This article was downloaded by: [University of Nebraska, Lincoln] On: 14 October 2014, At: 15:16 Publisher: Routledge Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



The Journal of Social Psychology

Publication details, including instructions for authors and subscription information: http://www.tandfonline.com/loi/vsoc20

Gender Hierarchy in the Space: The Role of Gender Status in Shaping the Spatial Agency Bias

Andrea Carnaghi $^{\rm a}$, Valentina Piccoli $^{\rm a}$, Marco Brambilla $^{\rm b}$ & Mauro Bianchi $^{\rm c}$

^a University of Trieste

^b University of Milano Bicocca

^c ISCTE-Istituto Universidàrio de Lisbona Accepted author version posted online: 13 Dec 2013.Published online: 11 Feb 2014.

To cite this article: Andrea Carnaghi, Valentina Piccoli, Marco Brambilla & Mauro Bianchi (2014) Gender Hierarchy in the Space: The Role of Gender Status in Shaping the Spatial Agency Bias, The Journal of Social Psychology, 154:2, 105-114, DOI: <u>10.1080/00224545.2013.863174</u>

To link to this article: <u>http://dx.doi.org/10.1080/00224545.2013.863174</u>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at <u>http://www.tandfonline.com/page/terms-and-conditions</u>



ARTICLES

Gender Hierarchy in the Space: The Role of Gender Status in Shaping the Spatial Agency Bias

ANDREA CARNAGHI VALENTINA PICCOLI

University of Trieste

MARCO BRAMBILLA

University of Milano Bicocca

MAURO BIANCHI

ISCTE-Istituto Universidàrio de Lisbona

ABSTRACT. According to the Spatial Agency Bias (SAB), more agentic groups (men) are envisioned to the left of less agentic groups (women). This research investigated the role of social status in shaping the spatial representation of gender couples. Participants were presented pairs consisting of one male and one female target who confirmed gender stereotypes. The status of the targets in each pair was systematically varied (high-status vs. low-status job). Participants chose the target order (female/male vs. male/female) they preferred. In line with gender-status expectations (male: highstatus, female: low-status), a male in a high-status job led to a spatial arrangement that favored the male/female order, regardless of the status of the female target. The female/male order was favored only when the female had a high-status job and the male a low-status job. No SAB occurred for pairs in which both targets displayed low-status jobs. The implications of status for the SAB are discussed.

Keywords: gender roles, gender stereotypes, social status, spatial agency bias

PHYSICAL ENVIRONMENT IS COMMONLY REPRESENTED along two fundamental axes: the horizontal and the vertical vectors. The assignment of individuals along both these vectors appears to rely on perceivers' systematic tendencies (Chatterjee, Maher, Heilman, 1995; Maass &

Address correspondence to Andrea Carnaghi, University of Trieste, Department of Life Sciences, via Weiss 2, Trieste 34100, Italy. E-mail: acarnaghi@units.it

Russo 2003; Maass, Suitner, Favaretto, & Cignacchi, 2009; Schubert, 2005). Individuals spontaneously represent inter-individual actions evolving on a left to right (LR) trajectory and typically situate the agentic subject (i.e., the actor) to the left of the object (Chatterjee at al., 1995; Maass & Russo, 2003). In linguistic communities in which language is written from LR, reading and writing activities are likely to encourage a general scanning habit along the LR trajectory that generalizes to the representation of actions (for a biological explanation, see also, Chatterjee, Southwood, Basilico, 1999).

The scheme of the general agent to the left is not confined to interpersonal context but also affects spatial representations of social categories. Specifically, the envisaging of groups along the horizontal trajectory reflects a tendency to place more agentic groups to the left of less agentic groups (i.e., Spatial Agency Bias [SAB]; Maass, et al. 2009). As men are perceived to be more agentic (e.g., energetic, virile, strong) than women (Abele, 2003; Else-Quest, Hyde, Goldsmith, & Van Hulle, 2006), empirical studies addressing name order preferences (Hegarty, Watson, Fletcher, & McQueen, 2011), graph production (Hegarty, Lemieux, & McQueen, 2010), and artistic products (Maass et al., 2009) report that men are more frequently depicted to the left of women (i.e., gender-based account of the SAB).

