

Rivalry as a Contextual Factor of Gender Inequality in Network Returns

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ABSTRACT Linking research on networks, rivalry, and gender, we develop a contextual approach to gender-based differences in network returns. Our principal contribution is in articulating the role of rivalry – a personalized and relational form of competition – in influencing the cognitive activation and behavioural mobilization of social networks. Three experiments and two field studies provide consistent evidence for a negative impact of rivalry on women’s network activation and mobilization. We attribute this effect to the misalignment between the cognitive-relational schema associated with rivalry, promoting focus, agency, and confrontation, and gender-based cognitive and behavioural expectations, portraying women as more comprehensive, communal, and cooperative than men. The negative consequences of this misalignment are due to the experience of negative affect, fear of social evaluations, and perception of threat. A key takeaway from our analysis is that efforts at improving women’s network returns should better account for the role of contextual factors.

Keywords: cognition, gender, networks, rivalry

INTRODUCTION

A key question in network research pertains to the gender-based heterogeneity of network returns – the extent to which men and women derive divergent benefits from social networks (Brands, 2013; Woehler et al., 2021). Prior research shows that even when women occupy the same network positions as men, they do not obtain the same benefits from them, in terms of resources, information, social support, and prestige (Burt, 2009; Forret and Dougherty, 2004; Woehler et al., 2021). Differences in network returns contribute

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to the underrepresentation of women in senior management positions and to gender disparities in career progression (Daily et al., 1999).

Brands et al. (2022) recommend examining gender differences in network returns through the lens of cognition and behaviour. The cognitive perspective focuses on differences in network activation – how individuals call to mind their own or third-party networks, activating relational schemas and mental representations (Brands, 2013; Brashears et al., 2016; Janicik and Larrick, 2005; Smith et al., 2012). There is evidence that women recall third-party networks better than men (Brashears et al., 2016), but that they tend to underperform in network-related tasks when their perceived network position clashes with gender stereotypes (Brands and Mehra, 2019). The behavioural perspective explores network mobilization – how individuals deploy their contacts in a given situation to achieve personal or collective goals (Small, 2021; Small and Sukhu, 2016). Research suggests that women may be reluctant to fully capitalize on their networks, worrying that sourcing career resources from contacts might be deemed improper or unfair (Hewlett et al., 2010). This reluctance curtails the benefits women garner from their professional networks. However, women's focus on cultivating collaborative relationships could be a significant advantage, especially in industries dominated by men (Ody-Brasier and Fernandez-Mateo, 2017).

Recent research recommends the pursuit of a contextual approach to understanding gender differences in career returns, i.e., an approach emphasizing the relevance of contextual factors in generating different returns. For example, Joshi et al. (2015, pp. 1523, 1527) highlight the relevance of 'bundles of contextual factors' in the workplace, such as job-, occupation-, and industry-level differences. This approach is particularly suited for network research, as past studies demonstrate that contextual conditions significantly influence network activation and mobilization. Smith et al. (2012) articulate the role of one such condition, showing that under conditions of job threat, low (high) status individuals call to mind more (less) constrained networks, translating contextual elements into perceptions. Smith and Menon (2017) identified a similar effect among women facing a threat context. Regarding network mobilization, research indicates that women excel at calling upon acquaintances or friends to gain consensus and support in cooperative efforts, like passing legislation (Volden et al., 2013). However, their strategies, which emphasize connecting with and utilizing homophilous alumni contacts to address personal needs and manage uncertainty, may not be as effective in more competitive, market-driven contexts, such as professional job searches (Obukhova and Kleinbaum, 2022).

We extend this line of research by highlighting another contextual factor that shapes how men and women activate and mobilize their networks: exposure to competitive rivalry. Rivalry, a personalized relational form of competition, is characterized by higher psychological stakes and deeper involvement than standard competition (Kilduff et al., 2010). It is common in business, both within organizations, where employees vying for coveted top positions tend to see each other as rivals (Gilson and Mnookin, 1989), and between organizations, such as companies, universities, or sports teams (e.g., Kilduff, 2019; Operti et al., 2021). Rivalry originates from dyadic interactions but has consequences that extend beyond the focal dyad, spilling over to network contacts outside the dyad and across domains (Sgourev and Operti, 2019). Unlike episodic competition, rivalry is an enduring state that shapes how individuals

interpret their environment (Pike et al., 2018; Sgourev and Operti, 2019). It is a cognitive and relational schema through which individuals perceive their social networks and engage with others (Converse and Reinhard, 2016), even in the absence of direct interaction with a rival (Pike et al., 2018).

A recent stream of research documents the ability of rivalry to influence a wide range of outcomes, including performance (Kilduff, 2014; Pike et al., 2018), unethical behaviour (Kilduff and Galinsky, 2017; Kilduff et al., 2016), and conflict (Operti et al., 2020). We propose that exposure to rivalry impairs women's activation and mobilization of social networks as a result of the misalignment between gender-based cognitive and behavioural schemas, portraying women as 'more comprehensive, communal, and cooperative' (Brands et al., 2022, p. 590; see also Abele and Wojciszke, 2007; Fiske and Stevens, 1993), and the cognitive-relational schema associated with rivalry, promoting focus,^[1] agency, and confrontation (Converse and Reinhard, 2016). This misalignment is associated with conditions which negatively impact network activation and mobilization, such as fear of social evaluations (Brands and Mehra, 2019), negative affect (Shea et al., 2015), experience of perceived threat (Smith et al., 2012), and limited support from alters (Brands et al., 2022). Conversely, given the alignment between gender expectations and the rivalry schema, men would not be affected by, or would even benefit from, exposure to rivalry.

We test our arguments in five studies. Three experimental studies examine the effects of exposure to rivalry on the activation of third-party and ego networks for men and women. Two additional studies document gender differences in network mobilization in professional football (e.g., de Jong et al., 2020; Pappalardo et al., 2021; Van Lange et al., 2018) and the *Palio di Siena*, a historical horse race in Siena, Italy (Dundes and Falassi, 1975; Operti et al., 2020). The results of studies in different contexts, using different operationalizations of network constructs, confirm that rivalry constrains women's activation and mobilization of social networks. As one of the first empirical papers to jointly examine the cognitive activation and behavioural mobilization of networks, as opposed to focusing solely on network structure, the contribution of the paper is in highlighting a distinct contextual factor (Joshi et al., 2015) affecting gender differences in network returns (Brands et al., 2022; Smith and Menon, 2017; Woehler et al., 2021) and in emphasizing the importance of incorporating gender perspectives into the study of rivalry (Converse and Reinhard, 2016; Kilduff et al., 2010; Sgourev and Operti, 2019).

THEORY AND HYPOTHESES

Competition is an inherent feature of organizations, where employees vie with each other to achieve promotions (Gilson and Mnookin, 1989). Men and women exhibit different responses to competitive situations (Gneezy et al., 2003); research attests that men are more likely to select competitive settings than women and to outperform women in competitive environments (Niederle and Vesterlund, 2007, 2011).

Recent research has differentiated between 'relational' and 'diffuse' types of competition, with the former defined as 'rivalry' (Kilduff, 2014; Kilduff et al., 2010, 2016; Kilduff and Galinsky, 2017). Rivalry is qualitatively different from competition in that

it involves a desire to defeat a specific opponent and has personal stakes attached to it (Kilduff et al., 2010; Operti et al., 2021; Sgourev and Operti, 2019). Competitors become rivals when attaching high importance to the competitive episodes, when they are similar on a salient dimension (e.g., market share or geographical location) and have a history of direct confrontations (Kilduff et al., 2010). The effects of rivalry often extend beyond the parties involved to affect network contacts and related domains. For instance, Sgourev and Operti (2019) show that rivalry between *contrade* reduces the rate of direct and indirect career moves by jockeys in the Palio di Siena. Follow-up research (Operti et al., 2021) shows to the generalizability of these findings, documenting reduced career mobility rates between rivals in banking, sports, and business education.

Converse and Reinhard (2016) argue that rivalry is a cognitive and relational schema that influences individuals' cognition and behaviour. Thinking about a rival increases the perception of connectedness between past and current competitions, elevates concerns with long-term legacy, and fosters an eager pursuit of personal goals. This confrontational mindset can linger, shaping cognitive representations and behaviours long after the focal confrontation. Along these lines, Pike et al. (2018) posit that rivalry can spur performance over long time periods. Their analysis of sports data shows that a team's postseason achievements can be influenced by the performance of its rival in the preceding year. This performance boost was most pronounced when the rival won the previous tournament. Kilduff and Galinsky (2017) find that the recall or activation of rivalry can lead to increased Machiavellianism and unethical behaviour in unrelated tasks.

These studies direct attention to the influence of rivalry on cognition and behaviour. Our substantive interest is in rivalry's influence on the cognitive activation and behavioural mobilization of networks for men and women (Brands et al., 2022; Smith et al., 2012). Cognitive activation refers to the mental process of constructing and recalling networks, activating relational schemas and mental representations (Brands, 2013; Brashears, 2013; Brashears et al., 2016; Janicik and Larrick, 2005; Shea et al., 2015). These representations are often referred to as 'cognitive social structures' (Krackhardt, 1987). Behavioural mobilization entails using network contacts to achieve personal or collective goals (Small, 2021; Smith et al., 2012). This process may not always be deliberate and can be based on accessibility or intuition (Small, 2021). For example, Small and Sukhu (2016) identify three types of mobilization processes used by college students in the pursuit of their goals: reflective, incidental, and spontaneous. Of these types, only the first one requires cognitive efforts and deliberation. Given the relational nature of rivalry, we expect that exposure to rivalry may affect how individuals activate and mobilize relationships. We thus develop hypotheses on how rivalry affects cognitive activation and mobilization of networks, assuming that both processes may lead to increased network returns.

Rivalry and the Cognitive Activation of Networks

Past studies show that, in competitive conditions, men outperform women in cognitive tasks (for a review, see Gneezy et al., 2009; Niederle and Vesterlund, 2011). This is

largely due to the operation of gender schemas, ‘defined as a set of interrelated ideas, expectations, and associations for women and men that are imposed on the biological categories of female and male, respectively’ (Brands et al., 2022, p. 590). These schemas form socially constructed expectations of behaviours and characteristics deemed typical of, and appropriate for, women versus men (Ellemers, 2018). Schemas often associate men with competitive professional pursuits, and women with communal and family-oriented tasks (Eagly, 1987; Eagly and Wood, 1991). When gender expectations conflict with the competitive context, men benefit from contextual alignment, while women face an additional obstacle, with implications for task performance. For example, Gneezy et al. (2003) find that introducing competitive-pay treatment improved the average performance on cognitive tasks of men but not women. Günther et al. (2010) replicate this finding, reinforcing the conclusion that competition enhances men’s cognitive performance.

We extend this line of research in two ways: we examine cognitive relational performance rather than general cognitive task performance, and we focus on rivalry rather than competition. Performance in the cognitive activation of networks pertains to the ‘degree of similarity between an individual’s perception of the structure of informal relationships in a given social context and the actual structure of those relationships’ (Casciaro et al., 1999, p. 286). This encompasses the cognitive activation of third-party networks, where the focal actor is not a member (Brashears and Quintane, 2015; Mobasseri et al., 2022), and ego-networks, which refer to the network in which the focal actor is embedded (Casciaro, 1998; Smith et al., 2012). Activation can be measured via experimental tasks where subjects learn a hypothetical social structure or by asking individuals to recall their own network ties (Brands, 2013, p. S87).

Current research reveals gender differences in network cognition, suggesting that men and women perceive their social structures in a dissimilar manner (Brands and Mehra, 2019; Rudman and Phelan, 2008). Brashears et al. (2016) found that women recall third-party social networks with greater accuracy than men, suggesting they have an advantage in understanding social structures. Neal et al. (2016) demonstrated that schoolgirls are more precise in mapping their own connections and social relationships among classmates, a finding corroborated by Lee et al. (2022). In the absence of exposure to rivalry, these patterns of cognitive activation align with societal gender schemas (Brands et al., 2022, p. 590): women, often associated with communal roles, are expected to remember larger, more inclusive networks. Conversely, gender schemas frame men as more agentic, facilitating the activation of networks that enable opportunities for agency and confrontation.

