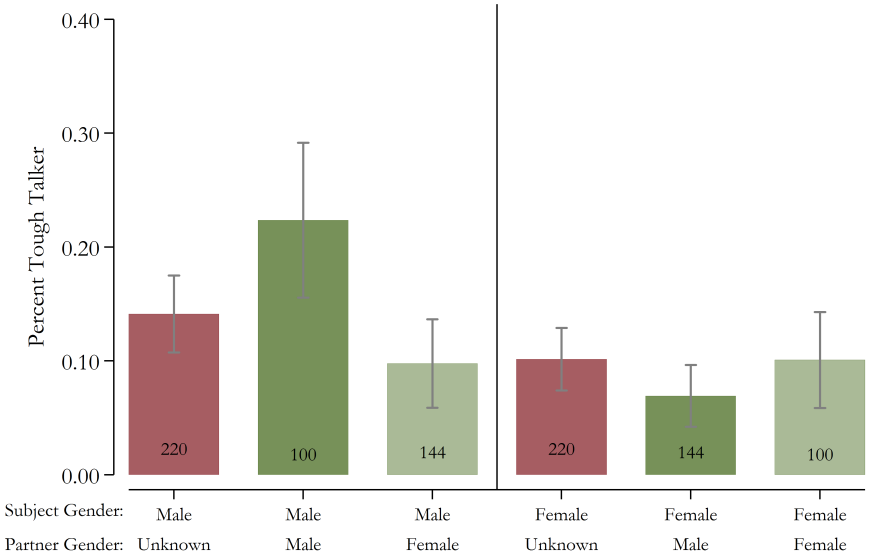

Figure 13: Using a Tough Talker Negotiation Strategy
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

Our results on the rate of being a tough talker is, again, consistent with our findings on Hard Commitment. Figure 13 shows the percentage of participants being tough talkers to their partners by subject gender and partner gender. We see that men are slightly more likely to be a tough talker compared to women when gender is unknown. On the other hand, when the partner's gender is revealed, men tend to be tough talkers more towards male than female partners. Moreover, Figure 14 compares the payoff for men being tough talkers against male or female partners versus not. We see that being a tough talker can lead to slightly lower payoffs when playing against men but slightly higher payoffs when using against women. These results are not significant but are directionally consistent with the previous findings from using Hard Commitment.

Next we check the overall "friendly" to "aggressive" rating that each negotiator received from our MTurk workers after reading each negotiation conversation. Figure 15 shows the

that conditional on using either the Hard Commitment or the Tough Talker strategy in the negotiation conversation, 20.3 percent of those conversations were considered only using Hard Commitment, 19.6 percent of those conversations were considered only using a Tough Talker strategy, and 60.1 percent of those conversations were considered using both a Hard Commit and a Tough Talker negotiation strategy.

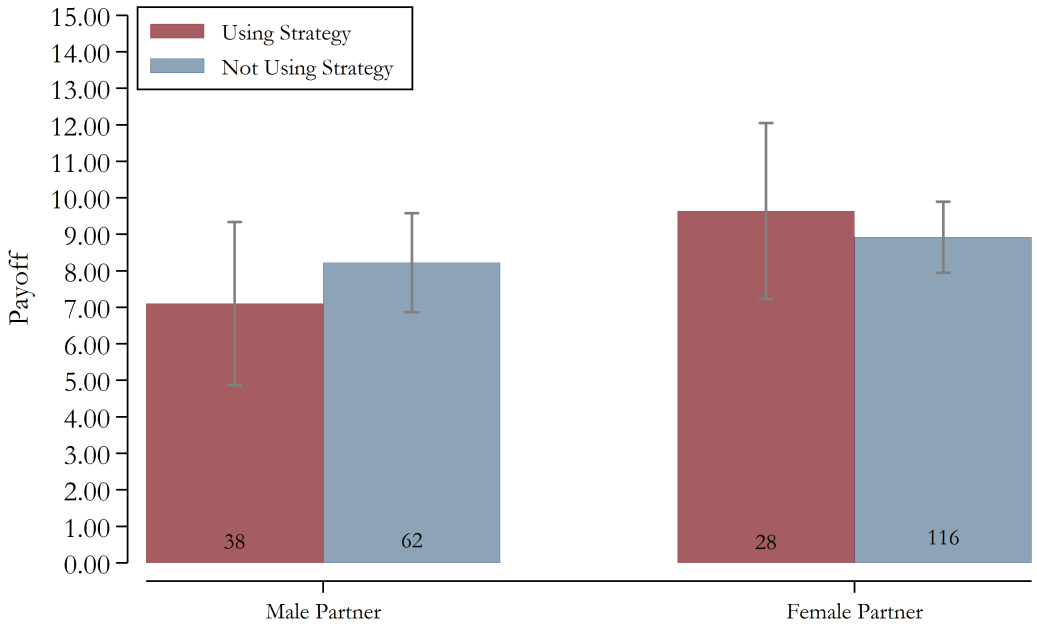

Figure 14: Payoff Using a Tough Talker Negotiation Strategy
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