This finding was later challenged by studies showing that gender categories *per se* are not a sufficient condition to elicit the SAB. For instance, Maass and colleagues (2009, Study 2) demonstrate that only participants who stereotype men as agentic also draw scenes of male and female teams with the male team to the left of the female team. In a similar vein, Hegarty and colleagues (2011, Study 2) find that participants prefer the male-female over the female-male name order only when prompted to imagine gender-conforming heterosexual couples (e.g., the man earns money and the woman does housework). Together, these results attest that a male target is depicted to the left of a female target when both targets confirm (or are believed to confirm) traditional gender stereotypes and gender roles (i.e., gender stereotype-based account of the SAB).

The present research aims to extend prior research by investigating the role of social status information in shaping the spatial arrangement of the male-female targets. Indeed, the few published studies pertinent to these questions provided inconclusive results. On the one hand, Hegarty and colleagues' 2011 study (Study 2; see also Study 4), co-varied the gender role (e.g., do housework), the gender stereotype (e.g., to be interested in science/fashion), as well as the gender status (e.g., to earn money) of the targets (Hegarty et al., 2011, Study 2; see also Study 4), while assessing participants' preference for male and female name order. In doing so, the specific contribution of the social status information in this respect remains unclear. Similarly, research that addresses the moderating role of participants' endorsement of gender stereotypes in shaping the SAB (Maass et al., 2009, Study 2) fails to simultaneously control for participants' endorsement of social status expectations. Since social status expectations significantly co-varied with agentic expectations (Fiske, Cuddy, Glick, & Xu, 2002; Oldmeadow & Fiske, 2007; see also Rudman & Kilianski, 2000), the relative contribution of these two factors in the spatial agency bias is undermined.

On the other hand, research that focuses on the way people spatially envisage high and lowstatus targets fails to address whether the gender of these targets largely affect how people spatially appraise status-related information. As a case in point, Hegarty and colleagues (2010, Study 3) report that people envisage high-status exemplars on the left of low-status exemplars, that is, participants graph the members of the Royal family with those closer to the throne on the left. Hence, in this study the gender of the low and high-status exemplars has not been experimentally manipulated, leaving the problem of whether the status information is differently appraised as a function of the gender of the target thus moderating the SAB unsolved.

In sum, either the status information was confounded with the gender-stereotypical information, or the status information was not experimentally manipulated with the gender of the targets. The current study recast the analyses of the SAB within a gender context, in which the status of the male-female targets is systematically varied. In doing so, we widen our understanding of the boundary conditions of the gender-stereotype based account of the SAB.

Gender Stereotype vs. Gender Status Account of the SAB

Gender representation stems from three distinct, albeit related, constructs (Rudman & Kilianski, 2000), namely gender roles (i.e., men endorse occupational roles and women occupy care-giving roles), gender stereotypes (i.e., men are agentic and women are communal) and gender status (i.e., men are higher status than female). As for the status construct (Rudman & Kilianski, 2000), the common experience of the male predominance in high-status roles has contributed to the consolidation of a male high-status prototype (Banaji & Greenwald, 1995; Eagly, 1987; Jost & Banaji, 1994; Rudman et al., 2000). Indeed, people expect that in a male-female pair the male target will occupy a high-status role, while the female target will endorse a low-status role (Eagly, 1987; Eagly & Steffen, 1984). Although gender stereotypes, gender role and status information are commonly and positively related (Fiske et al., 2002), it has also been shown that they can be manipulated orthogonally (Rudman & Kilianski, 2000).