We propose that this relationship is altered under exposure to rivalry. Rivalry, a relational form of competition, is typically more intense and focused than general competition. Unlike competition, which is often broad and spatially unconstrained, rivalry involves repeated, personalized confrontations. The distinct relational nature of rivalry makes it likely to have an impact on how individuals perceive relationships and activate personal contacts. As a cognitive-relational schema, rivalry is characterized by goal-orientation, agency, and personalized confrontation (Converse and Reinhard, 2016; Kilduff et al., 2010). These characteristics contrast with the schematic traits typically associated to women and align more with those associated with men (Abele and

Wojciszke, 2007; Fiske and Stevens, 1993; Brands et al., 2022, p. 590). We contend that this misalignment influences how women and men activate networks. Specifically, when the contextual demands of rivalry clash with gender schemas, women might view the situation as more threatening than beneficial (To et al., 2020). A perception of threat leads to the activation of smaller and more constrained networks (Smith et al., 2012). Such a misalignment may evoke responses, such as fear of social evaluations (Brands and Mehra, 2019) and negative emotions (Shea et al., 2015), which negatively affect network activation, e.g., reducing the activated network's size and density (Shea et al., 2015). This perspective aligns with research suggesting that contextual alignment or misalignment can shape information processing and network recall (Srivastava, 2012; Srivastava and Banaji, 2011).

In view of the alignment between contextual demands and gender schemas, we expect that men may not only avoid a penalty, but may even improve their cognitive performance with exposure to rivalry. This is because rivalry resonates with male schemas, mitigating perceptions of threat or negative emotions that might hinder the activation of networks (Shea et al., 2015; Smith et al., 2012). Hence, we argue that the exposure to rivalry restricts women's capacity to cognitively activate both third-party and ego networks, but improves men's cognitive performance.

Hypothesis 1: Rivalry exposure is negatively (positively) associated with women's (men's) performance in (a) the cognitive recall of third-party networks and (b) the activation of ego networks.

Rivalry and Network Mobilization

We expect the context of rivalry to influence not only the cognitive activation of networks, but also the behavioural rules that regulate their utilization. Network mobilization captures the ability to effectively deploy one's contacts to achieve personal or collective goals in a given situation (Small, 2021; Small and Sukhu, 2016; Smith et al., 2012). Research shows that women often adopt more communal and cooperative strategies in mobilizing networks. Burda et al. (1984) show that women seek emotional backing when deploying networks and obtain more support when they present themselves as expressive, compassionate, and nurturing. Women often seek connectedness in the workplace (Ridgeway, 1991) and balance homophily with instrumental benefits when deploying network contacts in the professional domain (Ibarra, 1992). Similarly, research in political science finds that women politicians invest more time than men in building coalitions and seeking compromise (Carey et al., 1998). In a study of corporate criminal networks, Steffensmeier et al. (2013) found that women display greater reluctance to engage in illegal behaviour that harms others. In contrast, men in the same contexts appeared more inclined to transgress rules for personal advantage, given that risk-taking and defying social convention are qualities more admired in men than in women (Steffensmeier et al., 2013). Szell and Thurner (2013) studied gender differences in network behaviour in an online game-society and found that women communicate more and rely more on collaboration and interpersonal support. Men, in contrast, were more prone to aggressive actions, which not only

resulted in a higher rate of in-game deaths but also less communal activities, such as forming friendships.

We suggest that the behaviours commonly associated with communal and cooperative networks may prove less effective under exposure to rivalry, a context that calls for goal-directed, risky, and unethical behaviour. Rivalry can compel individuals to focus on winning at all costs, even if it involves significant risks (Kilduff, 2019; Kilduff and Galinsky, 2017). It can deter cooperation, especially with those linked to rivals (Operti et al., 2021; Sgourev and Operti, 2019). When facing a rival, individuals might resort to detrimental or unethical tactics such as sabotage, cheating, deception, and withholding vital information (He et al., 2014; Kilduff et al., 2016; To et al., 2020). When leveraging networks in these situations, a more aggressive, goal-oriented approach often prevails over a long term, cooperative stance (Converse and Reinhard, 2016).

Rivalry makes communal strategies, typically expected of women, appear less appropriate, favouring a confrontational approach that aligns with male-associated schemas. Mobilizing networks in a rivalry context involves deploying contacts against the rival or engaging in repeat direct confrontations. This diverts efforts from achieving communal goals, requiring additional time and energy for managing rivalries. In contrast to men, women experience heightened scrutiny when their network mobilization aligns with the demands of a rivalry context, due to the discord with the prevailing gender schema. This misalignment can manifest as heightened fear of social judgement for not adhering to gender expectations (Brands and Mehra, 2019), negative emotions (Shea et al., 2015), or even diminished backing from their contacts when they act counter to gendered anticipations (Brands et al., 2022). In contrast, men experience alignment between the cognitive relational attributes of rivalry and gender schema. Thus, they may not experience threat or negative social evaluation in deploying aggressive strategies, but may even enjoy increased support from alters due to contextual alignment (Brands et al., 2022). We expect that rivalry places women at a disadvantage due to the incongruence between context and gender schema, which tends to benefit the performance of men.

Hypothesis 2: Rivalry exposure is negatively (positively) associated with women's (men's) performance in network mobilization.

OVERVIEW OF THE STUDIES

In Hypothesis 1, we consider the effect of gender and rivalry on the cognitive activation of networks, assessing how individuals recall and activate their own and third-party networks. Given the challenges of observing cognitive representations in real-life situations, and consistent with rivalry research (e.g., Kilduff, 2014; Kilduff and Galinsky, 2017), we conducted experiments to capture how people call to mind third-party (e.g., Brashears et al., 2016) and ego-networks (Smith et al., 2012). This method also allowed us to establish causality. To test our second hypothesis, which involves examining how individuals mobilize their contacts to achieve personal or collective goals, we focus on real-world settings, since network mobilization entails observing how individuals behave when deploying connections. For example, Obukhova

and Kleinbaum (2022) studied network mobilization in job search using qualitative interviews and archival data on the utilization of alumni connections. In line with this approach, we offer evidence from two field studies on professional football for both men and women (de Jong et al., 2020; Pappalardo et al., 2021) and on the Palio di Siena (Operti et al., 2021; Sgourev and Operti, 2019), a historical Italian horse race. These studies provide insights into how players mobilize their teammates to score and how captains use their network contacts to win the race. Given the differences in construct definition, design, and methodologies across the studies, we provide an overview of the studies in Table I. This table highlights each study's strengths and weaknesses while illustrating how they complement each other. We used Stata 17 for all quantitative analyses.

STUDY 1

The first study focuses on individual cognitive performance at calling to mind a third-party network, asking individuals to learn a hypothetical social structure by learning the relationships between pairs of individuals (Brands, 2013, p. S87). We ensured all participants reconstructed the same network, to eliminate any potential effects caused by individual variations in personal network structure and size. This allowed an objective assessment of cognitive activation for each participant. We manipulated exposure to rivalry through priming, using the following experimental procedure.

Experimental Procedure

We conducted a randomized between-subject laboratory experiment with 146 students at a French business school, enrolled in two Master programmes, rewarding them with class participation credit. After data cleaning and processing, we were left with 124 participants (66.14 per cent male, $M_{\text{age}} = 23.80$ years, $SD = 2.40$).^[2]

To increase the effort invested in accomplishing the tasks and minimize the interdependence between tasks, we informed each participant that the study had two parts, testing (i) writing skills and (ii) memory skills. In the writing part, we randomly assigned participants to either a treatment or control condition. The treatment condition induced a rivalry mindset through the textual priming technique employed by Kilduff (2014) and Kilduff and Galinsky (2017). We asked participants in the rivalry condition to recall and write about their experience competing against a personal rival. We asked participants in the control group to recount a neutral experience (their last dinner).^[3]

In the second part, we asked participants to perform an exercise requiring the cognitive activation of a third-party network. Following Brashears (2013), we showed each participant a textual vignette (see Appendix) describing a social network of 12 people with 14 positive ties and 6 negative ties (out of 66 possible ties). The network included both open and closed triads and both balanced and unbalanced triads. We asked the participants to memorize the network. They were given permission to use notes to aid in memorization, but were informed that their notes would be collected before the recall phase.^[4] Unbeknownst to participants, we measured the time spent on memorization. After

Table I. Overview of the studies

	Study 1	Study 2A	Study 2B	Study 3	Study 4
Network perspective	Cognitive	Cognitive	Cognitive	Behavioural	Behavioural
Research design	In person 2 × 2 between subjects laboratory experiment on the recall of a third-party network	Online 2 × 2 between subjects laboratory experiment on the recall of an ego-network	Online 2 × 3 between subjects laboratory experiment on the recall of an ego-network	Archival study of Women and Men Football	Archival study of the Palio di Siena + qualitative interviews
Unit of analysis	Individual	Individual	Individual	Player	Captain
Dependent variable	Activation Performance	Activation Performance	Activation Performance	Mobilization Performance	Mobilization Performance
Operationalization	Network recall quality (measured as a product of Coverage and Accuracy)	Network recall quality (measured as # of Contacts and Contact quality)	Network recall quality (measured as # of Contacts and Contact quality)	Peer mobilization (# of assists)	Winning the Palio, Jockey mobilization
Independent variable 1: Rivalry	Rivalry	Rivalry	Rivalry	Rivalry	Rivalry
Operationalization	Rivalry manipulation (Kilduff et al., 2016), 2 conditions (Rivalry/Control)	Rivalry manipulation (Kilduff et al., 2016), 2 conditions (Rivalry/Control)	Rivalry manipulation (Kilduff et al., 2016), 3 conditions (Rivalry/Competition/Control)	Geographically co-located teams, as in Kilduff et al., 2010	Declared rivalries
Independent variable 1: Gender	Woman	Woman	Woman	Woman	Woman
Operationalization	Biological sex	Biological sex	Biological sex	Biological sex	Biological sex

(Continues)

Table I. (Continued)					
	Study 1	Study 2A	Study 2B	Study 3	Study 4
Benefits of this design	1. Objective recall task 2. Causality 3. Controlling for co-founders	1. Generalize Study 1 to real world networks 2. Still causality/con-founders check	1. Generalize Study 1 to real world networks 2. Still causality/con-founders check 3. Adds nonrival competition	1. Observe successful mobilization measured on collaboration 2. Distinguish rivalry from competition with a setting where competition is the baseline	1. Observe successful mobilization measured on mobilization-based performance 2. Distinguish rivalry from competition with a setting where competition is the baseline
Limitations	1. Limited understanding of 'real' impact on ego networks 2. Construct validity 3. No distinction between rivalry and competition	Addresses 1 and 2 but still 3. No distinction between rivalry and competition	Addresses all concerns	Mobilization cannot be directly observed	Mobilization cannot be directly observed

memorization, participants completed a visual-spatial memory span test (Corsi, 1972) to clear their working memory before the recollection phase and to measure their general memory ability. Participants were then shown a list of all 66 possible ties and asked to mark the existing ones. Next, we asked participants to indicate the valence (positive/negative) of all marked ties on a second screen.

Measures

Following Brashears (2013), we measure *Network Activation Performance* as the product of two measures: *Accuracy* (the number of ties correctly recalled by a participant divided by the total number of recalled ties) and *Coverage* (the number of ties correctly recalled by the participant divided by the total number of ties depicted in the vignette). We set the variable *Rivalry* to 1 for participants primed to recall an experience competing against a personal rival and to 0 for those in the control condition. We set the dummy *Woman* to 1 based on the participant declared biological sex. To account for any potential effects of task effort and working memory on priming and activation, we controlled for the *Time Spent* completing the experiment and the *Memory Span Test Score*, respectively. We also used a variable to account for differences in participants' ability, specifically, those enrolled in programmes with more selective admission requirements (*MiM*).

Manipulation Checks

In this study, we use an implicit association test instead of asking for self-reported conditions^[5] using a manipulation check. This approach is typically regarded as less conscious and less prone to bias. To do so, we performed a linguistic analysis of the text of the open-ended answers in the priming and the control condition (Pennebaker et al., 2001; Tausczik and Pennebaker, 2010). We counted the words related to constructs, such as motivation, that past research (e.g., Pike et al., 2018) associated to rivalry ('drive', 'achievement') using the software LIWC.^[6] We checked for differences in rivalry-associated constructs between the treatment and control group. The analyses show that participants in the rivalry condition use more words related to drive ($M_{\text{drive}} = 6.40$ for control, $M_{\text{drive}} = 12.68$ for treated, $t(122) = -8.22$, $p = 0.000$) and to achievement ($M_{\text{achievement}} = 0.80$ for control, $M_{\text{achievement}} = 4.83$ for treated, $t(122) = -13.71$, $p = 0.000$) than those in the control condition.

Results

A test of the difference in means shows that in the control condition women perform significantly better than men in the network exercise ($M_{\text{Network Activation}} = 0.72$ for women, $M_{\text{Network Activation}} = 0.51$ for men, $t(56) = 2.14$, $p = 0.037$), but the performance gap between women and men is not significant in a rivalry condition ($M_{\text{Network Activation}} = 0.52$ for women, $M_{\text{Network Activation}} = 0.56$ for men, $t(64) = -0.49$, $p = 0.628$).