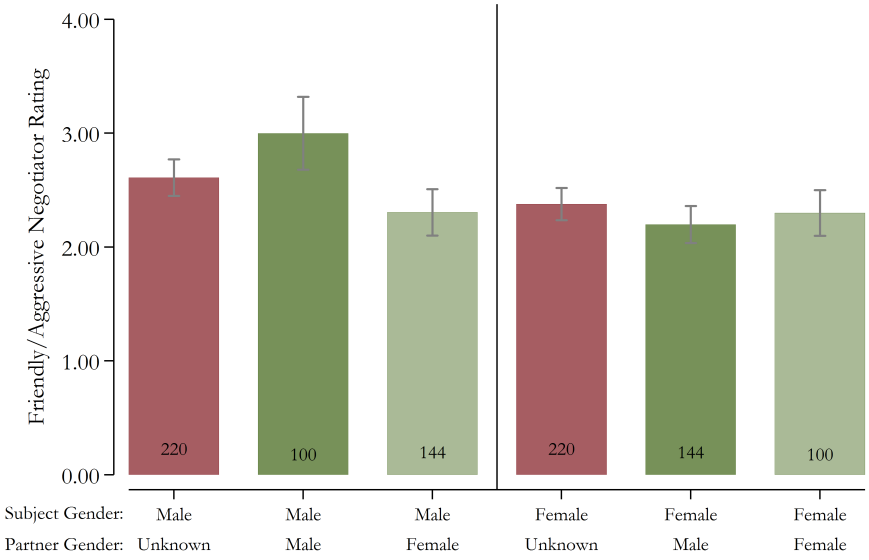

Figure 15: Aggressive Score

Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

average score by gender-pair. A similar pattern emerges. Males are rated a little more aggressive than women when they are playing an partner of unknown gender. However, when gender is revealed, men receive a higher Aggressive (or less friendly) rating when they are playing against men compared to women. This, of course, might be due to more men playing Hard Commitment and being Tough Talkers towards men than women.

To contrast the more hawkish alternative measures — that is Hard Commitment (First Mover), Tough Talker, and Aggressiveness Score, we look at how successful each negotiation was, and whether the negotiation led to an agreement — or cooperation.[10] Similar to the pattern that we saw in who choose to Offer \$15 to their partners, Figure 16 shows that when gender is not revealed men and women have equal rates of reaching an agreement. However, when gender is revealed, men negotiating with women are more likely to reach an agreement than men negotiating with other men. This, of course, can also be attributed to men offering \$15 to women more — inherently leading to cooperation.

[10] After reading each negotiation conversation, MTurk workers where asked if the negotiation was successful and they two individuals were able to reach an agreement on who choose the \$15 and who chose \$5.

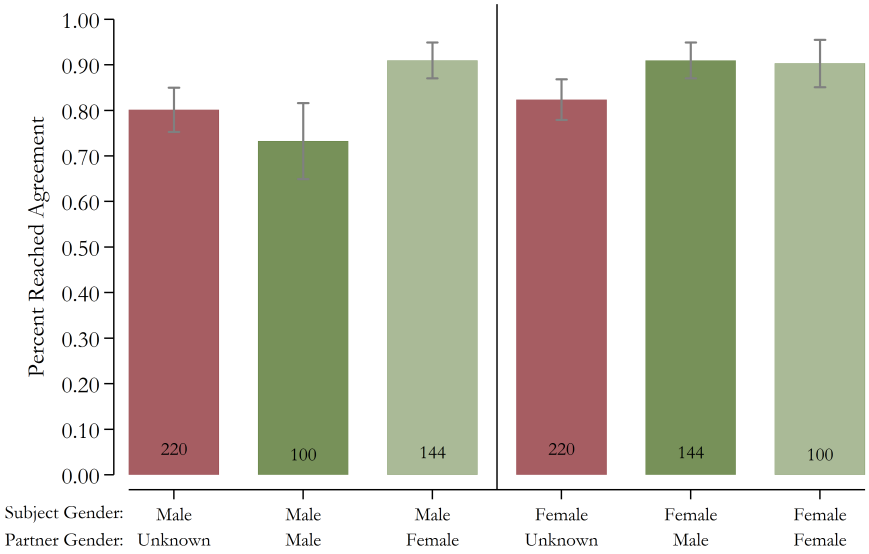

Figure 16: Did They Reach an Agreement?
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

We confirm these results in a regression analysis to understand the rates of use of these strategies, while being able to control for individual characteristics as well potential time trends and session effects. We compared how likely men are to use or score on each measure when they have a male versus a female partner and they are aware of their partner's gender, using the same specification we used when we looked at Hard Commitment and Offering $15.

Table 14 compares the probability of men using the Hard Commitment (First Mover) or the Tough Talker negotiation strategy against male versus female partners when their partner's gender is known. The regression shows that, men are 8.8 percentage points less likely to use a Hard Commitment strategy, limiting on being the first mover, against female partners and this is significant at the 5 percent level across all specifications. Furthermore, men are also 12.6 percentage points less likely to use a Tough Talker negotiation strategy against their female partners. These results are also significant at the 5 percent level across all specifications.

Table 15 compares the Aggressive Score of men when they were playing against men

Table 14: Hard Commitment (First Mover) and Tough Talker Negotiation Strategy: Men Using Strategy Against Male versus Female Partner

	Dependent variable:							
	Hard Commitment (First Mover)				Tough Talker			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Partner Female	-0.082**	-0.082**	-0.081**	-0.088**	-0.126**	-0.126***	-0.120**	-0.126**
	(0.035)	(0.038)	(0.033)	(0.030)	(0.048)	(0.043)	(0.048)	(0.042)
Constant	0.150***	0.150***	-0.056	0.172	0.224***	0.224***	-0.064	0.254
	(0.039)	(0.038)	(0.084)	(0.180)	(0.059)	(0.045)	(0.113)	(0.238)
Session Cluster	YES		YES	YES	YES		YES	YES
Ind. Cluster		YES				YES		
Session Controls			YES	YES			YES	YES
Ind. Controls				YES				YES
Observation	244	244	244	244	244	244	244	244
R-Squared	0.0286	0.0286	0.0402	0.156	0.0447	0.0447	0.0633	0.166

Notes: Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

Table 15: Aggressive Score and Reached Agreement: Men Using Strategy Against Male versus Female Partner

	Dependent variable:							
	Aggressive Score				Reached Agreement			
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Partner Female	-0.694**	-0.694***	-0.668**	-0.691***	0.177**	0.177***	0.181**	0.176**
	(0.227)	(0.188)	(0.224)	(0.201)	(0.077)	(0.046)	(0.076)	(0.074)
Constant	2.999***	2.999***	2.042**	3.497***	0.733***	0.733***	1.121***	0.898***
	(0.298)	(0.218)	(0.656)	(0.860)	(0.100)	(0.050)	(0.176)	(0.173)
Session Cluster	YES		YES	YES	YES		YES	YES
Ind. Cluster		YES				YES		
Session Controls			YES	YES			YES	YES
Ind. Controls				YES				YES
Observation	244	244	244	244	244	244	244	244
R-Squared	0.0554	0.0554	0.0652	0.149	0.0658	0.0658	0.0992	0.181

Notes: Robust standard errors in parentheses.
*** p<0.01, ** p<0.05, * p<0.1
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

compared to women partners as well as the probability of reaching an agreement when they were playing against men compared to women partners. The regression shows that when men played against female partners, MTurk workers thought that they were 0.69-0.71 less aggressive compared to when they were playing against other men. This is significant at the 5 to 1 percent level depending on the specification. Congruently, men were 17.7 to 18.4 percentage points more likely to be able to negotiate successfully and reach an agreement when they had female partners compared to male partners.

