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Can attitude similarity shape social inhibition of return?

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ABSTRACT
We examined whether the perceived similarity between two individuals can shape social attention shifts during a joint-action task. Initially, a confederate was described to a naïve participant through a personality profile in order to manipulate the degree of attitude similarity between them, and they later performed a joint-action task involving alternated aiming movements towards peripheral targets. This task is known to elicit two forms of Inhibition of Return (IOR), namely longer latencies when responding to a target previously reached by either oneself (individual IOR) or by the partner (social IOR) as compared to a previously-unreached target. Here, both IOR effects emerged but – unlike previous studies – social IOR was greater than individual IOR. Interestingly, such magnified social IOR occurred regardless of the degree of attitude similarity between participants. This seems to suggest that social knowledge about others can lead to a generalized impact on social attention during real interactions with them.

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Joint-action; attitude similarity; social attention; social inhibition of return; social cognition

Social interactions are at the core of our everyday life and attentional mechanisms are strongly shaped by spatial signals coming from others (for reviews see Capozzi & Ristic, 2018; Frischen et al., 2007). In particular, we tend to produce attention shifts towards the same spatial location indicated by others' head turns, eye-gaze direction, and pointing/aiming gestures (for a review see Cole et al., 2016). This form of social attention is an essential behaviour since it allows us to establish fluid interactions with both others and the environment in which we are acting.

Traditionally, social attention mechanisms have been widely investigated by adopting the gaze-cueing task, in which the participants are tested individually and asked to react to peripheral targets preceded by task-irrelevant face stimuli with averted gaze presented on a pc monitor (e.g., Friesen & Kingstone, 1998). Typically, when the target appears on the same spatial location looked at by the face, responses tend to be faster and more accurate as compared to a condition in which the target appears elsewhere, likely reflecting a gaze-mediated orienting of attention (i.e., a gaze-cueing effect), which has been shown to be sensitive to several variables related to social cognition (for a review, see Dalmaso et al., 2020; see also Capozzi & Ristic, 2020). Of special interest for the present research, some studies showed that the higher the physical or social similarity between the observer and the face stimulus, the greater is also the reported gaze-cueing effect. For instance, enhanced gaze-cueing effects have been observed when the cueing face was morphed with the participant's face (i.e., physical similarity; Hungr & Hunt, 2012) or when the cueing face belonged to a political leader towards whom the participant declared to feel similar in terms of personality traits (e.g., Liuzza et al., 2011; Porciello et al., 2016). Similar results have been also reported when the participant and the cueing faces belonged to the same social group rather than to different groups (e.g., Ciardo et al., 2014; Dalmaso et al., 2015; Pavan et al., 2011; Weisbuch et al., 2017). Being more inclined to follow the spatial signals coming from similar others might lead to a variety of advantages, since a person perceived or judged as more similar to us could also have intentions or preferences similar to ours. Hence, following those individuals might be a fruitful strategy for achieving our own goals (Capozzi & Ristic, 2018; Dalmaso et al., 2020).