We performed a linear regression to test Hypothesis 1 accounting for confounding variables. Table II shows the correlations between the variables; multicollinearity is not a concern, as the mean VIF for the full model is 1.77, well below recommended

Table II. Correlations (study 1)

	1	2	3	4	5	6
1 Network activation	1.00					
2 Rivalry	-0.04	1.00				
3 Woman	0.09	0.12	1.00			
4 Memory span test score	0.18	0.01	-0.14	1.00		
5 Time (minutes)	0.48	-0.14	-0.01	-0.06	1.00	
6 MiM	0.29	0.06	0.04	0.06	0.33	1.00
Mean	0.56	0.53	0.34	62.52	11.51	0.56
S.D.	0.33	0.50	0.48	21.68	5.26	0.50

Note: Correlations greater than 0.18 are significant at 5% level.

thresholds (e.g., Neter et al., 1989). Table III presents the results of a linear regression. In Model 1, the main effect of *Rivalry* ($\beta = -0.03$, $p = 0.582$) and *Woman* ($\beta = 0.07$, $p = 0.276$) is not statistically significant. In Model 2, we introduce the interaction of *Rivalry* and *Woman*, whose effect on network activation is negative and significant ($\beta = -0.25$, $p = 0.047$), corroborating the view that women's network activation performance decreases with exposure to rivalry (Hypothesis 1). In Model 3 we add the control variables. The *Memory Span Test Score* has a positive and significant effect on activation performance, confirming that working memory and network cognition are related; the *Time Spent* on memorization is also a significant predictor of activation performance; students in the more selective *MiM* programme did not perform better than the others. The interaction between *Woman* and *Rivalry* remains negative and significant, supporting Hypothesis 1 ($\beta = -0.22$, $p = 0.048$). Based on the estimates from Model 3, *Network Activation Performance* is 0.15 (0.45 S.D.) units lower when women are exposed to rivalry, compared to the control condition.

We assessed the effect size for the interaction between *Woman* and *Rivalry* by computing the partial ω^2 associated with these variables, a measure of the proportion of variance in the dependent variable that is explained by a given predictor in a multiple regression, accounting for the number of predictors. The partial ω^2 associated with *Rivalry* is 0.0034, the one of the term *Woman* is 0.0208, and the one associated with the interaction between *Woman* and *Rivalry* is 0.0246. Even if this effect is small, it explains more than 2 per cent of the total variance in the model and more than 8 per cent of the total explained variance.

We performed robustness tests to validate our findings. First, to better discriminate whether what we observe is a generalized decrease in cognitive performance, rather than an effect specific to network cognition, we replicate our study in Model 4 using the *Memory Span Test Score* as our dependent variable. The interaction of *Woman* and *Rivalry* has a negative but non-significant effect on performance in memory tasks ($\beta = -1.80$, $p = 0.835$). This result indicates that rivalry, as a cognitive-relational

Table III. Regression results (study 1)

	(1)	(2)	(3)	(4)	(5)	(6)
Variables	<i>Network Activation</i>	<i>Network Activation</i>	<i>Network Activation</i>	<i>Memory Span Test Score</i>	<i>Coverage</i>	<i>Accuracy</i>
Rivalry	−0.03 (0.06) [0.582]	0.05 (0.07) [0.494]	0.07 (0.06) [0.273]	1.02 (4.82) [0.833]	0.05 (0.05) [0.280]	0.05 (0.04) [0.139]
Woman	0.07 (0.06) [0.276]	0.21 (0.09) [0.027]	0.21 (0.08) [0.012]	−5.56 (6.47) [0.392]	0.17 (0.06) [0.010]	0.14 (0.05) [0.005]
Woman × Rivalry		−0.25 (0.12) [0.047]	−0.22 (0.11) [0.048]	−1.80 (8.64) [0.835]	−0.18 (0.09) [0.040]	−0.13 (0.06) [0.039]
Memory span test score			0.00 (0.00) [0.006]		0.00 (0.00) [0.019]	0.00 (0.00) [0.025]
Time (minutes)			0.03 (0.01) [0.000]	−0.41 (0.41) [0.314]	0.02 (0.00) [0.000]	0.01 (0.00) [0.001]
MiM			0.10 (0.05) [0.065]	4.29 (4.29) [0.320]	0.07 (0.04) [0.120]	0.03 (0.03) [0.275]
Constant	0.55 (0.05) [0.000]	0.51 (0.05) [0.000]	−0.07 (0.10) [0.509]	66.56 (5.65) [0.000]	0.27 (0.08) [0.002]	0.56 (0.06) [0.000]
Observations	124	124	124	124	124	124
Adjusted R-squared	−0.005	0.019	0.294	−0.009	0.245	0.163

Note: Standard errors in parentheses; exact p-values in square brackets.

schema, is particularly relevant for cognitive tasks where individuals call to mind relationships or personal contacts; however, it displays a weaker impact on unrelated cognitive tasks that entail recalling non-relational information (i.e., general memory tasks). Second, given that *Network Activation Performance* encompasses both *Accuracy* (the number of ties correctly recalled by a participant divided by the total number of recalled ties) and *Coverage* (the number of ties correctly recalled by the participant divided by the total number of ties depicted in the vignette), we checked whether both dimensions are equally influenced by rivalry. Results, presented in Models 5 and 6, align with Hypothesis 1.

STUDY 2A

The first study shows that women's performance at calling to mind third-party networks deteriorates in a rivalry condition. The second study explores whether we can observe a similar cognitive penalty when individuals call to mind their own social networks. This is important because real networks are much more relevant to gender differences in performance. To this end, we designed an additional experimental study where we ask individuals to recall their ego-network, using the same treatment conditions and manipulations of Study 1.

Experimental Procedure

We recruited participants on Amazon's Mechanical Turk in exchange for monetary compensation of \$2.00 each. A total of 196 participants submitted complete and valid responses. All participants were US residents and employed in a full-time job. The study has a 2×2 between-subject design, with 49 individuals per condition ($M_{\text{age}} = 37.76$ years, $SD = 10.60$). Participants were randomly assigned to either a treatment or control group, with both groups undergoing the same experimental procedure. After they provided demographic information (nationality, age, gender, profession, education), we exposed participants to the same textual priming for Rivalry used for Study 1. We then asked them to list up to 10 contacts they resort to when facing significant workplace challenges (see Smith et al., 2012). Next, participants viewed the contacts they listed on a different screen and described the type of relationship they have with each of them. They wrote an open text that we coded into three categories: family, personal, or professional contacts, categories selected to encompass different types of connections. Responses were classified by the first author and independently validated by the second author.

Measures

In Study 1, each participant had to call to mind the same network. Hence, *Network Activation performance* can be assessed objectively by comparing the network that a participant called to mind with the 'true' network. When assessing the ego-networks activated by the individuals in our sample, we need some common quality indicators to compare different responses. In line with past studies (e.g., Smith et al., 2012) we focus on the activation of a more extensive and more 'functional' network, i.e., one with a higher potential to be helpful for the situation for which it is activated. Accordingly, we feature two dependent variables. First, we measure the effect of rivalry on the *Size* of the cognitively activated network, in line with the view that a more extensive network tends to offer better, more varied, opportunities (Mobasseri et al., 2022; Smith et al., 2012). To account for the skewness of the variable due to the anchoring effect of the number of rows on the screen, we use the logarithm of the number of network nodes. Second, we measure the *Share of professional ties* in the network. Ties of professional nature are more suitable for delivering work-related assistance than personal and family ties (Ibarra, 1993; Mobasseri et al., 2022). Personal and family ties are most often activated to seek a 'comfortable refuge' (Smith et al., 2012, p. 70), but are less utilitarian and instrumental than professional ties (Gruenfeld et al., 2008).

We set the variable *Rivalry* to 1 for participants primed to recall an experience competing against a personal rival and to 0 for those in the control condition. We set the variable *Woman* to 1 based on the reported participant biological sex. We also included several controls. The individuals recruited for the experiment display differences in the nature and extent of their professional endeavours, which may affect the size of the network and the relevance of the distinction between professional and personal contacts. To account for these differences, we control for *Age*, *Education* (using a dummy coded 1 if the highest degree earned by the participant was MS or above), and profession of the respondent (using six categories: manual, management and entrepreneurship, sales, professional, services, and IT). We control for the effort that respondents attributed to the task using the *Duration* of the experiment (logged) and *Word count* of the priming text (logged).

Manipulation Checks

Similar to Study 1, we performed manipulation checks using indirect linguistic associations (Pennebaker et al., 2001). The analyses show that participants in the rivalry condition were significantly more likely to use terms associated with rivalry by past research, both in terms of the drive to win ($M_{\text{Drive}} = 6.42$ for control, $M_{\text{Drive}} = 14.69$ for treated, $t(194) = -11.80$, $p = 0.000$) and achievement ($M_{\text{Achievement}} = 1.62$ for control, $M_{\text{Achievement}} = 5.58$ for treated, $t(194) = -11.71$, $p = 0.000$).

Results

A test of the difference in means indicates that, in the control condition, women activate networks larger in size than those activated by men, although this difference is only marginally significant ($M_{\text{Nodes (logged)}} = 1.84$ for women, $M_{\text{Nodes (logged)}} = 1.58$ for men, $t(96) = 1.68$, $p = 0.097$), but the difference in size disappears in a rivalry condition ($M_{\text{Nodes (logged)}} = 1.68$ for women, $M_{\text{Nodes (logged)}} = 1.77$ for men, $t(96) = -0.94$, $p = 0.348$). When we consider the proportion of professional contacts, we observe that women and men activate a network

Table IV. Correlations (study 2A)

	1	2	3	4	5	6	7	8
1 Nodes (log)	1.00							
2 Professional (share)	0.05	1.00						
3 Rivalry	-0.04	0.08	1.00					
4 Female	0.04	-0.15	0.00	1.00				
5 Work experience	0.04	0.14	0.02	-0.01	1.00			
6 Age	0.02	0.18	0.08	-0.01	0.84	1.00		
7 Duration (log)	0.29	-0.01	-0.01	0.11	0.19	0.17	1.00	
8 Word count	0.17	-0.14	-0.03	0.17	0.12	0.06	0.39	1.00
Mean	1.74	0.35	0.50	0.50	16.41	37.76	6.38	139.77
S.D.	0.49	0.30	0.50	0.50	10.43	10.60	0.54	67.76

with a comparable professional share when not exposed to rivalry ($M_{\text{Professional share}} = 0.34$ for women, $M_{\text{Professional share}} = 0.32$ for men, $t(96) = 0.40$, $p = 0.687$), but the proportion of professional contacts is significantly smaller for women than for men when they are in a condition of rivalry ($M_{\text{Professional share}} = 0.28$ for women, $M_{\text{Professional share}} = 0.48$ for men, $t(96) = -3.29$, $p = 0.001$).

We performed a linear regression to test Hypothesis 1 accounting for confounding variables. Correlations among the variables (Table IV) raise no concerns of multicollinearity, with the mean VIFs of 2.35 and 2.22 for the two full models. In Table V, Models 1–5 present the results of a linear regression with the number of cognitively activated nodes as the dependent variable. The main effects of *Rivalry* ($\beta = -0.04$, $p = 0.596$) and *Woman* ($\beta = 0.04$, $p = 0.605$) are not significant. In Model 2, the effect of the interaction between *Woman* and *Rivalry* on the size of the activated network is negative but only marginally significant ($\beta = -0.26$, $p = 0.065$). In Model 3 we introduce the control variables. Controlling for *Age*, *Duration* of the experiment, *Word Count*, and *Work Experience* leaves results unchanged. The *Duration* has a positive and significant effect on the size of the activated network (which is to be expected: those who take more time to think of their network call to mind a higher portion thereof). Based on the estimates from Model 3, compared to women in the control condition, women activate a smaller support network when exposed to rivalry. The difference between the two conditions for women is -0.14 units (-0.29 S.D.). We caution, however, that the interaction effect is not significant using the cut-off threshold of 0.05.

We assessed the effect size for the interaction between *Woman* and *Rivalry* by computing the partial ω^2 associated with these variables. The partial ω^2 associated with *Rivalry* is 0.0053 and the one associated with *Woman* is 0.0045; the one associated with the interaction between *Woman* and *Rivalry* is 0.0122. Even if this effect is small, it explains about 1 per cent of the total variance in the model and more than 15 per cent of the total explained variance by our model, being the most informative covariate in the model, except for the *Duration* of the experiment.

In Table V, Models 6–10 present the results of a linear regression with the proportion of professional ties in the activated network as the dependent variable. The main effect of *Woman* in Model 6 is negative and significant ($\beta = -0.09$, $p = 0.035$), while exposure to *Rivalry* is not significantly associated with a greater reliance on professional ties ($\beta = 0.05$, $p = 0.246$). As we predicted, the interaction effect between *Woman* and *Rivalry* in Model 7 is negative and significant ($\beta = -0.22$, $p = 0.007$), supporting the argument that the rivalry condition is associated with a lower proportion of professional ties in the activated network (Hypothesis 1). In Model 8, we add the control variables. Controlling for *Age*, *Duration* of the experiment, *Word Count*, *Work Experience* leaves results unchanged. *Age* has a positive and significant impact on the professional share, in line with the expectation that older people will typically have more professional network contacts. Based on the estimated from Model 8, the dependent variable is 0.11 units (0.37 S.D.) lower when women are exposed to rivalry, compared to the control condition.