Again, the strategies used in these negotiations was not randomized; however consistency of the patterns we saw for Hard Commitment and Offer $15 in this range of alternative strategies is, somewhat, reassuring that benevolent sexism may be at play. These alternative negotiation strategies and aggressiveness measures are another way to supplement our analysis are suggestive that when communication is available, men can exhibit benevolent sexism, choosing to act chivalrously, ameliorating gender differences in strategic behavior and subsequently equalizing payoffs in the absence of communication.

In addition, Tables 16 present the correlation between men the Offer $15 strategy to the hostile and benevolent sexism scores. Using the Offer $15 strategy against women partners is negatively and significantly correlated to hostile sexism. Moreover, when men do not know their partners' gender or when they know that their partner's female, the usage of the Offer $15 negotiation strategy is positively and at least marginally significantly correlated to the benevolent sexism score. Table 17 shows a comparison of means of the hostile and benevolent sexism scores for men who used the Offer $15 negotiation strategy with their female partners compared to those who did not used that strategy against their female partners. As the table shows, men who chose not to offer $15 to their female partners had an average benevolent sexism score of 3.16 while men who chose to offer the $15 to women had an average benevolent sexism score of 3.28. Unfortunately, this difference of 0.12 is not statistically significant.

Table 16: Correlation: Offer $15 to Sexism Scores (Males Only)

	Correlation with Offering $15	**Count**
Hostile Score:		
No Reveal, Male Partner	0.024	102
No Reveal, Female Partner	-0.041	118
Reveal, Male Partner	-0.118	100
Reveal, Female Partner	-0.192**	144
Benevolent Score:		
No Reveal, Male Partner	0.304***	102
No Reveal, Female Partner	0.232**	118
Reveal, Male Partner	0.150	100
Reveal, Female Partner	0.148*	144

Notes: *** p<0.01, ** p<0.05, * p<0.1
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

Table 17: t-test of Sexism Score for Men Who Offer $15 to Women v. Not

	Did Not Offer $15		**Did Offer $15**		**Diff**
	Mean	**Obs**	**Mean**	**Obs**	
Hostile Sexism Score	2.546	69	2.271	75	-0.275*
Benevolent Sexism Score	3.164	69	3.284	75	0.120

Notes: *** p<0.01, ** p<0.05, * p<0.1
Source: Data from 24 sessions run at the Wharton Behavioral Lab in October 2016.

B Post-Trump Election Anomalies

The differing rates of usage of chivalrous versus hawkish negotiation strategies by men towards male or female partners is suggestive evidence of the presence benevolent sexism. Communication and knowing the gender of one's partner seems to allow men to act on these "benevolently sexist" tendencies and exhibit chivalrous behavior towards women. In this section, we show that the presence of benevolently sexist behavior is likely to be highly context-specific and as such, when hostility increases in general, benevolent sexism tends to dissipate. We will exploit the increase in hostility created by the 2016 United States National Presidential election.

The 2016 United States National Presidential election brought about much controversy regarding racial as well as gender biases. In particular, in October, 2016, The Washington Post released a video along with an article about Donald Trump and Billy Bush having a conversation where Donald Trump stats that because he was a "star" he could do anything including "grab women by [their genitals]". This video incited discussion on sexual assault against women and also prompted a number of sexual assault allegations against Trump (Fahrenthold, 2016). Such video and actions of the then-Republican Presidential candidate brought much concern regarding the rise of violence against women (Jeltsen, 2016) as well as the role model that Donald Trump was setting for the male youth in America (Miller, 2016). In the days after the National Election, held on Tuesday November 8, 2016, and the announcement of the victorious President-Elect Donald Trump, there was a reported rise in racial and gendered "attacks" as well as protests across the country (Schmidt and Scherer, 2016). In fact, on the University of Pennsylvania campus, where our experiments were run, black freshmen students were racially targeted by being added, without consent, to a racist group message (Simon and Snow, 2016).

We ran 12 additional lab sessions from November 14, 2016 to November 16, 2016, less than a week after the victory of President-elect Trump. Despite the fact that we ran the exact same protocol, we saw a significant change is individual's choices. These post-election sessions did not find the chivalrous and altruistic behavior exhibited before and in fact, saw a reversal of the benevolent behavior. Overall aggressiveness increased for both genders and particularly for men playing against women. Given the emotional atmosphere at the time and prior literature explaining that boys' non-cognitive development are extremely

responsive to inputs (Bertrand and Pan, 2011), we look at how the particular social context of the 2016 National Presidential election affected benevolently sexists actions.

Table 18: t-test of Demographics Pre-and-Post Election

	Pre-Election		**Post-Election**		**Diff**
	Mean	**Obs**	**Mean**	**Obs**	
Age	20.909	231	19.934	152	-0.975**
Ethnicity	1.853	231	1.553	152	-0.300**
Non-white	0.645	211	0.518	139	-0.127**
Employment Status	0.706	231	0.618	152	-0.087
Native English Speaker	0.870	231	0.888	152	0.018
Political Ideology	2.758	231	3.112	152	0.354**
Liberal	0.871	232	0.786	154	-0.085**

Notes: *** p<0.01, ** p<0.05, * p<0.1
Source: Data from 36 sessions run at the Wharton Behavioral Lab in October and November 2016. The first 24 sessions were run in October while sessions 25-36 were run from November 14, 2016 to November 16 2016, less than a week after the National Presidential Election.