To test the specific contribution of the gender status information in the spatial assignment of male and female targets, participants in this study were presented with male-female target pairs that conformed to gender roles as well as to gender stereotypes but systematically varied in terms of social status. Specifically, participants were presented with four different male-female pairs. Indeed, they were exposed to pairs that conformed to gender-status expectations, such as manager-seamstress. In these pairs, the male showed a high-status job, while the female displayed a low-status job (i.e., MHiFLo). Moreover, participants also came across three distinct types of pairs that clashed with the gender-status expectation. For instance, as in the case of pilot-midwife pair (i.e., male high- status-female high status: MHiFHi), the status of the female target violated gender status prescriptions; in the case of welder-hair washer pair (i.e., male low status-female low status; MLoFLo), the status of the male target disconfirmed the prescriptions in question, whereas in the case of truck driver-pedagogy specialist (i.e., male low status-female high-status; MLoFHi) both targets mismatch the gender-based status expectations.

According to the gender-stereotype-based account of the SAB, since the male-female targets conformed to the gender roles and the gender stereotypes, participants were expected to show a preference for the male-female order regardless of the social status of the targets in the pairs (*Hypothesis 1* [H1]). In sharp contrast, if the information about the status in the pairs rules the spatial positioning of the targets beyond their conformity to the gender roles and stereotypes, then three distinct, albeit corollary, hypotheses can be stated.

First, if the occurrence of the spatial positioning bias is determined by the presence of a highstatus target in the pairs, then no spatial bias will be found in the MLoFLo pairs (e.g., welderhair washer), but the bias in question will emerge in the other pairs in which a high-status target is presented. Notice that this hypothesis assumes that the targets' conformity to gender roles as well as to stereotypes is not a sufficient condition to elicit a spatial positioning bias, while it is

108 THE JOURNAL OF SOCIAL PSYCHOLOGY

necessary that at least one target display a high status feature to be set on the left of the spatial environment. Therefore, a test of this hypothesis is provided by the joint presence of a spatial positioning bias in the MLoFHi, MHiFLo and MHiFHi pairs but not in the MLoFLo pairs (*H2a*).

Second, if the spatial positioning of the targets is guided by the high-status cues, then participants will position the high status target on the left of the spatial field, especially in those pairs in which the targets present a clear asymmetry in terms of status. Hence, we hypothesize that participants will show a preference for the male-female order in the MHiFLo pairs, while participants will prefer most the female-male order in the MLoFHi pairs. To confirm this hypothesis, we will compare name order preference in the MHiFLo as well as in the MLoFHi pairs to the MLoFLo pair. If participants prefer to set high-status targets to the left of low-status targets, both comparisons will be statistically significant (H2b).

Third, if the status of the targets is appraised differently depending on their gender (Cuddy, Fsike & Glick, 2008; see also Glick, Wilk, & Perrault, 1995) and accordingly to gender-status expectations (Rudman & Kilianski, 2000), then participants will weigh high-status information more heavily when pertaining to male targets than to female targets. In doing so, the conflicting situation at the individual level (in the MHiFHi pair, both targets display equally high-status jobs) can be solved by an asymmetrical appraisal of the target. A corroborating test of this hypothesis is provided by comparing name order preferences in the MHiFHi to the MHiFLo pairs. If participants give prominent importance to male high status and disregard the status of the female target, then participants will show an equal preference for male-female order in these types of pairs (H2c).

METHOD

Participants

One-hundred undergraduate students took part in the study. One participant's data was discarded from analyses because he did not fill out the questionnaire in its entirety, and a second participant was discarded for not reporting his/her gender (remaining sample N = 98, N = 61 female).