We assessed the effect size for the interaction between *Woman* and *Rivalry* by computing the partial ω^2 associated with the variables of interest. The partial ω^2 associated with the main effect of *Rivalry* is 0.0051 and the one associated with *Woman* is

Table V. Regression results (study 2A)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Variables	<i>Nodes (log)</i>	<i>Nodes (log)</i>	<i>Nodes (log)</i>	<i>Nodes (log)</i>	<i>Nodes (log)</i>	<i>Professional (share)</i>	<i>Professional (share)</i>	<i>Professional (share)</i>	<i>Professional (share)</i>	<i>Professional (share)</i>
Rivalry	−0.04 (0.07) [0.596]	0.09 (0.10) [0.355]	0.08 (0.09) [0.369]	0.11 (0.11) [0.349]	0.08 (0.09) [0.369]	0.05 (0.04) [0.246]	0.16 (0.06) [0.009]	0.13 (0.07) [0.047]	0.12 (0.08) [0.124]	0.16 (0.08) [0.047]
Woman	0.04 (0.07) [0.605]	0.17 (0.10) [0.095]	0.15 (0.09) [0.121]	0.15 (0.09) [0.106]	0.11 (0.09) [0.219]	−0.09 (0.04) [0.035]	0.02 (0.06) [0.686]	0.03 (0.06) [0.652]	0.03 (0.06) [0.592]	0.00 (0.08) [0.964]
Rivalry × Woman		−0.26 (0.14) [0.065]	−0.24 (0.13) [0.071]	−0.25 (0.13) [0.066]	−0.25 (0.12) [0.044]		−0.22 (0.08) [0.007]	−0.20 (0.09) [0.023]	−0.20 (0.09) [0.018]	−0.24 (0.11) [0.033]
Age			−0.00 (0.00) [0.679]	−0.00 (0.00) [0.648]	−0.00 (0.00) [0.636]			0.00 (0.00) [0.019]	0.00 (0.00) [0.026]	0.01 (0.00) [0.006]
Duration (log)			0.23 (0.08) [0.003]	0.24 (0.08) [0.002]	0.14 (0.06) [0.035]			0.00 (0.05) [0.957]	0.01 (0.05) [0.846]	0.02 (0.06) [0.803]
Word count			0.00 (0.00) [0.563]	0.00 (0.00) [0.591]	0.00 (0.00) [0.795]			−0.00 (0.00) [0.051]	−0.00 (0.00) [0.057]	−0.00 (0.00) [0.081]
Master and above			0.03 (0.08) [0.730]	0.03 (0.08) [0.708]	0.09 (0.08) [0.240]			0.01 (0.05) [0.921]	0.01 (0.05) [0.839]	−0.02 (0.07) [0.736]

(Continues)

Table V. (Continued)

<i>Variables</i>	<i>(1)</i>	<i>(2)</i>	<i>(3)</i>	<i>(4)</i>	<i>(5)</i>	<i>(6)</i>	<i>(7)</i>	<i>(8)</i>	<i>(9)</i>	<i>(10)</i>
	<i>Nodes (log)</i>	<i>Nodes (log)</i>	<i>Nodes (log)</i>	<i>Nodes (log)</i>	<i>Nodes (log)</i>	<i>Professional (share)</i>	<i>Professional (share)</i>	<i>Professional (share)</i>	<i>Professional (share)</i>	<i>Professional (share)</i>
Sense of power				−0.00 (0.02) [0.836]					0.01 (0.01) [0.464]	
Anxiety				−0.06 (0.07) [0.414]					−0.08 (0.05) [0.104]	
Nodes (log)								0.02 (0.05) [0.682]	0.02 (0.05) [0.743]	0.00 (0.06) [0.958]
Prof. category dummies	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Constant	1.74 (0.07) [0.000]	1.68 (0.08) [0.000]	0.27 (0.46) [0.558]	0.24 (0.45) [0.594]	0.70 (0.38) [0.070]	0.37 (0.04) [0.000]	0.32 (0.04) [0.000]	0.17 (0.30) [0.565]	0.12 (0.29) [0.693]	0.06 (0.37) [0.867]
Observations	196	196	196	196	138	196	196	196	196	138
R-squared	0.003	0.020	0.143	0.146	0.127	0.030	0.065	0.131	0.150	0.195

Note: Robust standard errors in parentheses; exact p-values in square brackets.

0.0080; the one associated with the interaction between *Woman* and *Rivalry* is 0.0264. Although this effect is small, it explains 2.6% of the total variance in the model and more than 33% of the total explained variance, making it the most informative covariate in the model.

To account for potential biases, we conducted some robustness checks. One concern may be that the effect of *Rivalry* may be driven by other situational factors. Thus, we controlled for *Sense of Power* and *Anxiety*, using the count of words associated to these constructs based on LIWC. Model 4 presents the results for the number of nodes and Model 9 for the share of professional ties. The inclusion of these controls leaves results unchanged. We also addressed potential anchoring effects by excluding all participants who had listed exactly ten contacts from the sample. This exclusion did not alter the results, as shown in Model 5 (number of nodes) and Model 10 (share of professional ties).

STUDY 2B

Study 1 and Study 2A show evidence that women's performance in the cognitive activation of third-party and ego networks decreases with exposure to rivalry. To further verify that the effect is specifically due to rivalry and not to non-relational competition, we conducted an additional experiment, replicating and extending Study 2A by including a non-rival competition condition, following the experimental procedure employed in previous studies (Kilduff and Galinsky, 2017; Kilduff et al., 2016). In addition, the study also features explicit manipulation checks and controls for competitiveness, which allow a better understanding of the effects of the priming.

Experimental Procedure

We recruited participants on the online platform Prolific (Palan and Schitter, 2018; Peer et al., 2017) offering monetary compensation in agreement with the platform's guidelines. Prolific is known for its superior data quality in online behavioural research, excelling in areas like attention, comprehension, honesty, reliability, and sample representativeness (Douglas et al., 2023; Peer et al., 2022). This quality stems from factors such as a rigorous participant pre-screening process and more detailed survey responses. Unlike MTurk, where many use the platform as a primary income source, Prolific ensures more relevant respondent profiles. By choosing Prolific, we could validate participants' demographic data and employment status, thus ensuring accurate measurement of professional network activation. A total of 336 participants submitted complete and valid responses. All participants were full-time employed UK residents with English as their native language. The study has a 2×3 between-subject design, with 56 subjects per condition ($M_{age} = 38.77$ years, $SD = 10.52$). We randomly assigned participants to one of three conditions: rivalry, competition, and a control group. The experimental procedure was the same for all conditions. After they provided necessary demographic information (nationality, age, gender, profession, office vs. remote work, education), we exposed participants to a textual priming. We used the same text as in Study 1 and Study 2A for the rivalry condition, adding a nonrival

competition condition (Kilduff and Galinsky, 2017; Kilduff et al., 2016). In the rivalry condition, participants were asked to describe a person with whom they had repeatedly competed against and/or with whom they were evenly matched, as well as the things about which they competed. Those in the competition condition were asked to describe someone with whom they had only competed occasionally and/or with whom they were not evenly matched. Participants in the control condition were asked to describe an interaction with a work-related acquaintance, with no mention of rivalry or competition. After the priming task, we conducted a manipulation check. Participants rated on a Likert scale whether they consider the person they wrote about a personal rival and their degree of rivalry towards them. Similar to the previous experiment, participants then listed up to 10 contacts they resort to when addressing significant workplace challenges and described the relationships they have with each of them. They wrote an open text that we later coded into three categories: family, personal, or professional contacts. We chose these categories to encompass different types of connections. Finally, we included a competitiveness scale (Krägeloh et al., 2019) to capture individual differences in competitiveness traits.

Measures

We use the same variables as in Study 2A, with *Competition* in addition to *Rivalry* and the control condition. Given that Study 2B was carried out following the outbreak of the Covid-19 pandemic, we account for the primary workplace setting. We use a dummy variable assigned a value of 1 for participants who consistently work from a central location, contrasting with those who work remotely (either always or occasionally). Participants working on-site might encounter rival interactions more frequently but also benefit from increased networking opportunities with peers on professional issues.^[7] Finally, we include controls for the two measures of competitiveness derived from the scale proposed by Krägeloh et al. (2019): *Enjoyment of competition* and *Contentiousness*. These measures control for the individual propensity to compete, allowing us to capture the effect of competition as a contextual condition independent of individual traits.

Manipulation Checks

We performed a manipulation check by asking respondents to rate on a Likert scale whether they considered the person they wrote about a personal rival and whether they felt a degree of rivalry towards him or her. The mean value of the first check was significantly higher for the participants in the rivalry condition than for those in the competition condition ($M = 3.71$ for rivalry, $M = 2.34$ for competition, $t(222) = -8.49$, $p = 0.000$). The same was true for the second check ($M = 3.96$ for rivalry, $M = 2.84$ for competition, $t(222) = -6.79$, $p = 0.000$). We found the same results when comparing the participants in the rivalry condition with those in the control group, both for the first ($M = 3.71$ for rivalry, $M = 1.65$ for control, $t(222) = -13.89$, $p = 0.000$) and the second check ($M = 3.96$ for rivalry, $M = 1.69$ for control, $t(222) = -15.31$, $p = 0.000$). Finally, we found a significant difference between the participants in the competition and control conditions for both the first ($M = 2.34$ for competition, $M = 1.65$

for control, $t(222) = 4.80$, $p = 0.000$) and the second check ($M = 2.84$ for competition, $M = 1.69$ for control, $t(222) = 7.19$, $p = 0.000$).

Results

Women activate significantly larger networks in the control condition ($M_{\text{Nodes}} = 7.05$ for women, $M_{\text{Nodes}} = 5.84$ for men, $t(110) = 2.33$, $p = 0.022$), but this advantage disappears in the competition ($M_{\text{Nodes}} = 6.04$ for women, $M_{\text{Nodes}} = 5.88$ for men, $t(110) = 0.324$, $p = 0.370$) and rivalry ($M_{\text{Nodes}} = 5.96$ for women, $M_{\text{Nodes}} = 6.38$ for men, $t(110) = -0.84$, $p = 0.401$) conditions. We find no significant gender differences in the share of professional contacts activated in the control condition ($M_{\text{Professional Share}} = 0.60$ for women, $M_{\text{Professional Share}} = 0.53$ for men, $t(110) = 1.03$, $p = 0.303$) and in competition ($M_{\text{Professional Share}} = 0.44$ for women, $M_{\text{Professional Share}} = 0.52$ for men, $t(110) = -1.28$, $p = 0.202$); there is a marginally significant disadvantage for women in the rivalry condition ($M_{\text{Professional Share}} = 0.43$ for women, $M_{\text{Professional Share}} = 0.54$ for men, $t(110) = -1.83$, $p = 0.070$).

We performed a linear regression to test Hypothesis 1 accounting for confounding variables. The correlations between the variables, presented in Table VI, raise no concerns of multicollinearity (the mean VIF for the two full models is of 2.50 and 2.46, respectively). In Table VII, Models 1–3 present the results of a linear regression with the log of the number of cognitively activated *Nodes* as the dependent variable. In Model 1, the main effects of *Rivalry* ($\beta = -0.02$, $p = 0.768$), *Competition* ($\beta = -0.07$, $p = 0.328$), and *Woman* ($\beta = 0.08$, $p = 0.170$) are not significant, but in Model 2 the interaction between *Woman* and *Rivalry* is negative and significant ($\beta = -0.34$, $p = 0.012$), even when controlling for the interaction between *Woman* and *Competition* ($\beta = -0.22$, $p = 0.098$), which is marginally significant. This suggests that, when exposed to rivalry, women activate fewer nodes than men, an effect distinct from that of competition, supporting Hypothesis 1. We account for potential confounding factors including several control variables in Model 3. Controlling for *Age*, *Education*, primary workplace in an *Office*, the *Duration* of the experiment (logged), *Word count* of the priming text (logged), and for *Competitiveness* does not alter the results. *Age* is negatively related to the size of the activated network while, in line with our expectations, participants working from the *Office* have larger support networks. Based on the estimates from Model 3, in comparison to the control condition, the activated advice network is 0.18 units (0.35 S.D.) smaller for women in the rivalry condition and 0.17 units (0.33 S.D.) smaller when women are exposed to nonrival competition.