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In recent years, new methodological trends have emphasized the importance to increase ecological validity within social attention studies by moving towards more interactive paradigms (see, e.g., Hayward et al., 2017; Risko et al., 2016). A major advantage of interactive paradigms is that they allow to mimic what actually occurs during social interactions, namely a continuous exchange of visual information in which an individual can act both as a passive observer and/or an active agent, depending on social circumstances. In this regard, a pioneering approach comes from a work that introduced a novel task aimed to explore social attention mechanisms during a real social interaction between two participants (Welsh et al., 2005). More specifically, in this task two participants – sitting in front of each other – are required to perform rapid aiming movements towards peripheral targets. Crucially, these aiming movements have to be executed alternately, meaning that – on some trials – one participant passively observes the movements made by the opponent and – on other trials – the two roles switch, with the previously-passive participant becoming the active agent and the previously-active opponent becoming the passive observer. Interestingly, this task can elicit two forms of Inhibition of Return (IOR), consisting of longer latencies when the participant responds to a target previously reached by either himself (individual IOR) or by the opponent (social IOR) as compared to a previously-unreached target. These forms of IOR are in line with the notion that our attentional mechanisms likely evolved to ensure an effective spatial exploration and thus minimizing the likelihood to re-orient attentional resources towards locations that have already been explored (Lupiáñez et al., 2006). The main results observed by Welsh et al. (2005) have been then replicated and extended in a variety of methodological contexts (e.g., Cole et al., 2012; Hayes et al., 2010; Manzone et al., 2017; Skarratt et al., 2010; Welsh et al., 2014; for a review see also Atkinson et al., 2018b), and in clinical populations (Dalmaso et al., 2016; Welsh et al., 2009). Interestingly, it has been shown that social IOR can be observed even when participants are prevented the possibility to see the actions performed by the other respondent, which, in turn, seems to suggest that such phenomenon is mainly attentional in nature (Doneva et al., 2017; also see Skarratt et al., 2010). Most relevant for the present work, a few studies explored the potential impact of social manipulations on this form of social orienting, based on the idea that social IOR might reflect the degree of attentional resources deployed while observing the previous action executed by the other respondent. In other words, social factors known to affect attentional deployment towards others (e.g., physical or attitude similarity) should also influence the amount of social IOR. As a first attempt, Doneva et al. (2017) asked naïve participants to complete the task with a confederate behaving in a manner that appeared as either friendly and positive or critical and negative. Lately, in Atkinson et al. (2018a), the two participants were asked to complete the task in either a cooperative or in a competitive way. Overall, a significant social IOR emerged both in Doneva et al. (2017) and in Atkinson et al. (2018a), but it was not further modulated as a function of the social manipulations that were adopted. Based on this work, it can be tentatively concluded that social variables do not influence social IOR, although it remains open the question about whether the reported null findings reflect an overall intrinsic insensitivity of social IOR to any specific individual characteristic of the interaction partner or, in contrast, they only signal that manipulating the quality of the interaction is not sufficient to modulate social IOR. In the present study, we wanted to further explore the possible role of social variables in shaping social attention elicited through the paradigm proposed by Welsh et al. (2005) by taking a different perspective. In particular, here we manipulated the degree of attitude similarity between the two individuals involved in the joint-action task. Whereas in previous studies (Atkinson et al., 2018a; Doneva et al., 2017) the manipulations focused on the situationally-based quality of the interaction between the two respondents, here we relied on inner and more stable differences between them, based on their worldviews. Knowledge about the presence of shared attitudes (vs. dissimilar attitudes) should strongly decrease the self-other distinction at both the phenomenal (Aron et al., 1991) and neural level (Mitchell et al., 2006). In addition, whereas in previous work (Atkinson et al., 2018a; Doneva et al., 2017) the two respondents were required to constantly alternate their responses and therefore individual IOR was not assessed, here we measured both social and individual IOR in order to explore whether social manipulations can have an overall impact on the relative strength of these two phenomena (see Ruys & Aarts, 2010). In our experiment, a confederate was described to a naïve participant through a personality profile manipulating the degree of attitude similarity (i.e., high vs. low) between them, and then they performed the joint-action task. The personality profile was obtained through a questionnaire exploring political/social views (see Appendix A). This experimental manipulation is well-rooted in a long-standing tradition of studies addressing the impact of attitude similarity (e.g., Byrne, 1961). Inspired by the available evidence on social attention literature (e.g., Ciardo et al., 2014; Hungr & Hunt, 2012; Pavan et al., 2011; Porciello et al., 2016), a higher degree of similarity between the two individuals could be reflected in a larger social IOR as compared to when the degree of attitude similarity between the two individuals was low. Alternatively, based on previous studies that manipulated the quality of the interaction (Atkinson et al., 2018a; Doneva et al., 2017), it could be expected that the level of perceived overlap in terms of personal attitudes does not modulate social IOR.

Materials and methods

Participants

Both the individual and social IOR elicited through the task devised by Welsh et al. (2005) appear as robust phenomena that can be detected with relatively small samples (e.g., $N = 18$ in Welsh et al., 2005), and this holds true even when performance of two groups is compared ($N = 10$ for each group, Welsh et al., 2009; $N = 20$ for each group, Dalmaso et al., 2016; $N = 12$ for each group, Doneva et al., 2017, Experiment 3). Hence, in the present context, we decided to assign 20 individuals to both the high and the low similarity levels. In total, 40 naïve individuals (*Mean age* = 23 years, *SD* = 2.64, 20 females, 4 left-handed) were therefore tested. They had normal or corrected-to-normal vision and provided written, informed consents. The two confederates were one male (*Age* = 21 years, right-handed) and one female (*Age* = 25 years, left-handed). All the participants, including the two confederates, belonged to the same ethnic group (i.e., White Italians), since it is known that this social variable can deeply shape social attention mechanisms (Dalmaso et al., 2015; Pavan et al., 2011; Weisbuch et al., 2017; Zhang et al., 2020). Furthermore, the two confederates reported they did not know any of the tested participants. Twenty participants (10 males) were paired with the male confederate, the remaining 20 participants (10 males) were paired with the female confederate. The Ethics Committee for Psychological Research at the University of Padova approved the study, which was conducted in accordance with the Declaration of Helsinki.

Apparatus

The apparatus was identical to the one used by Welsh et al. (2005; see Figure 1, panel B). Specifically, a metallic board had a fixation spot (i.e., the “F” circle on panel B, Figure 1) and four buttons located on its surface: Two buttons served as the “home” buttons (H1 and H2 squares on panel B, Figure 1) and the other two as the “target” buttons (T1 and T2 squares on panel B, Figure 1). Target buttons contained a red Light Emitting Diode (LED). The whole experiment was handled by a PC running a custom-made E-Prime script. The correct functioning of our apparatus was tested in a previous study (Dalmaso et al., 2016, Experiment 1), confirming that – when two healthy individuals are tested with no further social manipulations – reliable individual and social IOR effects of similar magnitude can be detected, in line with Welsh et al. (2005).