Procedures

Participants were provided a questionnaire and told that we were interested in the way people frame newspaper titles. Specifically, participants were presented with eight job pairs (Table 1). Each pair was comprised of two gender-marked labels congruently pointing to two jobs presented next to the other on the horizontal axis (e.g., welder-hair washer). Based on a previous pretest (see below), each job in a pair was either a typically male job (e.g., engineer, truck driver) or a typically female job (e.g., pedagogy specialist, hair washer). Moreover, individuals holding these jobs were congruently stereotyped either in a male or in a female manner. In addition, the order of presentation of the gender-typical jobs in a pair was experimentally manipulated within-participant, so that participants received a male-female as well as the mirror female-male job pair (e.g., engineer-seamstress vs. seamstress- engineer; counter-balanced order across participants) next to the other on the horizontal axis. The professional role in a pair could point either to a high-status job or to

TABLE 1
Full List of the Male-Female Pairs

Male low-status and female low-status job pairs (MLoFLo)		
Street sweeper (Spazzino) Blue-collar worker (Operaio) Street sweeper (Spazzino) Blue-collar worker (Operaio) Fruck driver (Camionista) Blue-collar worker (Operaio) Fruck driver (Camionista)	Building door keeper (Portinaia) Home caregiver (Badante) Home caregiver (Badante) Tailor (Sarta) Hairdresser (Parrucchiera) Building door keeper (Portinaia) Home caregiver (Badante)	
Male high-status and female low-status job pairs (MHiFLo)		
Surveyor (Geometra) Architect (Architetto) Architect (Architetto) Pilot (Pilota) Manager (Manager) Pilot (Pilota) Manager (Manager) Surveyor (Geometra)	Hairdresser (Parrucchiera) Hairwasher (Shampista) Hairdresser (Parrucchiera) Building door keeper (Portinaia) Hairdresser (Parrucchiera) Tailor (Sarta) Home caregiver (Badante) Hairwasher (Shampista)	
Male low-status and female high-status job pairs (MLoFHi)		
Welder (Saldatore) Fruck driver (Camionista) Fruck driver (Camionista) Welder (Saldatore) Street sweeper (Spazzino) Welder (Saldatore) Street sweeper (Spazzino)	Pedagogist (Pedagogista) Veterinarian (Veterinaria) Midwife (Ostetrica) Veterinarian (Veterinaria) Professor (Professoressa) Midwife (Ostetrica) Gynecologist (Ginecologa)	
Male high-status and female high-status job pairs (MHiFHi)		
Pilot (Pilota) Administrator (Amministrator Pilot (Pilota) Administrator (Amministrator Surgeon (Chirurgo) Surgeon (Chirurgo) Engineer (Ingegnere) Engineer (Ingegnere)	e) Professor (Professoressa) e) Professor (Professoressa) Gynecologist (Ginecologa) e) Gynecologist (Ginecologa) Gynecologist (Ginecologa) Professor (Professoressa) Midwife (Ostetrica) Pedagogist (Padagogista)	

Note. Participants were provided with two pairs of each type (i.e., MLoFLo; MLoFLi; MLiFLi). The same job could not appear in more than one type of pair for each participant.

a low-status job. Pairs could be organized with respect to two factors: Males status (high vs. low) or female status (high vs. low). Therefore, participants were presented four *types of pairs*, as a function of the combination of the male status (high vs. low) and the female status (high vs. low): (a) a male low-status and a female low-status job pair (MLoFLo; e.g., welder-hair washer), (b) a male high-status job and a female low-status job pair (MHiFLo; e.g., manager-seamstress) (c) a

110 THE JOURNAL OF SOCIAL PSYCHOLOGY

male low-status and a female high-status job pair (MLoFHi; e.g., truck driver-midwife), and, (d) a male high-status and a female high-status job pair (MHiFHi, e.g., pilot- pedagogy specialist). For each type of pair, and to enhance the reliability, participants received two mirror male-female pairs. Additionally, and to reduce a bias in the selected materials, participants were provided with one out of four randomly generated lists of types of pairs. The experimental list of pairs also contained six filler pairs, (e.g., rice-pasta; sun-moon; coffee-cigarette). Participants were presented with a printed list of pairs and they had to indicate whether they preferred the male-female order or the female-male mirror order. For example, for the MLoFLo job pair, participants were presented with both the pair "welder-hairwasher" and the pair "hairwasher-welder," one next to the other. Participants were requested to indicate which of the two pairs they preferred most. This procedure was repeated for each type of pair. In other words, we gathered participant's preferential choices for pairs in which the male target was presented on the left or on the right of the female target. Finally, participants provided their gender and age and were then debriefed.