We assessed the effect size for the interaction between *Woman* and *Rivalry* and *Woman* and *Competition* by computing the partial ω^2 associated with the variables of interest. The partial ω^2 associated with the main effect of *Rivalry* is 0.0014, the one associated with the main effect of *Competition* is 0.0001, and the one associated with *Woman* is 0.0018; the one associated with the interaction between *Woman* and *Rivalry* is 0.0103 and the one associated with the interaction between *Woman* and *Competition* is 0.0052. Although the effect of the *Rivalry* and *Woman* interaction is small, it is twice that of the interaction with *Competition*. It accounts for about 1 per cent of the total variance in the model and about 7 per cent of the total explained variance.

The *Proportion of professional ties* in the activated network is the dependent variable in Models 4, 5, 6, and 7 (Table VII). The main effect of *Woman* ($\beta = -0.04$, $p = 0.234$)

Table VI. Correlations (study 2B)

	1	2	3	4	5	6	7	8	9	10	11	12
1 Professional (share)	1.00											
2 Nodes (log)	0.00	1.00										
3 Woman	-0.06	0.08	1.00									
4 Rivalry	-0.05	0.01	0.00	1.00								
5 Competition	-0.07	-0.05	0.00	-0.50	1.00							
6 BA	-0.05	0.10	0.18	0.10	-0.03	1.00						
7 Age	0.06	-0.08	-0.17	0.02	-0.01	-0.15	1.00					
8 Word count (log)	0.02	0.19	0.10	0.09	-0.08	0.12	0.08	1.00				
9 Duration (log)	-0.02	0.31	0.00	0.03	-0.04	0.05	0.25	0.33	1.00			
10 Office only	-0.01	0.14	0.02	0.04	0.04	-0.02	0.04	-0.09	0.08	1.00		
11 Enj. Competition	-0.09	0.06	-0.17	0.07	-0.05	0.01	-0.04	0.00	0.08	0.05	1.00	
12 Contentiousness	-0.10	0.09	-0.11	0.04	0.00	-0.01	0.05	0.06	0.12	0.10	0.43	1.00
Mean	0.51	1.71	0.50	0.33	0.33	0.48	38.77	5.03	6.60	0.38	28.24	13.19
S.D.	0.33	0.51	0.50	0.47	0.47	0.50	10.52	0.19	0.42	0.49	8.81	4.17

Note: Correlations greater than 0.11 are significant at the 5% level.

Table VII. Regression results (study 2B)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
<i>Variables</i>	<i>Nodes (log)</i>	<i>Nodes (log)</i>	<i>Nodes (log)</i>	<i>Professional (share)</i>	<i>Professional (share)</i>	<i>Professional (share)</i>	<i>Professional (share)</i>
Rivalry	−0.02 (0.07) [0.768]	0.15 (0.09) [0.116]	0.09 (0.09) [0.344]	−0.08 (0.04) [0.076]	0.01 (0.06) [0.877]	0.01 (0.06) [0.862]	0.02 (0.06) [0.765]
Woman	0.08 (0.06) [0.170]	0.26 (0.09) [0.006]	0.19 (0.09) [0.035]	−0.04 (0.04) [0.234]	0.06 (0.06) [0.302]	0.07 (0.06) [0.292]	0.05 (0.06) [0.404]
Woman × Rivalry		−0.34 (0.13) [0.012]	−0.26 (0.13) [0.037]		−0.17 (0.09) [0.046]	−0.18 (0.09) [0.045]	−0.18 (0.09) [0.042]
Competition	−0.07 (0.07) [0.328]	0.05 (0.09) [0.634]	0.04 (0.09) [0.655]	−0.09 (0.04) [0.046]	−0.02 (0.06) [0.802]	−0.02 (0.06) [0.807]	−0.02 (0.06) [0.724]
Woman × Comp.		−0.22 (0.13) [0.098]	−0.21 (0.13) [0.102]		−0.14 (0.09) [0.099]	−0.14 (0.09) [0.097]	−0.13 (0.09) [0.148]
BA			0.04 (0.05) [0.472]				−0.02 (0.04) [0.579]
Age			−0.01 (0.00) [0.005]				0.00 (0.00) [0.415]
Word count (log)			0.24 (0.14) [0.102]				0.06 (0.10) [0.582]
Duration (log)			0.36 (0.07) [0.000]				−0.03 (0.05) [0.603]
Office only			0.13 (0.05) [0.020]				0.00 (0.04) [0.940]
Comp. Enjoyment			0.00 (0.00) [0.917]				−0.00 (0.00) [0.251]

(Continues)

Table VII. (Continued)

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Variables	<i>Nodes (log)</i>	<i>Nodes (log)</i>	<i>Nodes (log)</i>	<i>Professional (share)</i>	<i>Professional (share)</i>	<i>Professional (share)</i>	<i>Professional (share)</i>
Contentiousness			0.01 (0.01) [0.360]				−0.01 (0.00) [0.214]
Nodes (log)						−0.01 (0.04) [0.816]	0.01 (0.04) [0.871]
Constant	1.70 (0.06) [0.000]	1.61 (0.07) [0.000]	−1.79 (0.71) [0.012]	0.59 (0.04) [0.000]	0.53 (0.04) [0.000]	0.55 (0.07) [0.000]	0.52 (0.50) [0.295]
Observations	336	336	336	336	336	336	336
Adj. R-squared	−0.000	0.013	0.138	0.010	0.017	0.014	0.013

Note: Standard errors in parentheses; exact p-values in square brackets.

is not significant; the main effect of *Rivalry* ($\beta = -0.08$, $p = 0.076$) is marginally significant, whereas the main effect of *Competition* is negative and significant ($\beta = -0.09$, $p = 0.046$). Supporting Hypothesis 1, the interaction effect between *Woman* and *Rivalry* in Model 5 is negative and significant ($\beta = -0.17$, $p = 0.046$). The interaction between *Woman* and *Competition* is also negative, but the coefficient is smaller in magnitude and the effect is only marginally significant ($\beta = -0.14$, $p = 0.099$). *Competition* appears to have effects ‘in between’ the control and the rivalry condition: non-rival competition leads to less optimal network activation for women, although this effect is not as pronounced as that of rivalry. This finding aligns with existing research on the difference between rivalry and nonrival competition (Kilduff, 2014; Kilduff et al., 2010, 2016; Kilduff and Galinsky, 2017). The results remain consistent when controlling for network size (Model 6). In Model 7, we account for potential confounding factors including several control variables. Controlling for *Age*, *Education*, primary workplace in an *Office*, the *Duration* of the experiment (logged), *Word count* of the priming text (logged), and for *Competitiveness* does not alter the results. Based on the estimates from Model 3, compared to the control condition, the *Proportion of professional ties* is 0.16 units (0.48 S.D.) lower when women are exposed to rivalry and 0.15 units (0.45 S.D.) lower when women are exposed to nonrival competition.

We assessed the effect size for the interaction between *Woman* and *Rivalry* and *Woman* and *Competition* by computing the partial ω^2 for these variables. The partial ω^2 associated with the main effect of *Rivalry* is 0.0050; the one associated with the main effect of *Competition* is 0.0087; the one associated with *Woman* is 0.0123. The partial ω^2 associated with the interaction between *Woman* and *Rivalry* is 0.0097 and the one associated with the interaction between *Woman* and *Competition* is 0.0034. Although the effect of the

Rivalry and *Woman* interaction is small, it is nearly thrice the one of the interaction with *Competition*, explaining about 1 per cent of the total variance in the model and nearly 75 per cent of the total explained variance.

Study 1 involved student participants and the activation of a third-party network. Study 2A tested Hypothesis 1 in the context of ego-network activation within a professional setting. Study 2B further clarifies the distinction between the effects of rivalry and mere competition. When comparing these results with those of Study 2A, we find consistent gender differences in outcomes, demonstrating that the influence of rivalry on network activation is consistent across different contexts (US vs. UK) and recruitment platforms (MTurk vs. Prolific).

STUDY 3

The second set of studies focuses on network mobilization performance – how individuals use and deploy their contacts to achieve personal or collective goals in a given situation. Mobilization entails calling upon others to achieve a goal. Few studies treat mobilization as distinct from activation. Studies of network mobilization typically rely on archival records and interviews to gain insights on how contacts are deployed and how alters respond to requests (e.g., Obukhova and Kleinbaum, 2022). Consistent with this approach, we study the impact of rivalry on network mobilization using archival data from professional sports. Fonti et al. (2023) highlight that both networks and rivalry are topics that greatly benefited from studies of professional sports (pp. 4–5) and propose that more research should use professional sports to examine diversity and gender inequality (p. 13). Professional sports are an ideal set-up to examine rivalry, because teams typically compete against all other teams, but have only one or two rivals (Kilduff et al., 2010). This setting enables us to identify the impact of rivalry on network mobilization for both men and women, using nonrelational competition as the baseline.

Context and Data

We focus on professional football because it offers rich data to study gender differences (e.g., de Jong et al., 2020; Pappalardo et al., 2021; Van Lange et al., 2018), rivalry (e.g., Kilduff et al., 2016), and networks through player passes (e.g., Onody and de Castro, 2004; Yamamoto and Yokoyama, 2011). We collected data from Footstats (www.footstats.org) on all active players over the last three seasons (2018–19, 2019–20, 2020–21) in the Women's and Men's Leagues of the Italian Serie A, totalling 1248 men and 542 women. We use these data to test whether players exposed to (team-level) rivalry are more or less effective at mobilizing networks within their team than players on teams that do not have a rival. This setting allows us to identify the effect of rivalry on network mobilization for men and women, retaining nonrelational competition as the baseline.

Measures

Researchers used passes between players to map social network structure and identify key football players within a team (e.g., Onody and de Castro, 2004; Yamamoto and Yokoyama, 2011). We focus here on a specific type of metric that maps well onto the concept

of network mobilization – the number of *Assists* a player makes, normalized by the number of minutes in a match. In football, an assist is credited to a player who passes or crosses the ball, creating a potential scoring opportunity for a teammate. Whether the subsequent goal attempt succeeds or fails is irrelevant: the assist is defined by the creation of the scoring chance. The metric captures instances where a player engages a teammate to facilitate scoring and the achievement of a collective goal. Past research suggests that network mobilization can be both deliberate and serendipitous (Small and Sukhu, 2016). Assists encompass both types of mobilization: a player can purposefully provide an assist – i.e., cognitively screen the position of all teammates, recall training schemas, and choose the player that is more likely to score. However, assists can reflect unplanned player availability or be driven by fortuitous situations, such as shot rebounds. In both cases, however, they reflect an act of mobilization of teammates towards scoring. As such, we believe that assists represent an empirically measurable example of network mobilization, positively associated with team performance (Lago-Peñas et al., 2010, 2011).

Italy has strong territorial rivalries, stemming from historical feuds that are often manifested in sports. Following Kilduff et al. (2016), we designated *Rivalry* as the relationship between teams from the same region, capturing rivalries that resonate deeply among players and fans in both women's and men's tournaments. For instance, 1993 saw a clash between Atalanta and Brescia Calcio supporters, and in 2021, S.S. Lazio's women fans vandalized the car of A.S. Roma's captain, highlighting the significance of such disputes. Such dynamics, though not unique to Italy, are amplified by its regional history. The variable *Rivalry* is set to 1 for teams with regional rivals and 0 for those without.

We set the variable *Woman* to 1 if the player belongs to Women's Serie A, 0 if belonging to the Men's Serie A. This dummy variable captures gender effects, but also League-specific effects – men and women play in different leagues, which might vary in unobservable traits. We control for several factors that may bear on players' number of assists. The number of successful assists depends on the minutes spent on the field. Thus, we control for the involvement of the player (*Players' minutes played*). Past research suggests that younger players tend to be more result-oriented, while older players are more likely to share scoring opportunities with their peers (Van Lange et al., 2018). For this reason, we control for players' *Age*. We also control for *Team performance*, as higher-ranked teams are likely to feature elaborate training schemas that can increase assists (Van Lange et al., 2018). Player positions significantly influence the likelihood of providing assists (Rein et al., 2017). To account for this, we incorporated role fixed effects to capture variations based on player positions (Goal-keeper, Defender, Mid-player, Forward). We also included season fixed effect to control for variation in the degree of league competitiveness over time, and nationality fixed effects (Italian and European, with International as the omitted variable), to account for the fact that international players may respond differently to rivalries in the Italian context.

Results

This study utilizes archival data, leading to non-random assignment of subjects to conditions. Therefore, the comparison of means primarily offers descriptive insights. The number of assists normalized by minutes played is higher for men when they have a rival

than in the baseline condition ($M_{\text{Assists}} = 0.050$ for baseline, $M_{\text{Assists}} = 0.074$ for rivalry, $t(2150) = -1.93$, $p = 0.027$), while women do not do any more assists ($M_{\text{Assists}} = 0.023$ for baseline, $M_{\text{Assists}} = 0.015$ for Rivalry, $t(915) = 1.29$, $p = 0.196$) when exposed to rivalry.