Table 18 shows the difference in means for various individual demographic measures for subjects in our pre-election sessions compared to those in the post-election sessions. We see a statistically significant difference in age, ethnicity (or being non-white), and political ideology (or being liberal) in our subject pool. Subjects post-election were on average almost one year younger, were more white/Caucasian, and identified themselves more conservative compared to the subjects in our sample prior to the election.

Table 19 shows the average hostiles, benevolent, and ambivalent sexism scores for our sample before and after the election. Prior to the election, the average hostiles score in our sample was 2.15; however, after the election, this score increased to 2.35. This increase in the hostile sexism score of 0.20 is statistically significant at the 5 percent level. Given our previous results on the positive correlations between more aggressive and hawkish strategic behavior in negotiation and the hostile and benevolent sexism scores, we would expect individuals to be more aggressive post-election and this is exactly what we find.

Next, we compare the entire sample pre-and-post the election and see the effect of the Trump election on the probability of picking $15. Table 20 compares all subjects playing preferred with and without communication pre- and post-election. Overall, we see

Table 19: t-test of Ambivalent Sexism Index Pre-and-Post Election

	Pre-Election		Post-Election		Diff
	Mean	**Obs**	**Mean**	**Obs**	
Hostile Sexism Score	2.152	232	2.351	154	0.198**
Benevolent Sexism Score	3.009	232	3.071	154	0.063
Ambivalent Sexism Score	2.580	232	2.711	154	0.131*

Notes: *** p<0.01, ** p<0.05, * p<0.1
Source: Data from 36 sessions run at the Wharton Behavioral Lab in October and November 2016. The first 24 sessions were run in October while sessions 25-36 were run from November 14, 2016 to November 16 2016, less than a week after the National Presidential Election.

Table 20: t-test of Playing Preferred (Choosing $15) Pre-and-Post Election

	Pre-Election		Post-Election		Diff
	Mean	**Obs**	**Mean**	**Obs**	
Choose $15, No Chat	0.669	928	0.722	616	0.053**
Choose $15, Chat	0.557	928	0.612	616	0.055**

Notes: *** p<0.01, ** p<0.05, * p<0.1
Source: Data from 36 sessions run at the Wharton Behavioral Lab in October and November 2016. The first 24 sessions were run in October while sessions 25-36 were run from November 14, 2016 to November 16 2016, less than a week after the National Presidential Election.

Table 21: t-test of Playing Preferred (Choosing $15) Pre-and-Post Election (Male Only)

	Pre-Election		Post-Election		Diff
	Mean	**Obs**	**Mean**	**Obs**	
Male with Male Partner					
Choose $15, No Chat	0.670	112	0.757	74	0.087
Choose $15, Chat	0.610	100	0.676	74	0.066
Male with Female Partner					
Choose $15, No Chat	0.758	132	0.867	98	0.110**
Choose $15, Chat	0.535	144	0.633	98	0.098

Notes: *** p<0.01, ** p<0.05, * p<0.1
Source: Data from 36 sessions run at the Wharton Behavioral Lab in October and November 2016. The first 24 sessions were run in October while sessions 25-36 were run from November 14, 2016 to November 16 2016, less than a week after the National Presidential Election.

a consistent jump in both communication and no communication of about 5 percentage points where individuals are being more aggressive and choosing $15 more often. This jump is statistically significant at the 5 percent level. In Table 21 we take a closer look at men playing against male or female partners. While there is an increase in playing preferred across the board, most changes are not significant. However, under no communication, when men are playing against women we do see a significant change in the probability of playing preferred. In fact, while prior to the election men playing against women choose to pick $15 about 75.8 percent of the time — this is just above the mixed strategy equilibrium — we see that post-election, men are overplaying their preferred choice against women. This different of 11 percentage points is statistically significant at the 5 percent level. This is suggestive of an overall increase in hostility and aggressive behavior after the election.

Table 22: t-test of Profit Pre-and-Post Election

	Pre-Election		**Post-Election**		**Diff**
	Mean	**Obs**	**Mean**	**Obs**	
Profit, No Chat	4.461	928	4.513	616	0.052
Profit, Chat	8.772	928	7.695	616	-1.077***

Notes: *** p<0.01, ** p<0.05, * p<0.1
Source: Data from 36 sessions run at the Wharton Behavioral Lab in October and November 2016. The first 24 sessions were run in October while sessions 25-36 were run from November 14, 2016 to November 16 2016, less than a week after the National Presidential Election.

This increase in hawkish behavior might have led to more mismatching and thus a loss in payoffs. Table 22 compared the average payoff for all subjects with and without communication pre- and post-election. There does not seem to be a significant change in payoffs when communication is not available. However, when communication is available, we see that individuals in the post-election sample had, on average, $1.08 less in payoffs than those in the pre-election sample. Table 23 shows the different in average profit for men playing against male or female partners before and after the election. Directionally, when there is no communication, men post-election are getting higher payoffs when they are play against women compared to pre-election. Moreover, under communication, profits post-election are decreasing for men regardless of their partner's gender. While these results are not statistically significant, their magnitudes are quite large.

Next we compare and contrast the usage of aggressive versus friendly negotiation strate-

Table 23: t-test of Profit Pre-and-Post Election (Male Only)

	Pre-Election		Post-Election		Diff
	Mean	**Obs**	**Mean**	**Obs**	
Male with Male Partner					
Profit, No Chat	4.821	112	3.243	74	-1.578*
Profit, Chat	7.800	100	6.486	74	-1.314
Male with Female Partner					
Profit, No Chat	6.364	132	7.449	98	1.085
Profit, Chat	9.063	144	8.061	98	-1.001

Notes: *** p<0.01, ** p<0.05, * p<0.1
Source: Data from 36 sessions run at the Wharton Behavioral Lab in October and November 2016. The first 24 sessions were run in October while sessions 25-36 were run from November 14, 2016 to November 16 2016, less than a week after the National Presidential Election.