Experiment Materials

Stimuli comprised of eight randomly selected male-female pairs (Table 1). We set up four different lists of pairs. Each of the four lists was made up of: two MLoFLo pairs, two MHiFLo pairs, MLoFHi pairs, and two MHiFHi pairs. To test whether the male and the female target in each pair were perceived as endorsing gender-conforming roles, a first sample of undergraduate students (N = 9) was presented with the male-female pairs of the four lists in a masculine-generic form, thus preventing participants from relying on grammatical cues when providing their reactions. For each pair, participants had to identify which professional job was endorsed in the majority by males and by females. Responses were scored as +1 (or -1) when participants considered a professional role as prevalently occupied by men (or women). Across all types of social-status pairs, majority-male jobs were perceived to be occupied in the majority by men (MLoFLo, M = .94, .07; all means significantly differed from the test value = 0, p < .05) while majority-female jobs were judged to be endorsed in the majority by women (MLoFLo, M = -.49, SE = .04; MHiFLo, M = -.72, SE = .08; MLoFHi, M = -.43, SE = .07; MHiFHi, M = -.58, SE = .12; all means significantly differed from the test value = 0, p < .05). This test showed that the male and the female target in each pair endorsed gender-conforming professional roles.

A second sample of undergraduate students (N = 10) was presented with the same malefemale pairs as before. Participants were required to indicate who was strong/virile/vigorous (i.e., agency) for each pair, and who was sociable/maternal/emphatic (i.e., communion). The former option pointed to male-stereotypical attributes, while the latter option indicated femalestereotypical attributes (i.e., gender-stereotyping measure). Moreover, participants reported if the individuals portrayed in the pair represented (a) male and female low-status targets, (b) male and female high status targets, (c) a female high-status target and a male low-status target, and (d) a female high-status target and a male low-status target (i.e., social status measure). The gender stereotyping and the social-status measure were counterbalanced across participants. As for the gender-stereotyping measure, responses were scored as +1 (-1) when participants considered an individual in a given professional role as masculine (feminine). We then analyzed the gender stereotyping score by means of an ANOVA 2 (target: male vs. female) \times 4 (type of pairs: MLoFLo, MHiFLo, MLoFHi, MHiFHi). A significant effect of the target was found F(1,7) = 1211,84, p = .001, $\eta_p^2 = .99$. Hence, and regardless of the type of pairs, participants associated male targets with male-stereotypical attributes more frequently (M = .92, SE = .04), while female targets were perceived as conforming to female-stereotypical attributes (M = -.96, SE = .02). No other effect was significant, ps > .29. Furthermore, and as for the social status measure, we attributed the value of 1 to an option that met our a priori criteria in terms of status and the value 0 to an option that was discordant with the same criteria. For instance, if participants considered the MLoFLo target as a pair in which both target endorsed low-status roles, then this option was associated with 1. We analyzed the status score by means of a repeated ANOVA 4 (type of pairs: MLoFLo, MHiFLo, MLoFHi, MHiFHi). No main effect of the type of pairs was found, F(3,7) = 1.74, p = .25, $\eta_p^2 = .43$ indicating that participants equally and correctly identified the status of the targets in the pairs (MLoFLo: M = .96, SE = .04; MHiFLo: M = .90, SE= .06; MLoFHi = .91, SE = .05; MHiFHi: M = .76, SE = .08; all means significantly differed from the test value = 0, p < .05).

In brief, the male-female pairs used in the current study portrayed targets in gender-typical professional roles and gender-stereotype conforming individuals. Moreover, and as for each pair, the social status of the target varied accordingly with the experimental purposes.