We performed a linear regression to test Hypothesis 2, accounting for confounding variables. We present correlation statistics in Table VIII. Multicollinearity is not a concern, as the mean VIF for the full model is 1.65, below the recommended thresholds (e.g., Neter et al., 1989). Table IX presents the results of a regression at the player level.

Model 1 includes only the main effect of *Rivalry* and *Woman*. In Model 2, we enter the interaction between *Rivalry* and *Woman*. *Assists* are significantly less common in women's football than in men's football ($\beta = -0.03$, $p = 0.001$). *Rivalry* is positively and significantly correlated with the number of *Assists* ($\beta = 0.02$, $p = 0.005$). Supporting Hypothesis 2, the interaction between *Woman* and *Rivalry* is negative and significant ($\beta = -0.03$, $p = 0.003$). Model 3 includes all the control variables that may affect *Assists*. *Past team performance* (measured by the number of points acquired in the current season) positively correlates with *Assists*, corroborating the idea that assist patterns in football are partly based on tactical schemes deployed by high performing teams. *Playing Time* increases the chances of providing an assist. Regarding the controls, as anticipated, *Midfield* and *Forward* players are more likely to provide assists than *Defenders*. The other controls do not have a significant effect on the dependent variable. The results of Model 3 are similar to those of Model 1 and Model 2: compared to players competing in teams without a rival, players with a rival team in the Women Serie A do fewer Assists ($\beta = -0.03$, $p = 0.006$), supporting Hypothesis 2. The effect is relatively small: based on the estimates from Model 3, women playing in a team with a rival make fewer assists per minute (-0.013 units, 0.06 S.D.) than those playing in teams without rivals. The partial ω^2 for the main effect of *Rivalry* is 0.0003, the one of the term *Woman* is 0.0018 and the one for the interaction between *Woman* and *Rivalry* is 0.0004. In this case, the effects are modest, also reflecting the large sample size and the small proportion of variance explained by the model (0.039).

In view of the skewed distribution of the dependent variable, we conducted supplementary analyses (Model 4) using winsorizing to address outliers. In this set of analyses (Model 4), we replaced extreme data points with values at the 5 per cent or 95 per cent percentiles. The results yielded results consistent with those of Model 3.

STUDY 4

Study 3 explored network mobilization in professional football, a context that has been used to study gender differences (e.g., de Jong et al., 2020; Pappalardo et al., 2021; Van Lange et al., 2018), rivalry (e.g., Kilduff et al., 2016), and networks (e.g., Onody and de Castro, 2004; Yamamoto and Yokoyama, 2011). In Study 4, we examine differences in network mobilization between men and women in another context where network mobilization is key for performance: the Palio di Siena (Operti et al., 2020; Sgourev and Operti, 2019). As in the previous study, this context allows us to study the effect of rivalry between *contrade*, taking nonrelational competition as the baseline. It also allows us to observe men and women competing against each other, while in Study 3, the Leagues were segregated by gender. We

Table VIII. Correlations (study 3)

	1	2	3	4	5	6	7	8	9	10
1 Assists	1.00									
2 Woman	-0.10	1.00								
3 Rivalry	0.04	-0.13	1.00							
4 Minutes played	0.03	0.11	0.00	1.00						
5 Age	0.03	-0.19	0.07	0.40	1.00					
6 Points in season	0.11	-0.52	0.28	-0.07	0.13	1.00				
7 Defender	-0.07	-0.04	-0.03	0.15	0.03	0.02	1.00			
8 Forward	0.08	0.07	0.00	-0.09	-0.02	-0.04	-0.35	1.00		
9 Goalkeeper	-0.09	-0.01	0.00	-0.01	0.02	0.02	-0.25	-0.20	1.00	
10 Midfielder	0.06	-0.01	0.03	-0.05	-0.03	0.00	-0.48	-0.40	-0.28	1.00
Mean	0.05	0.30	0.70	49.44	26.01	44.43	0.30	0.23	0.12	0.35
S.D.	0.22	0.46	0.46	32.51	6.36	20.81	0.46	0.42	0.33	0.48

Note: Correlations greater than 0.04 are significant at 5% level.

Table IX. Regression results (study 3)

	(1)	(2)	(3)	(4)
<i>Variables</i>	<i>Assists</i>	<i>Assists</i>	<i>Assists</i>	<i>Assists (winsorized model)</i>
Woman	−0.05 (0.01) [0.000]	−0.03 (0.01) [0.001]	−0.01 (0.01) [0.083]	−0.02 (0.00) [0.000]
Rivalry	0.01 (0.01) [0.032]	0.02 (0.01) [0.005]	0.01 (0.01) [0.099]	0.00 (0.00) [0.280]
Woman × Rivalry		−0.03 (0.01) [0.003]	−0.03 (0.01) [0.006]	−0.01 (0.00) [0.005]
Minutes played per match			0.00 (0.00) [0.000]	0.00 (0.00) [0.000]
Age			0.00 (0.00) [0.940]	0.00 (0.00) [0.001]
Points in the season			0.00 (0.00) [0.000]	0.00 (0.00) [0.000]
Role fixed effects			YES	YES
Nationality fixed effects			YES	YES
Season fixed effects			YES	YES
Constant	0.06 (0.00) [0.000]	0.05 (0.00) [0.000]	−0.04 (0.01) [0.004]	−0.05 (0.01) [0.000]
Observations	3069	3069	3069	3069
Adjusted R-squared	0.011	0.011	0.039	0.240

Note: Standard errors in parentheses; exact p-values in square brackets.

also leverage this setting to complement quantitative insights on network mobilization with qualitative insights on the mechanisms responsible for these effects.

Context and Data

The Palio is a world-famous horse race held twice a year in Siena, Italy, featuring ten participating city neighbourhoods. Its origins are in the Middle Ages, but the first modern Palio took place in 1656. Its format has remained unchanged since 1729. The race circles three times the tuff-covered Piazza del Campo, the city’s central square.

The Palio is not simply a horse race. It is a representation of the identities of 17 city neighbourhoods ('contrade'), each characterized by a distinctive history, identity and tradition (Dundes and Falassi, 1975). A well-documented system of alliances and rivalries exists between contrade. Rivalries are long-lasting and formalized through a vote by contrada members. Rivalries typically involve adjacent contrade and feature occasional confrontations between residents. Every contrada competes against the others for victory in the race, but the intensity of competition is much higher between pairs of rival neighbourhoods.

Contrade resemble self-governed city-states (Drechsler, 2006; Silverman, 1979): each contrada is headed by an elected Prior, in charge of regular activities, such as the provision of social services. However, during the days of the Palio, the contrada is governed by the Captain, an elected official assisted by two lieutenants ('mangini'), who has complete control over the tactics and strategy for the Palio. Captains' tenure varies depending on the contrada, but it stands at about three years on average. The Palio is considered as traditionally male-dominated but since the 1930s it has increasingly allowed women to occupy top positions. Twelve women have been elected as Captain in nine contrade so far (Guazzi, 2004).

Past research (Dundes and Falassi, 1975; Sgourev and Operti, 2019) attests that success in the Palio requires a full-fledged network mobilization strategy. Horses are assigned by lot to the contrade.^[8] A captain can influence the outcome of the race in three ways: by using their network to recruit a good jockey, by mobilizing alliances that facilitate the race for the jockey, and by plotting a strategy to block the activities of the rival contrada. The captain works all year long to maintain relationships with other captains and potential jockeys. Jockeys are not contrada members but are expected to act in the interest of the contrada for the duration of the Palio. They are hired for one or more races; the captains build their relationships with jockeys over time, but the actual hiring takes place right after the assignment of horses. Better jockeys are typically hired to ride stronger horses; a contrada that has drawn a poor horse may decide to 'lend' a jockey with whom it has a relationship to an ally with a better horse, to reduce the probability of a rival winning.

These informal agreements between contrade ('partiti') are established and strengthened through the relationships built between the captains and jockeys in the winter, but the actual negotiations can only take place after the horse assignment, during the four days leading up to the race. The 'partiti' represent a prototypical case of 'network mobilization'. Captains negotiate dyadic partiti with 'as many of the remaining participants in the Palio as possible' (Dundes and Falassi, 1975, p. 75), bar the rival. The scope of partiti is broad: from an agreement on specific services to ease the road to victory, to agreements of neutrality, to those of foiling a rival (e.g., by whipping his horse) (Dundes and Falassi, 1975). Tactics for halting a competing contrada may involve outbidding the rival for the favour of another contrada, or even taking more extreme measures such as paying a different jockey to appear to lose control of their horse and obstruct the rival. The importance of network mobilization to successful performance in the race makes the Palio a highly suitable context for our study. We collected quantitative and qualitative data to explore gender-based differences in network mobilization performance in the Palio between 1930 and 2010.

Qualitative Evidence

In Spring 2022, we conducted 10 interviews with captains and contrada leadership team members, five women and five men, to understand gender differences in network mobilization during the race. We supplemented these interviews with 23 archival interviews, 15 with women and 8 with men, collected by a local historian (Guazzi, 2004) and by a local journalist. We used open coding, axial coding, and integration to detect, classify, and connect themes characterizing access to leadership, network mobilization tactics and performance for men and women captains (Corbin and Strauss, 2008). In what follows, quotes from men and women are marked as M and F.

The Palio is a male-dominated context, but our interviews reveal limited differences in access to leadership positions between men and women. They are subjected to the same rigorous process of screening and selection. Captains have similar social backgrounds, hailing from the same upper-class families and having solid contrada expertise. As F1 suggests: *'In general, people are chosen for their ability, be they men or women'*. Similarly, M1 points out that accessing leadership positions *'is not a question of gender but of knowing the Palio and the Contrada'*. M4 observes that *'In Bruco all the women who had [leadership] positions were born and raised in the Contrada: they were not spared criticism and were not treated differently'*.

The Palio requires mobilizing relationships with captains and jockeys, arranging exchanges of favours, procuring assistance with tasks and deflecting the rival's efforts. Managing these relationships is often more important to success than disposal of financial resources. M1 told us that *'Economic resources matter only marginally; otherwise, the more affluent Contrada would always win'*. In a context where relational skills are decisive, both men and women can prove successful as captains. In the words of F7: *'In terms of interpersonal relationships and strategies, women would certainly not be any less capable in Palio-related positions'*.

At the same time, our interviewees recognize qualitative differences in what is expected from men and women in terms of network mobilization, reflecting gender cognitive and relational schemas. Women are often perceived as having a more comprehensive vision and to discern subtle nuances. For example, F3 noted that women tend to *'grasp nuances that are often overlooked by men'*, while F7 identified women's edge as the *'ability shared by most women to understand quickly the situation that lies ahead and use that to solve problems. It is the female intuition. This is an aspect that can prove useful during the Palio'*. Women are described as more collaborative and willing to mediate, while men are presented as more action-focused and agentic. For example, F7 points out that *'women are generally more inclined to diplomacy'* while F3 notes that men *'tend to emphasize action and they are more determined in a negotiation'*.

The informants underscore that the cognitive-relational schema linked to rivalry aligns with behaviours traditionally expected of men, yet starkly contrasts with the social expectations commonly attributed to women. F6 defines rivalry as *'A black-and-white condition'* and point out that collaborative mobilization mode seem inconsistent with such a set-up. F7 adds context, suggesting: *'The Palio is unquestionably a kind of war, so it is very close to the male way of thinking'*. F3 points out the perceived misalignment between women and the dynamics of the Palio, remarking, *'Women are not always suitable for Palio roles because of their character'*.

The misalignment between gender schemas and rivalry has an impact on network mobilization. Men perceive the context of rivalry as well aligned with gender expectations and fully embrace the imperative of aggression, mobilizing networks against the rival. M1 highlights how networking should specifically target the individuals connected to the rival *‘I have always been taught that, as far as jockeys are concerned, it is necessary to maintain relations with everyone, but above all with the jockey of reference of the rival’*. He is even open to paying a bribe to the rival’s jockey or using violence if his contrada has drawn a good horse and is located close to the rival: *‘As far as I am concerned, if the rival attacks my jockey, I would like him to respond to any attack like Aceto did with Legno in 1992 [a legendary example of violent riposte]’*. M1 confirms that men captains feel at ease with pursuing mobilization agreement that entail bribing or aggression in a similar scenario: *‘The best thing to do [when the rival is running and gets a good horse] would be to bribe the rival’s jockey, but lately the figure of the “professional killer” jockey has emerged’*.