Table 24: t-test of Negotiation Strategies Pre-and-Post Election

	Pre-Election		Post-Election		Diff
	Mean	**Obs**	**Mean**	**Obs**	
Hard Commitment	0.149	928	0.272	616	0.123***
Tough Talker	0.118	928	0.210	616	0.092***
Aggressive Score	2.452	928	2.902	616	0.450***
Offer $15	0.279	928	0.226	616	-0.053***
Friendly Negotiator	0.547	928	0.498	616	-0.048***
Reached Agreement	0.844	928	0.747	616	-0.097***

Notes: *** p<0.01, ** p<0.05, * p<0.1
Source: Data from 36 sessions run at the Wharton Behavioral Lab in October and November 2016. The first 24 sessions were run in October while sessions 25-36 were run from November 14, 2016 to November 16 2016, less than a week after the National Presidential Election.

gies before and after the election. Table 24 shows the mean rate of using a negotiation strategy or the aggressiveness score in the negotiation conversations before and after the election. We see that post-election there is an increase in the usage of aggressive negotiation strategies such as Tough Talker or Hard Commitment by 9 to 12 percentage points. Moreover, an individual's aggressive score also increased by 0.45. In contrast we see a decrease in friendly and chivalrous behavior. For example, the probability of offering $15 or being a friendly negotiator to their partner decrease by about 5 percentage points. Moreover, individuals were 9.7 percentage points less likely to reach an agreement through the negotiations. All these results are statistically significant at the 1 percent level.

Table 25: t-test of Negotiation Strategies Pre-and-Post Election (Male Only)

	Pre-Election		**Post-Election**		**Diff**
	Mean	**Obs**	**Mean**	**Obs**	
Male with Male Partner					
Hard Commitment	0.269	100	0.272	74	0.003
Tough Talker	0.224	100	0.233	74	0.009
Aggressive Score	2.999	100	3.039	74	0.040
Offer $15	0.261	100	0.204	74	-0.057
Friendly Negotiator	0.456	100	0.454	74	-0.002
Reached Agreement	0.733	100	0.619	74	-0.113*
Male with Female Partner					
Hard Commitment	0.121	144	0.294	98	0.172***
Tough Talker	0.098	144	0.213	98	0.115***
Aggressive Score	2.305	144	2.946	98	0.641***
Offer $15	0.343	144	0.249	98	-0.095*
Friendly Negotiator	0.590	144	0.518	98	-0.072*
Reached Agreement	0.910	144	0.753	98	-0.156***

Notes: *** p<0.01, ** p<0.05, * p<0.1
Source: Data from 36 sessions run at the Wharton Behavioral Lab in October and November 2016. The first 24 sessions were run in October while sessions 25-36 were run from November 14, 2016 to November 16 2016, less than a week after the National Presidential Election.

When you only look at male participants, the increase aggressive behavior and decrease in benevolent behavior seems to only be happening towards female partners. Table 25 shows that the difference in magnitude on the usage of these strategies is very small and insignificant, and in some cases close to zero, when you look at men playing against men.

However, the magnitude is much larger when we look at men playing against women. Indeed we see that men were 17.2 percentage points more likely to use a Hard Commitment strategy against women in the post-election, this is equivalent to a 140 percent increase in using this strategy post-election. Similarly, men were more likely to be tough talkers against women, an increase of 11.5 percentage points or 110 percent increase in usage post-election. The Aggressive score also increased by 27 percent. Meanwhile, we see a 9.5 percentage point drop in offering $15 do their female partner — a 27 percent decrease in the usage of this benevolent strategy. Similarly, we see that the Friendly negotiator strategy decreased by 7.2 percentage points and the likelihood of reaching an agreement decreased by 15.6 percentage points. All these results are statistically significant at the 1 percent level, with the exception of Offer $15 and Friendly Negotiator which are significant at the 10 percent level.

Given the events and social context surrounding the 2016 U.S. Presidential election, which occurred days before these sessions, the dramatic change in behavior, particularly from men towards women, suggests that actions motivated by benevolent sexism can be subject to the mood and whims of men. Future research should examine in what contexts benevolent sexism does and does not manifest.

C Experimental Protocol

Below is the protocol used. Note that the experiment should alternate between the gender and no gender programs. E.g., the first lab seating would get the gender program, the second lab seating would get the no gender program. The timeline of the experiment is as follows:

1. Participants read consent form, and type their lab ID to consent.
2. Participants read brief instructions.
3. Participants complete a pre-survey.
4. Participants read game instructions.
5. Participants play two practice rounds against a computer.

6. Participants read no communication game instructions and play four rounds.

7. Participants read communication game instructions and play four rounds.

8. Participants read add-on round instructions and play two additional rounds.

9. Participants answer a post-survey and bonus payment is revealed.

Stage 1: Begin Screen

Choice Study

For this study, we will start by reviewing the consent form, and then will go through the experiment procedures and compensation. Please review the consent form, and then enter your lab ID if you wish to proceed with the study.

Please click begin to be taken to the consent form.

Stage 1: Informed Consent Screen

INFORMED CONSENT

Title of the Research Study: Decision Making Study
Protocol Number: 822499
Principal Investigator:
Professor Corinne Low
corlow@wharton.upenn.edu

This is a research study to learn about how people make decisions. You are being asked to join this study because you have volunteered to participate in this study for compensation.

If you decide to participate, you will be asked to answer a brief survey, then play a series of games with a partner. You will be told some information about your partner, and your partner will be told some information about you, but each of your identities will be kept

private, and there will be no way to identify each other outside the lab.

In addition to the $10 you will receive for participating in this lab session, you will have the opportunity to earn bonus payment.

All of your data will be kept strictly confidential, and will be coded using your Lab ID. This study poses minimal risks to participants. Your participation is voluntary and you may withdraw your consent at any time without penalty.