RESULTS

Participants' preferences were scored as 1 when they preferred the male-female order, and as -1 when they selected the female-male order. The assigned scores of the two job pairs that were of the same pair-type (i.e., MLoFLo, MHiFLo, MLoFHi, MHiFHi) were added to obtain a positioning index ranging from -2 to +2, and a 0 value indicated an equal choice for male-female and female-male order. A higher positive score on the positioning index indicated a preference for the male-female order (spatial bias; for similar procedure, see Maass et al., 2009, Study 2). We analyzed the positioning index by means of a 2 (participant gender: male vs. female) × 2(male status: MLo vs. MHi) × 2(female status: FLo vs. FHi), ANOVA with the first variable between-participants and the second and third within-participants. In line with previous findings (Hegarty et al. 2010, Study 2), a significant main effect of participants (M = -.12, SE = .1), male participants (M = .30, SE = .13) preferred pairs in which the male target was presented to the left of the female. Moreover, male participants preferred male-female over female-male pairs (one-sample *t*-test, t(36) = 2.1, p = .04), while selecting a male-female or a female-male target pair had an equal chance for female participants (t(60) = 1.34, p = .19).

Significant main effects of male status F(1, 96) = 23.45, p = .001, $\eta_p^2 = .2$ and female status F(1, 96) = 6.23, p = .01, $\eta_p^2 = .06$ were found. These main effects were qualified by a significant male status by female status interaction, F(1, 96) = 5.12, p = .03, $\eta_p^2 = .05$.

First, to gain a better understanding of the interaction, we proceeded to a series of one-sample t-tests on the zero midpoint value to assess, for each type of pair, whether a spatial bias was found. Confirming the H2a, but contrary to H1, MLoFLo pairs did not lead to any systematic preference (M = .06, SE = .14; t(97) = .47, p = .64). Moreover, and confirming the H2b but not the H1, participants preferred a female-male over the reverse order when dealing with MLoFHi pairs (M = -.60, SE = .14; t(97) = 4.72, p = .001), whereas participants systematically chose the male-female pairs to a greater extent than the female-male pairs when dealing with MHiFLo

pairs, (M = .47, SE = .15; t(97) = 2.64, p = .01). In line with H2c, participants preferred the male-female order when faced with MHiFHi pairs (M = .42, SE = .16; t(97) = 2.22, p = .03).

Second, we tested our predictions with a series of pairwise comparisons. In line with *H2b*, the tendency for participants to select male-female pairs over the reversed order was greater when faced with the MHiFLo pair than the MLoFLo pair, F(1, 96) = 4.64, p = .03, $\eta_p^2 = .05$. Furthermore, participants preferred the female-male pairs more than the male-female pairs a greater amount of the time when dealing with MLoFHi pair than MLoFLo pair, F(1, 96) = 12.1, p = .001, $\eta_p^2 = .11$.

Moreover, participants showed an equally high preference for male-female pairs than the reversed order when presented with MHiFLo and with MHiFHi pairs, F(1, 96) = .07, p = .79 $\eta_p^2 = .001$. These results indicated that, regardless of the status of the female target in a pair, when the male target was portrayed in a high-status job, participants chose pairs in which the male target occupied the left rather than the right position to a greater extent. By contrast, participants selected more female-male pairs over male-female pair when dealing with MLoFHi than MHiFHi pairs, F(1, 96) = 24.17, p = .001, $\eta_p^2 = .20$, indicating that the female status only affected the choice-order for pairs containing a low-status male but not a high-status male. This pattern of results corroborated H2c.