Conversely, women often mention discomfort when interacting with the rival, on and off-the race track. This sentiment is captured in F6’s description of her visits to Torre: *‘Sometimes for official events I happened to go there and, on the one hand, they try to treat you well while, on the other, it seemed to me to walk on nails: I felt a little uncomfortable’*. In the Palio, women leaders react to the misalignment between gender schema and rivalry by adhering even more to expectations of communal and cooperative behaviour, even if this effort may not pay off on the race track. For example, F4 identifies establishing a ‘normal’ relationship with the rival as a significant achievement of her tenure. Women captains also desist from adopting aggressive tactics. They prioritize achieving success for their own contrada over damaging their rivals. Women also report experiencing negative affect when aggression takes place, as F8 recounts: *‘With a Captain I knew, we agreed for non-aggression. I told my jockey to be quiet, and then, as soon as the race started, my jockey was repeatedly hit by the jockey of the contrada with which I made the deal. I became angry and I never talked to that Captain anymore, I ignored him (in later negotiations)’* (Guazzi, 2004, p. 54).

These quotes provide evidence that rivalry can create misalignment for women in terms of their expected network mobilization behaviour and outcomes. Next, we provide supporting evidence for this argument from our quantitative analysis.

Quantitative Findings

For a formal test of Hypothesis 2, we draw historical data on the Palio from the archives of the municipality of Siena (Papei, 2003; Profeti, 2004) and historical books (e.g., Filiani and Zaffaroni, 2002, 2003). The analysis focuses on the period 1930–2010 for two reasons. First, women were only eligible to hold positions of responsibility from the 1930s. Second, to disentangle the effects of the captain’s strategy and the quality of the horse, we need information about the horse’s winning record. The identification of horses is possible only after 1930. Thus, our data feature 275 captains, 12 of which were women (about 4.4 per cent of captains or 7 per cent of captain-race observations, our unit of analysis). Interestingly, the percentage of women observed in this context is very similar to the one observed in the corporate world. For instance, in US Fortune 500 firms, the percentage of women CEOs is 4 per cent (Hoobler et al., 2018). Women have been equally represented as captains both

in contrade with and without a rival. Overall, we had 50 races with a woman captain and at least one rival contrada running in the same race. Our data consist of captain-Palio observations.

Measures

Mobilization cannot be directly observed (the agreements between captains are secret), but can be measured by its outcome: winning the Palio. The objective of a captain is to win the Palio as soon as possible (Dundes and Falassi, 1975). In the words of F9, a former Captain: '*A captain must win! I wanted to win as soon as possible, to win my first Palio and I was tremendously angry because I did not*' (Guazzi, 2004, p. 55). Likewise, M8 stated in his election speech in 2017 that his objective was winning as soon as possible: '*My main objective, together with my collaborators, is to win a Palio: we have been waiting for so long*'.

Hence, the dependent variable is the time it takes a captain to win a Palio.^[9] We use a Cox model to test the hypothesis, dividing the Captain's career into spells, starting with the election and including each Palio in which he or she participates, terminating with a win. The variable *Woman* is set to 1 if the contrada elected a woman captain, and to 0 otherwise. The variable *Rivalry* is the count of rivals of the focal contrada present on the race track in each specific Palio-Captain observation. This variable typically takes the values 0 and 1, although sometimes a few contrade faced multiple rivals in the race (these cases were more frequent in the past). Alliances and rivalries are formally declared and typically long lasting. Captains know in advance who their rival is, but they are not sure about whether they will meet the rival on the race track until four weeks before the Palio. The list of participating contrade is partly determined by the outcome of the previous race, and partly by a ballot, which takes place one month before the Palio.

The model includes several controls. To control for the quality of the horse, we use *Horse Prior Win Share*, the proportion of races won by that horse up to that point, and *Horse Experience*, the number of races run by that horse. We also control for the quality of the jockey through *Jockey Prior Win Share*, measuring the proportion of races won by that jockey up to that moment, and *Jockey Experience*, measuring the number of races run by that jockey. We include a dummy variable set to 1 if the Contrada has the longest non-winning spell (*Nonna*). Contrada fixed effects account for time-invariant differences in resource endowments between neighbourhoods.

Results

We used a Cox hazard model to test Hypothesis 2 accounting for confounding variables. Table X reports the correlations between the variables of interest, which raise no concerns of multicollinearity (the mean VIF for the full model is 1.74). Table XI reports the hazard of a captain winning as a function of rivalry and of the gender of the captain. Model 1 features the effects of the independent and control variables. *Woman* has a positive effect, but the effect is only marginally significant ($\beta = 0.62$, $p = 0.088$).

In Model 2, we introduce *Rivalry*, which has no significant association with the hazard of winning ($\beta = -0.09$, $p = 0.637$). We introduce the interaction effect of *Rivalry* and

Table X. Correlations (study 4)

		1	2	3	4	5	6	7	8
1	Win	1.00							
2	Woman	0.02	1.00						
3	Rival	-0.02	-0.03	1.00					
4	Horse prior win	0.15	0.00	-0.00	1.00				
5	Horse experience (log)	0.16	0.01	0.01	0.40	1.00			
6	Jockey prior win	0.07	-0.00	-0.02	0.14	0.14	1.00		
7	Jockey experience (log)	0.07	-0.03	0.04	0.08	0.14	0.33	1.00	
8	Nonna	0.02	0.01	0.03	-0.03	0.02	-0.02	0.07	1.00
	Mean	0.10	0.07	0.5	0.08	0.85	0.1	1.93	0.10
	S.D.	0.29	0.24	0.53	0.19	0.83	0.14	1.08	0.29

Note: Correlations greater than 0.07 are significant at 5% level.

Woman in Model 3: it is negative and significant ($\beta = -1.77$, $p = 0.008$), confirming that women in the rivalry condition tend to underperform, supporting Hypothesis 2. Based on the estimates in Model 3, in the absence of rivalry, the hazard of winning is 3.6 times higher for a contrada led by a woman captain; when at least one rival of the focal contrada is running, though, the hazard of winning is 1.3 higher for a contrada led by a man than one led by a woman.

To account for alternative explanations, we also include our control variables: the effect of the variable *Nonna* is positive and significant, implying that contrade that have not won for a while provide captains with more resources, increasing their chances to win. As expected, having an experienced horse significantly increases the hazard of winning.

We consulted our contacts in Siena and other data sources to address unobserved differences in characteristics and networks of men and women captains which may drive the results. One concern is that the barriers to entry for women elected as captains might be higher than those for men; so that only exceptionally capable women are considered. Even if the qualitative evidence presented in the previous section suggests this is unlikely, we also provide a more conservative way of addressing unobserved quality through a matching procedure (Iacus et al., 2009). For each race, we matched every woman with at least one man who participated in the same Palio and was allocated a horse of comparable quality to the one received by the woman, using an exact matching procedure. This design allows us to reduce concerns of unobserved heterogeneity. It also renders a more balanced sample, thus alleviating concerns due to the under-representation of women in our sample.

Models 4 and 5 present the results of a conditional logit model of the probability of winning the Palio, where (a) each woman captain is matched with at least one man that received an equally experienced horse and (b) each woman captain is matched with at least one man that received a similarly qualified horse with an equivalent past winning record. Introducing these stringent matching criteria reduces the number of observations to 71 cases in Model 4 (a) and 58 observations in Model 5 (b). The test, based on stricter

Table XI. Cox proportional hazard models of captain’s win, 1930–2010 (study 4)

	(1)	(2)	(3)	(4) <i>FE logit Exact match</i>	(5) <i>FE logit Exact match</i>	(6) <i>Jockey Prior Win</i>	(7) <i>Captain Prior Win</i>
Woman	0.62 (0.36) [0.088]	0.63 (0.36) [0.083]	1.29 (0.34) [0.000]	1.79 (0.86) [0.038]	1.49 (1.12) [0.183]	1.01 (0.43) [0.019]	1.40 (0.35) [0.000]
Rivalry		−0.09 (0.18) [0.637]	0.04 (0.18) [0.840]	1.11 (0.72) [0.124]	0.89 (0.84) [0.290]	−0.14 (0.20) [0.464]	0.30 (0.49) [0.540]
Woman × Rivalry			−1.77 (0.67) [0.008]	−4.23 (1.44) [0.003]	−3.57 (1.75) [0.042]	−1.82 (0.74) [0.014]	
Horse Prior Win	0.56 (0.37) [0.125]	0.56 (0.37) [0.128]	0.65 (0.36) [0.074]			3.03 (0.56) [0.000]	11.64 (1.62) [0.000]
Horse Experience	0.31 (0.11) [0.004]	0.32 (0.11) [0.003]	0.33 (0.11) [0.004]			0.02 (0.04) [0.633]	0.09 (0.05) [0.057]
Jockey Prior Win	1.02 (0.62) [0.103]	1.01 (0.62) [0.105]	1.10 (0.61) [0.073]	5.71 (1.94) [0.003]	4.60 (2.08) [0.027]		7.63 (1.56) [0.000]
Jockey Experience	0.18 (0.09) [0.055]	0.18 (0.09) [0.053]	0.17 (0.09) [0.067]	0.74 (0.36) [0.037]	0.59 (0.34) [0.080]		
Nonna	0.71 (0.31) [0.021]	0.72 (0.30) [0.019]	0.66 (0.30) [0.028]	0.46 (1.30) [0.722]	−0.03 (1.71) [0.984]		
Log participation						0.00 (0.07) [0.994]	0.48 (0.16) [0.002]
Contrada Fixed Effects	YES	YES	YES			YES	YES
Strata Fixed Effects				YES	YES		
Decade Fixed Effects						YES	YES
Log likelihood	−484.00	−483.91	−481.33	−17.55	−16.13		
Observations	1075	1075	1075	71	58	275	275

Note: Robust standard errors in parentheses; exact p-values in square brackets.

assumptions and a smaller (and more gender-balanced) sample of observations, provides further support for Hypothesis 2: the interaction effect *Rivalry* and *Woman* is negative and significant both in Model 4 ($\beta = -4.23$, $p = 0.003$) and in Model 5 ($\beta = -3.57$, $p = 0.042$).

An alternative explanation for the reduced probability of winning by women captains when a rival is present could be that women become *more* focused than men on preventing their rival from winning, distracting them from the objective of winning the race. A separate analysis (available from us upon request) shows no effect of a captain's gender on the likelihood of the rival winning the race.

The interviews reveal that hiring jockeys is one of the crucial dimensions of network mobilization. Thus, one should expect that, over the course of their career, network mobilization is associated with hiring a larger share of high-quality jockeys.^[10] This in turn should lead to a higher share of victories. Thus, we should expect women captains in a contrada with a rival to be able to recruit less capable jockeys which, in turn, will reduce their winning record. This is evidenced in the two additional models presented in Table XI: Model 6 shows that a woman captain hires on average significantly less victorious jockeys to run for her contrada when the contrada has a rival ($\beta = -1.82$, $p = 0.014$). Model 7, in turn, shows that a more victorious jockey is significantly associated with better winning performance for a captain ($\beta = 7.63$, $p = 0.000$), as measured by the share of winning races during their tenure. In addition, we ran a Structural equation model and found that the average quality of the hired jockeys mediates the effect of *Woman* $\times$ *Rivalry* on the share of victories.

DISCUSSION AND CONCLUSIONS

To shed light on gender differences in network activation and mobilization, we employed a contextual approach (Joshi et al., 2015), where gender differences in network returns vary with exposure to rivalry (Kilduff, 2014; Kilduff et al., 2010; Sgourev and Operti, 2019). Connecting research on networks, rivalry, and gender, we predicted women to encounter greater difficulties in activating and mobilizing networks when exposed to rivalry. We argued that misalignment between the cognitive-relational schema of rivalry and gendered schematic traits has negative consequences for the network-related cognitive and behavioural performance of women, due to fear of social evaluations (Brands and Mehra, 2019), negative affect (Shea et al., 2015), and a perception of threat (Smith et al., 2012).

To test our hypotheses, we conducted three experiments focusing on the activation of third-party and personal networks, and two field studies examining network mobilization in contexts where rivalry is highly salient. Consistent evidence from all research contexts corroborated our arguments. Our approach compensated for the limitations of individual studies, related to measurement or the complexities of interactions, by using a combination of methods. By documenting the alignment between results in different contexts and at different levels of analysis, we present a compelling case for the influence of rivalry on individual and team-level outcomes.

Implications for Theory and Research

While past studies on gender and networks have predominantly focused on differences in men's and women's 'actual' networks as key determinants of performance and career

outcomes (Burt, 2009), our research pursued a different approach by building upon the recent framework of Brands et al. (2022). Rather than concentrating solely on the structure of the ‘actual’ network, we study gender differences in network cognition and behaviour. This approach redirects attention from studying gender differences in network composition or structure as determinants of network returns to examining how men and women perceive and use networks across different contexts, regardless of their similar composition or structure. By documenting the effect of rivalry on both cognition and behaviour, we add to the few existing empirical studies on the relationship between cognition, gender, and networks (Brands et al., 2022) and on the effective mobilization of network contacts (Obukhova and Kleinbaum, 2022). We recommend for future research to examine in greater detail the mechanisms featured here (i.e., fear of social evaluation, negative affect, perceived threat), in order to identify with more accuracy the role that each of them plays in the observed dependencies.