If you have questions, concerns or complaints regarding your participation in this research study, you should speak with the Principal Investigator listed above, or, you may contact the Office of Regulatory Affairs with any question, concerns or complaints at the University of Pennsylvania by calling (215) 898-2614.

If you wish to consent to participate,
Please type your Lab ID and press I CONSENT
Lab ID: [Text Entry]

Stage 1: Experimental Instructions Screen

Experimental Instructions: Choice Study

We will now go through the instructions for the experiment in more detail. Note that **this study involves bonus payment, and so understanding the instructions carefully will allow you to maximize your earnings.**

Experiment policies:

This experiment is being done by economists Corinne Low and Zheng Jai Huang. It is the policy of economists that **participants cannot be deceived at any point throughout the experiment.** Therefore, the instructions described are exactly the way the experiment will proceed, and you will be paid.

Please don't talk or gesture to any participants in the lab, nor should you do anything on the computers other than the experiment, as this could interfere with the validity of the results. We greatly appreciate you offering your full attention for the duration of the experiment.

Experiment stages:

This experiment will have three stages. There will be an opportunity to earn bonus pay at each of the stages.

1. First, you will take a brief survey.
2. Then you will be asked to make 10 rounds of decisions. You will be randomly assigned a different partner in the lab in each round. At the end of the study, a computer will randomly determine which round will count towards your final earnings.
3. Finally, you will take a brief post-survey.

Stage 1: Pre-Survey Screen

Stage 1

We will now complete a survey. Please answer the questions truthfully to the best of your ability.

Please note, some of this information will be shared with your partners, anonymously, in the next stage of the experiment.

Please you click next, and you will begin the survey.

1. What is your major? [Text Entry]
2. Why do you participate in WBL experiments? (Check ALL that apply.) [(1) They're interesting; (2) To make extra money; (3) Course Credit; (4) Other; If you chose "Other," please specify: [Text Entry]]
3. What is your gender? [Male/Female]

4. Are you right- or left-handed? [Left/ Right]

5. Please type this word as quickly and accurately as you can in the box below: **shenanigans**. Hit "OK" immediately after finishing.

6. What month were you born in? [Jan. - Dec.]

7. Lay your right hand flat on the table. Is your **index finger** (next to thumb) or your **ring finger** (next to pinky) longer? [(1) Index is longer; (2) Ring is longer; Same length]

8. **Please answer yes/no to the following:**

   - Can you roll your tongue (shape tongue into "u" shape)? [Yes/No]
   - Do you have a "hitchhiker" thumb (extend thumb as far as you can - you have hitchhiker thumbs if the top segment bends past 45 degrees)? [Yes/No]
   - Are you an only child? [Yes/No]

9. What is your favorite color? [Text Entry]

10. Finally, as bonus payment for this part of the study, you will receive $1.00. You can either take that dollar as-is, or put some portion of it into a lottery. Money placed in the lottery will be worth **0 with 50% probability and 2.5x its value with 50% probability** (decided randomly by the computer). How much of your $1.00 would you like to place in the lottery? [$0.00 to $1.00 in $0.05 increments]

Stage 1: Game Phase Instructions Screen

General Instructions

In the study, you will play 10 different rounds and will be randomly assigned a **different** partner in each round. Results from each round will be saved and stored in the system.

One of the 10 rounds will be randomly chosen by the computer and you will receive the full payoff of that round as your bonus payment. **Thus, you should play each round**

as though you will be paid for that round, as it may be selected at the end.

In each rounds, you and your partner will choose how to split $20, with the caveat that there are only two possible ways to split it: Either you can take $15, and your partner takes $5, OR you can take $5, and your partner takes $15. But, if you do not agree on how to split it, you each get $0.

To clarify further, in each round, you and your partner will be shown the same two choices:

- $15 for yourself ($5 for partner)
- $5 for yourself ($15 for partner)

If one of you chooses $15, and one chooses $5, you will each receive this payoff. If both of you choose the same amount for yourself, however, you will each get $0.

Lets review each possible scenario:

- If you choose $15 for yourself
  - ...And your partner "agrees," by choosing $5 for themselves, you get $15, and your partner gets $5
  - ...And your partner "disagrees," by also choosing $15 for themselves, you each get $0
- If you choose $5 for yourself
  - ...And your partner "agrees," by choosing $15 for themselves, you get $5, and your partner gets $15
  - ...And your partner "disagrees," by also choosing $5 for themselves, you each get $0

You and your partner must make this choice simultaneously, so you cannot see what they are choosing while you make your choice.

For whichever round is randomly choen for payment, you will receive the entire amount of the game's outcome, either $15, $5, or $0.

Please click next, and we will give you a chance to practice the game.

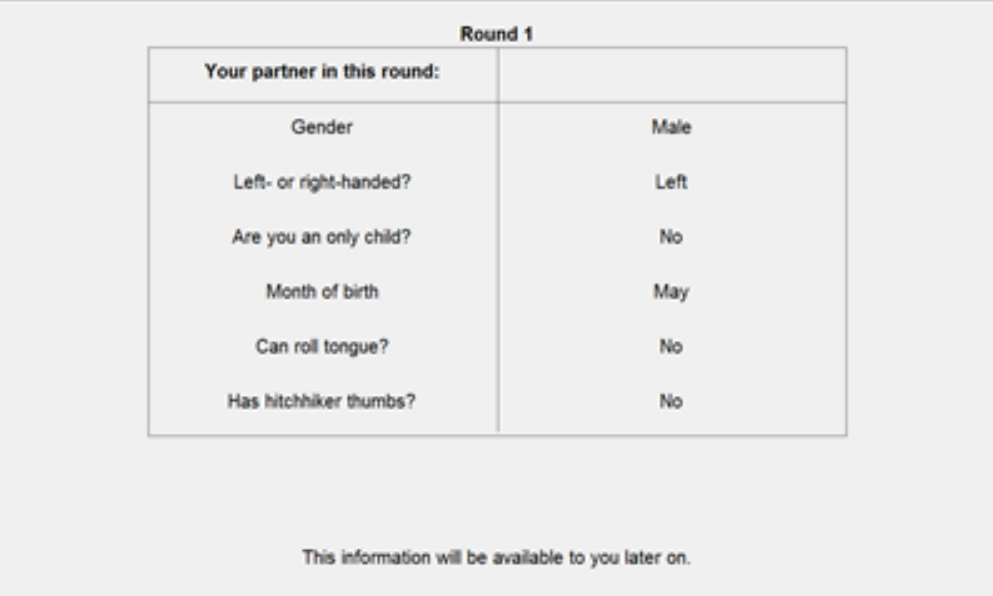

Figure 17: Partner Information Screen

Notes: This is an example of the partner information screen described in the experimental protocol and participants viewed prior to and while making their choices.