DISCUSSION

Our data show the importance of the gender-status information in moderating the spatial agency bias, leading to a reframing of the stereotype-based account of the SAB. Indeed, and contrary to the predictions derived from the gender stereotype account, when no high-status target is included in a gender-conforming pair, participants randomly envisage the targets in the space. In sharp contrast, a systematic preference for the targets occurs only when at least one target is associated with a high-status cue. Moreover, our data specify the interplay between the status and gender information in the way participants spatially envisage the male and the female targets. Indeed, when in a pair, one target displays a high-status feature while the other shows a low-status characteristic, the former is preferred to the left of the latter. This result is observed when in a pair either the male or the female target endorses a high status role. While these data suggest a generalized preference for a high-status target on the left, the results of the spatial arrangement of the pairs in which both the male and the female target endorse high-status roles undermines this conclusion. According to the gender-status theorization (Rudman & Kilianski, 2000), participants give prominent importance to the high status of the male target over the female target, thus preferring the former to left of the latter. In other words, participants give stronger weight to the male highstatus job information and show a preference for the male-female order when the male target matches the status expectations at the societal levels. This conjecture is further corroborated by the fact that when the male target possesses a high-status job, participants prefer the male-female over the female-male order regardless of the status of the female target.

Taken together, our data allow for a refinement of the gender-stereotype account of the SAB (Maass et al., 2009) from different vantage points. First, they suggest that the targets' conformity to gender-role and gender stereotypes is not a sufficient condition to elicit a biased arrangement favoring the man on the left. Indeed, the social status information is crucial to trigger a biased arrangement of the targets, beyond their conformity to gender prescriptions. Second, and constraining a mere status account of the SAB, the high-status information is processed in an

absolute fashion if it is associated with a male target, but the same status information is elaborated in a relative manner if it is linked to a female target. A high-status professional role is crucial in leading to a spatial arrangement bias in favor of a male target, regardless of the status of the female target. By contrast, a high-status professional role plays a key function in a spatial arrangement in favor of a female target, only when the male target displays a low-status professional role.

Moreover, this research informs the literature on the interplay between space representation and group features. Our results transpose the analysis of the impact of the relative social status from the vertical (Schubert, 2005) to the horizontal vector, attesting to the fact that status not only influences the arrangement of the target along the vertical vector but further impacts the way people envisage those targets on the horizontal vector. Although the status-vertical vector association is typically understood within conceptual metaphor theory (i.e., the higher-the more powerful), no available metaphors can be applied to the SAB that can also take into account the moderating role of the asymmetrical gender-status association in the spatial envisaging of male-female pairs.

One potential limitation of this study relies on the experimental design. Indeed, stimuli were pre-tested to be equally agentic and systematically varied in terms of social status. Therefore, this methodology prevents us from understanding the distinct contribution of the perceived agency and status in shaping the SAB. Future research could tackle this issue by orthogonally manipulating the status (high vs. low) and the agency (high vs. low) of the male and female targets, thus clarifying which of these factors are crucial in biasing how targets are spatially envisaged.

As for the literature on gender inequality, these findings claim an implicit perpetuation of the asymmetrical status prescriptions of gender roles at the cultural level by a biased spatial arrangement of the name order, artistic products, and graphic presentation of male and female-related information, thus subtly corroborating gender social inequality. In other words, since the male high-status prototype (Banaji & Greenwald, 1995; Eagly, 1987; Jost & Banaji, 1994; Rudman & Kilianski, 2000) stems from, at least in part, exposure to male individuals in high-status positions, spatial cues (i.e., male on the left of female individuals) constitute additional instances that consolidate the male-high status association. Future studies might investigate whether the repeated exposure of female-high status targets on the left (*vs.* on the right) of male targets can lead perceivers to revise the male high-status prototype. This line of research, if confirmed, would inform about how to avoid the perpetuation of gender stereotypes. For example, a randomization of the spatial location of male and female targets in cartoons and comic strips would reduce the risk of reinforcing the male high-status prototype.

FUNDING

This work is supported by Progetto di Ricerca di Interesse Nazionale (2008), grant 20082YHWHB to the first author.