Borrowing the cognitive and behavioural lens from Brands et al. (2022), our research encourages further examination of the interplay between these dimensions (Ibarra, 2004; Ibarra et al., 2005). Past research features dissenting views on the relationship between cognitive activation and behavioural mobilization within networks. While some argue that activation is a prerequisite for mobilization (e.g., Smith et al., 2012), others contend that these are independent processes (e.g., Small, 2021; Small and Sukhu, 2016). Our objective is not to settle this debate, but to identify a specific condition – rivalry – and its impact on both cognitive activation and behavioural mobilization. Future studies should explore the connection between cognitive activation and behavioural mobilization in greater depth and identify other possible conditions that may influence the degree of alignment between cognitive and behavioural aspects.

The focus on rivalry as a contextual factor influencing gender differences in network activation and mobilization aligns with recent perspectives in gender research that focus on contextual conditions (Joshi et al., 2015). This approach shifts attention from strategies that target and shape women’s behaviour to those modifying the contexts in which women operate (e.g., Bates, 2022). Previous research has predominantly looked at dimensions of the work context, focusing on structural and institutional drivers of gender inequality, such as women’s representation within organizations (e.g., Cohen et al., 1998) or industries (Ali et al., 2021), and specific occupational arrangements like prestige or job structure (Joshi et al., 2015). We highlight rivalry as a contextual factor operating at both inter-personal and inter-organizational levels (Kilduff, 2019; Sgourev and Operti, 2019). Given the relational nature of rivalry, we argue that this factor significantly impacts how individuals perceive social reality and leverage their network contacts to attain personal or collective goals. Our analysis does not intend to position rivalry as the most influential contextual factor, but as a relational construct that warrants more scholarly attention, particularly in the context of gender differences in network returns.

This study also contributes to research on rivalry in two principal ways. Previous research on rivalry has often overlooked the heterogeneity in individual responses to rivalry. The study by Kilduff (2014), where gender features mainly as a control variable, is a rare example of connecting gender with rivalry, showing that rivalry is

more pronounced between people of the same gender than across genders. Our paper shows that gender not only shapes the perception of rivalry but also influences the intensity of cognitive and behavioural responses to rivalry. This insight emphasizes the need for future research to explore heterogeneity in responses to rivalry. For example, researchers may want to study whether gender differences in reaction to rivalry may also be observed for other types of outcomes that activate gender expectations, like unethical behaviour (Kilduff and Galinsky, 2017; Kilduff et al., 2016). Scholars should consider examining how rivalry effects differ across demographic groups, defined by status, race, or nationality (Milstein et al., 2022). We also call for studies of rivalry in diverse environments and situations, enriching our understanding of how rivalry influences other types of relational outcomes.

Second, our study reinforces the distinction between rivalry and competition, as noted by Converse and Reinhard (2016) and Kilduff et al. (2010). The findings demonstrate that the cognitive and behavioural differences between men and women, evident in competitive situations (Niederle and Vesterlund, 2011), become more pronounced in the context of rivalry – the most personal and intense form of competition. Our findings add evidence that rivalry is qualitatively distinct from competition, encouraging the pursuit of new substantive links between rivalry and relational processes beyond the focal dyad.

Practical Implications

Our research provides new insights into the reasons for the persistent underrepresentation of women in senior roles. Despite evidence that women in top management positions may improve corporate performance (Dezsö and Ross, 2012), women's underrepresentation in corporate boards and managerial roles persists (Daily et al., 1999). Given the importance of networks in achieving managerial positions, our research highlights a distinctive factor contributing to the underrepresentation of women: the way in which firms manage workplace rivalry. Many professional service firms follow the 'up or out' principle, a promotion schema that entails repeated confrontation within a confined professional space (same organization or same profession in a restricted neighbourhood), where candidates vie for similar positions and may face multiple rejections (Brands and Fernandez-Mateo, 2017). Failing to secure a promotion or a job often results in exiting the system (Morris and Pinnington, 1998) and makes candidates less prone to applying again for a similar position (Brands and Fernandez-Mateo, 2017). Such processes foster enduring interpersonal rivalries, which can potentially prevent women from leveraging and capitalizing on their networks.

Companies and recruiting agencies need to recognize that these practices may be a powerful source of disadvantage for women through the rivalries they encourage and their differential costs. This observation is aligned with Berdahl et al.' (2018) observation that practices and determinants of career progress that are viewed as gender-neutral, in reality favour men that subscribe to the masculine culture (Berdahl et al., 2018). Strategies aimed at reducing personalization, such as increasing the pool of candidates or providing feedback based on objective criteria (Fernandez-Mateo and Coh, 2015), can contribute to reducing the level of rivalry in the workplace and improving women's opportunities for leadership roles.

Past studies underline the value of initiatives to increase women's network returns in order to improve their career chances (Ely et al., 2011). Our analysis reaches a different conclusion. We find little difference between women and men in terms of their effectiveness in activating and mobilizing networks in absolute terms. The differences we note stem from a contextual condition (i.e., exposure to rivalry). Rather than advocating for gender-specific network strategies, our study suggests focusing on managing workplace rivalry and revising evaluation systems to reduce the impact of personalized contests in restricted employee pools for career progress. This approach aligns with gender interventions that address broader workplace contexts instead of targeting specific behaviours of women or men (e.g., Bates, 2022). Addressing contextual conditions like rivalry, which is more amenable to policy interventions in the short to medium term, compared to deeply entrenched contextual factors like occupation characteristics and industry demographics (e.g., Joshi et al., 2015), represents a more pragmatic and potentially effective approach to reducing gender disparities in the workplace.

We acknowledge that eliminating rivalry in the workplace is neither feasible nor desirable, in view of the potential benefits associated with it, such as enhanced motivation and performance (Kilduff, 2014; Kilduff et al., 2010). However, it is imperative to consider these benefits against the potential downsides, such as fostering unethical behaviour (Kilduff et al., 2016) or exacerbating gender disparities. We advocate for managing rivalry through careful monitoring and strategic interventions, which can help mitigate its negative aspects while maintaining its positive effects.

Our results attest to the complexity of the contemporary workplace. The competitive ethos prevalent and encouraged in many companies, with the explicit intention of maximizing efficiency and performance, may indirectly facilitate practices and situations that escalate personal rivalries. This escalation may reduce productivity by marginalizing certain employee groups, particularly those with a more cooperative orientation, and reinforce cognitive and behavioural norms associated with the male gender. A major theme that emerges from our study is the need to critically evaluate the potential negative effects of rivalry. Companies are advised to consider instituting practices that regulate workplace rivalry in ways that moderate its negative consequences and promote inclusion.

Limitations and Future Research

Our research design featured multiple studies to test our hypotheses. An inherent advantage of this approach is the enhanced generalizability of our findings across contexts. While discrepancies may manifest between measures at different analytical levels – for instance, the distinction in measuring rivalry between experiments (through priming a rivalry mindset) and field studies (via inter-organizational rivalry) – a constant throughout these settings is the state of exposure to rivalry. Observing consistent effects across disparate contexts supports the robustness of our findings, even as we remain cognizant of the limitations associated with each study (Table I).

To analyse network cognition, we used established experimental methods (Brashears et al., 2016) and manipulated rivalry according to accepted practices (e.g., Kilduff

et al., 2010). For network mobilization in rivalry, we selected appropriate contexts (i.e., professional football and the Palio di Siena), which allowed us to control for resource endowments. We recognize that we measure indirectly network mobilization through a proxy (e.g., the number of assists, the outcome of the race), rather than directly capturing it. However, we validated our findings using qualitative evidence from fieldwork and we feature control measures that account for alternative explanations. Our findings may extend to contexts where individuals activate networks to achieve collective goals related to the management of interorganizational rivalry. These may include sports leagues, but also business settings, where individuals determine which colleagues to enlist for projects geared towards a rival.

Our studies use data from traditionally male-dominated fields, such as football and the Palio di Siena. It would be useful to examine the effect of rivalry on network activation and mobilization in women-dominated contexts, where cooperation-based scripts are more prevalent and accepted. Despite these limitations, our account of gender-based differences in network activation and mobilization provides consistent evidence for the role of rivalry as a contextual factor. This account has valuable policy applications and may contribute to reducing workplace inequality.

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NOTES

- [1] By focus, we refer to the heightened attention and concentration on competitive goals and outcomes, which are emphasized within the rivalry context.
- [2] Following school policies, we could not exclude a priori one of the groups from the class activities, or perform a randomization based on origin. 146 students had completed the procedure, but we were compelled to discard the 22 Chinese students for two reasons. First, we realized only after the experiment that the laboratory was equipped with French AZERTY keyboards (rather than QWERTY). This made writing easier for French participants and very hard for Chinese students, who had the double barrier of the unfamiliar keyboard configuration in a foreign language. Their textual priming was much shorter than the one of their colleagues, raising the question whether we could successfully induce a rivalry mindset, or just frustration. Second, we performed randomization checks, and we realized that the distribution of Chinese students was not balanced across conditions, and their response to priming may confound the observed differences. The results including the Chinese students and controlling for Chinese are similar to the ones included in the paper, and available from the authors.
- [3] Kilduff and Galinsky (2017) do so by asking participants to describe their morning commute. Given that the business school where we conducted the experiment is served by one of the most dysfunctional public transportation routes in the city, we were afraid that such a request would not elicit a neutral state, but trigger frustration. Hence, we asked participants to describe their last dinner, following a common approach in psychology studies to ask to recall neutral experiences in the control condition of an experimental priming. Other examples include the students' opinion on the university phone and cable television services (e.g., Brashears et al., 2016).

- [4] In separate analyses, we checked whether notetaking had any effect on performance, and found that it had none.
- [5] Kilduff and Galinsky (2017) use manipulation checks only in one of the experiments in the paper. We include manipulation checks, as well as the same measures used for this experiment, in Study 2.
- [6] LIWC is a text analysis software that categorizes the words used in a written text in psychologically meaningful categories, based on studies of the psychometrics of words. For more details on the software's functioning, see Pennebaker et al. (2001). A theoretical backing of the use of the software and evidence of its scientific validation is provided in Tausczik and Pennebaker (2010).
- [7] We did not recruit people who were working fully remotely, as we expected them to have much fewer interactions which could lead to the type of repeated competition creating a condition of rivalry.
- [8] The procedure is as follows: a selection of 30 horses is presented to the 'tratta', a trial race taking place four days before each Palio; the ten captains of the running neighbourhoods agree on ten horses which will run the actual race. This selection is followed by a random assignment of each horse to one of the neighbourhoods, with the horses being drawn from an urn and the neighbourhoods from another, in a one horse-one neighbourhood sequence repeated ten times. This public ceremony is presided over by the mayor of Siena.
- [9] It is worth noting that only victory matters (or at least avoiding the victory of a rival); arriving second at the finish line bears no positive recognition; if anything, coming second is perceived as a particularly serious failure, as the possibility of winning was so close. The neighbourhood finishing second in the race is thus traditionally seen as a main loser of the Palio (Dundes and Falassi, 1975, p. 122). As a consequence, it is not possible to use a measure of performance rank in a race, but only a measure of victory.
- [10] When considering the hiring of jockeys as a measure of mobilization, it is important to take into account the captain's tenure, rather than just a single race. This is because, in an individual race, the captain may choose to hire a lower-quality jockey if they draw a weak horse. However, by forming alliances with other contrade and using a weaker jockey to gain trust, the captain can be in a better position to secure the services of a better jockey in future races.

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APPENDIX A

The following is the text of the instructions together with the textual vignette that described the network that participants were assigned for memorization.

The following vignette describes the relationships between a group of individuals living in the same wealthy neighbourhood of a midsize town in the south of England. You are asked to memorize all the connections between the individuals, and whether they are positive (e.g., friendship, shared activities) or negative (e.g., dislike, hate). You will later be asked to recall both which connections exist and whether they are positive or negative. You can take as much time as you wish for the memorisation. You are allowed to take notes in this phase to help memorisation, but the notes will be confiscated at the end of this stage, before the recall test phase.

Anne is a childhood friend of Frank and Bill, but Frank and Bill had a dispute long ago and now they cannot stand each other. Anne in turn cannot stand Charles, who is a close friend of Bill. Bill and Charles are friends with Sarah and they regularly go to the theatre together. Sarah goes to run with her friend George. George is a close friend of Grace, but Sarah dislikes Grace because she finds her arrogant and unpleasant. Frank also knows Grace and tries to avoid her as much as possible because he cannot stand her. In both cases the dislike is mutual. Charles has dinner twice a week with his friend Helen. Helen and Jane have been friends since high school where they also met Harry, with whom both of them have become friends. Harry introduced them to Elizabeth, with whom he was going to a book-crossing club once a week, and both Helen and Jane became friends with her too. Elizabeth is David's neighbour, but they hate each other and try to avoid any kind of interaction. David and Helen also do not like each other at all.