Stage 1: Practice Rounds Screen

Practice Rounds

We will now do two practice rounds. In these rounds, you will not have a real partner; instead, the computer will choose your "partner's" choices randomly.

The payoffs from the practice rounds will NOT count towards your final earnings.
When you hit next, you will be taken to the practice rounds.

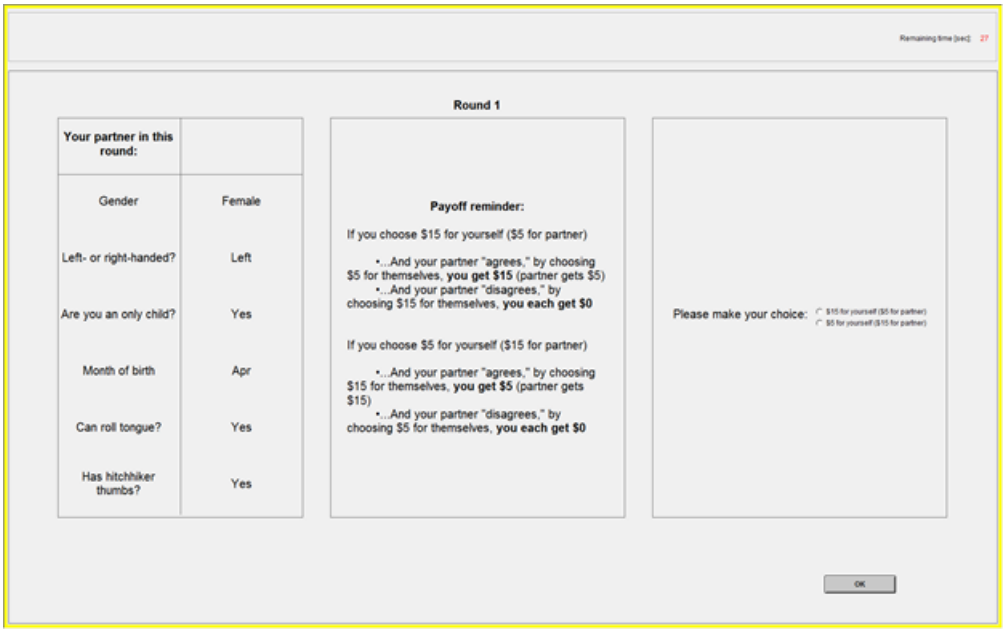

Figure 18: Decision/Choice Screen

Notes: This is an example of the choice screen described in the experimental protocol that participants viewed. On the left side of the screen is the participant's partner information, in the middle is a reminder of the payoffs, and on the right is the choice: $15 for themselves ($5 for their partner) OR $5 for themselves ($15 for their partner).

Note to the experimenter: participants play two practice rounds and view the choice, conclusion, and outcome screens.

Stage 2: Instructions for Rounds 1-4 (with no Communication)

Instructions: Rounds 1-4

Now that we have practiced, you will be paired with a partner and we will start the experiment.

In rounds 1-4, you will be shown some information about your partner first, then you will be shown the decision screen where you can make your choice. You will each pick simultaneously whether to choose $15 or $5 for yourself without knowing what the other person is choosing.

The outcome of these rounds will be stored in the system, and you will only be told your results when all 10 rounds are completed. Remember, any round could be randomly chosen to determine your bonus payment, so you would play each round as though real money is on the table.

Note that you will be randomly paired with a DIFFERENT partner in each round.

Please click Next to begin.

Note to the experimenter: participants play four rounds with no communication and view the transition, partner information, chat, choice, and round conclusion screens in each round.

Stage 2: Instructions for Rounds 5-8 (with Communication)

Instructions: Rounds 5-8

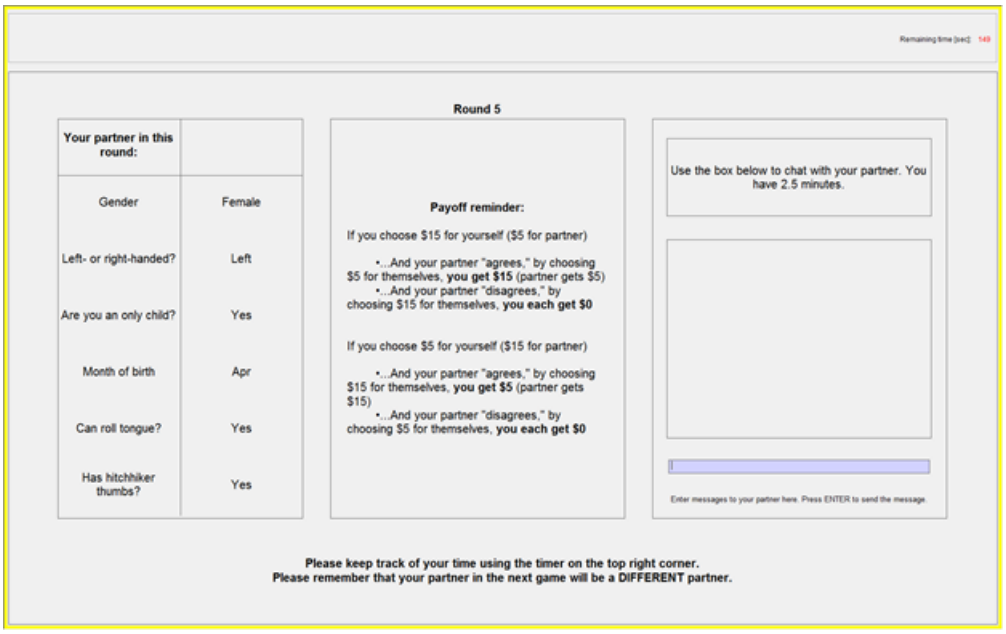

Figure 19: Chat Screen

Notes: This is an example of the chat screen described in the experimental protocol that participants viewed. On the left side of the screen is the participant's partner information, in the middle is a reminder of the payoffs, and on the right is the chat window.