AUTHOR NOTES

Andrea Carnaghi is an Assistant Professor in the Department of Life Sciences, University of Trieste. Valentina Piccoli is affiliated with the Department of Life Sciences, University of Trieste. Marco Brambilla is affiliated with the University of Milano Bicocca. Mauro Bianchi is affiliated with ISCTE-Istituto Universidàrio de Lisbona.

REFERENCES

- Abele, A. E. (2003). The dynamics of masculine-agentic and feminine-communal traits: Findings from a prospective study. *Journal of Personality and Social Psychology*, 85, 768–776.
- Banaji, M., & Greenwald, A. G. (1995). Implicit gender stereotyping in judgments of fame. Journal of Personality and Social Psychology, 68, 181–198.
- Chatterjee, A., Maher, L.-M., & Heilman, K. M. (1995). Spatial characteristics of thematic role representation. *Neuropsychologia*, 33, 643–648.
- Chatterjee, A., Southwood, M. H., & Basilico, D. (1999). Verbs, events and spatial representations. *Neuropsychologia*, 37, 395–402.
- Cuddy, A.J.C., Fiske, S.T., & Glick, P. (2008). Warmth and competence as universal dimensions of social perception: The Stereotype Content Model and the BIAS Map. In M. P. Zanna (Ed.), Advances in experimental social psychology (pp. 61–149). San Diego, CA: Academic Press.
- Eagly, A. H. (1987). Sex differences in social behavior: A social-role interpretation. Hillsdale, NJ: Erlbaum.
- Eagly, A. H., & Steffen, V. J. (1984). Gender stereotypes and attitudes stem from the distribution of women and men into social roles. *Journal of Personality and Social Psychology*, 46, 735–754.
- Else-Quest, N. M., Hyde, J. S., Goldsmith, H. H., & Van Hulle, C. (2006). Gender differences in temperament: A metaanalysis. *Psychological Bulletin*, 132, 33–72.
- Fiske, T. S., Cuddy, A. J. C., Glick, P. Xu, J. (2002). A model of (often mixed) stereotype content: Competence and warmth respectively follow from perceived status and competition. *Journal of Personality and Social Psychology*, 82, 878–902.
- Glick, P., Wilk, K., & Perreault, M. (1995). Images of occupations: Components of gender and status in occupational stereotypes. Sex Roles, 32, 565–582.
- Hegarty, P., Lemieux, A. F., & McQueen, G. M. (2010). Graphing the order of the sexes: Androcentrism in the construction and recall of gender difference graphs. *Journal of Personality and Social Psychology*, 98, 375–401.
- Hegarty, P., Watson, N., Fletcher, K., & McQueen, G. (2011). When gentlemen are first and ladies last? Effects of gender stereotypes on the order of romantic partners' names. *British Journal of Social Psychology*, 50, 21–35.
- Jost, J. T., & Banaji, M. R. (1994). The role of stereotyping in system-justification and the production of falseconsciousness. *British Journal of Social Psychology*, 33, 1–27.
- Maass, A., & Russo, A. (2003). Directional bias in the mental representation of spatial events: Nature or culture? *Psychological Science*, 14, 296–301.
- Maass, A. Suitner, C., Favaretto, X., & Cignacchi, M. (2009). Groups in space: Stereotypes and the Spatial Agency Bias. Journal of Experimental Social Psychology, 45, 496–504.
- Oldmeadow, J., Fiske, S. T. (2007). System-justification ideologies moderate status = competence stereotypes: Roles for belief in a just world and social dominance orientation. *European Journal of Social Psychology*, 37, 1135–1148.
- Rudman, A. L., & Kilianski, S. E. (2000). Implicit and explicit attitudes toward female authority. *Personality and Social Psychology Bulletin*, 26, 1315–1328.
- Schubert, T. W. (2005). Your highness: Vertical positions as perceptual symbols of power. Journal of Personality and Social Psychology, 89, 1–21.

Received April 12, 2013 Accepted November 4, 2013