In the next 4 rounds, Rounds 5-8, you will be allowed to communicate with your partner prior to making your decision. This time, after you view the information about your partner, you will have the opportunity to discuss your choice with your partner for 2.5 minutes before you each choose.

When the 2.5 minutes are up, you will each pick simultaneously whether to choose \$15 or \$5 out of the \$20 for yourself without knowing what the other person is choosing.

To repeat, the pattern is:

1. View information about partner
2. Communicate with partner via chat for 2.5 minutes
3. Make choice

Important note about chat communication: The chat window allows you to discuss your choice with your partner. However, you may not:

- Reveal identifiable information about yourself
- Ask others to reveal identifiable information
- Make arrangements to discuss or meet outside the lab.

(Failure to comply with this will affect your future ability to participate in WBL studies)

The outcome of these rounds will be stored in the system, and you will only be told your results when all games are completed. Remember, any round could be randomly chosen to determine your bonus payment, so you would play each round as though real money is on the table.

Note that you will be randomly paired with a DIFFERENT partner in each round.

Please click Next to begin.

Note to the experimenter: participants play four rounds with communication and view the transition, partner information, chat, choice, and round conclusion screens in each round.

Stage 2: Instructions for Round 9

Instructions: Round 9

We will now proceed to Round 9.
In this round, you will have to opportunity to choose whether you would like to communicate with your partner or not. This time, after you view the information about your partner, you will choose whether you would like to:

- Not communicate with your partner (like in rounds 1-4)
- Communicate with your partner (like in rounds 5-8).

Both you and your partner will make this choice. Then, the computer will choose randomly whether *your* choice or *your partner's* choice will be used in determining the game you will actually play. With a 50% chance, your choice will be used, and and you will play the game you have chosen. And, with 50% chance your partner's choice will be used, and you will play the game they have chosen.

The sequence of the round will be:

1. Participants are matched randomly with a partner
2. You will be shown some information about your partner
3. Each partner chooses whether they would like to communicate or not communicate
4. A computer will randomly decide if you or your partner's choice to communicate or not communicate will be implemented
5. You will play the chosen round.

As in the previous rounds, you will be shown the decision screen where you can make your choice. You will each pick simultaneously whether to choose \$15 or \$5 out of the \$20 for yourself without knowing what the other person is choosing.

The outcome of these rounds will be stored in the system, and you will only be told your results when all games are completed. Remember, any round could be randomly chosen to determine your bonus payment, so you should play each round as though real money is on the table.

Note that you will be randomly paired with a DIFFERENT partner in each round.

Please click Next to begin.

Note to the experimenter: participants play one round and view the transition, partner information, opt-in to chat choice, the chosen action (whether to chat or not chat), chat (if chosen), choice, and round conclusion screens in this round.

Stage 2: Instructions for Round 10

Instructions: Round 10

For the 10th round, you will choose one of your previous rounds to "count" an extra time, and therefore have an extra chance of being randomly drawn for payment. You get to choose whether you want a random round from rounds 1-4 (with no communication) or rounds 5-8 (with communication) to fill this extra "slot". This round will be saved in the system and may be randomly picked as your bonus payment. Please choose if you would like this random round to be picked from:

- Rounds 1-4 (with no communication)
- Rounds 5-8 (with communication)

Note to the experimenter: after the 10th round, the outcome of all rounds is shown to the participant.

Stage 2: Post-Survey Screen

Post-Survey

You will now be asked to complete a brief post-survey, and then will learn your final earnings. Remember, a computer will randomly choose one of the ten rounds you played and the payoffs in that round will be your bonus earnings for this lab session.
Please click next to be taken to the post-survey.

1. What did you think the experiment was about? [Text Entry]
2. In rounds 1-9, you were partner with someone in the lab. How many of your partners do you think were women? [0 to 9]
3. Please answer the following questions from Strongly Agree to Strongly Disagree. [5-point likert scale where 1=Strongly Agree, 2=Agree, 3=Neither Agree Nor Disagree, 4= Disagree, and 5=Strongly Disagree.]
    - Many women are actually seeking special favors, such as hiring policies that favor them over men, under the guise of asking for "equality."
    - In a disaster, women ought not necessarily to be rescued before men.
    - Women are too easily offended.
    - Women should be cherished and protected by men.
    - When women lose to men in a fair competition, they typically complain about being discriminated against.
    - Men should be willing to sacrifice their own well being in order to provide financially for the women in their lives.
4. For each of the following information you learned about your partners, say how much it influenced your interactions: [5-point likert scale where 1=influenced a lot,

2=influenced a little, 3=influenced in some periods, 4=did no influence very much, and 5=did not influence at all.]

- Gender (if in gender revealed treatment)
- Dominant hand
- Only child
- Month of birth
- Ability to roll tongue
- "Hitchhiker" thumb

5. Did your mother work full-time outside the home when you were growing up? [No/Yes]
6. Do you have any other comments about this study? [Text Entry]

Note to the experimenter: after the post-survey, participants are told their bonus payment from the pre-survey question, which round was selected for payment, and the total bonus payment earned. Afterwards, the experiment is done.