Procedure

The whole experiment consisted of three different tasks (see Figure 1, panel A). First, the two participants (naïve and confederate) arrived in the laboratory and they were welcomed by the experimenter. Once they entered the laboratory, they were asked not to talk to each other and to fill in a brief questionnaire (see Appendix A). More specifically, they were informed that the questionnaire was aimed to facilitate mutual knowledge – without making any reference to similarity – and that, after having filled in the questionnaire, they could read the responses provided by the other participant. The naïve participant filled in the questionnaire – with no time limits – in a separate room with the excuse to avoid any possible influence or distraction between the two participants. Then, the experimenter collected the questionnaire filled in by

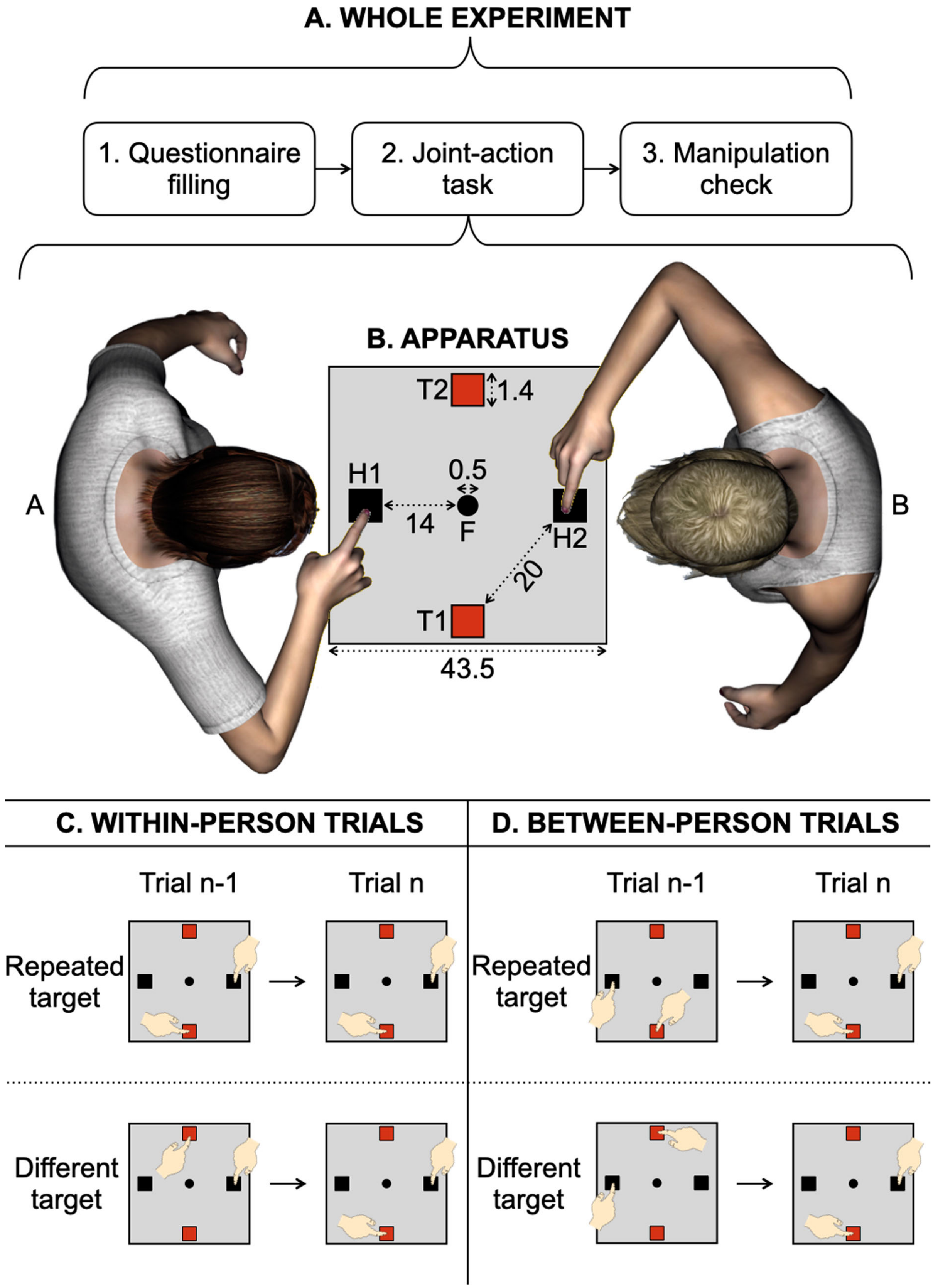

Figure 1. Panel A: the three tasks that composed the whole experiment. Panel B: illustration of the apparatus and participants' (A and B) arrangement. The fixation point (F), the two home buttons (H1 and H2) and the two target buttons (T1 and T2) are reported alongside their size and distance (in cm). Panels C and D: the four different types of trials characterizing the joint-action task.

the naïve participant and used it to create a fictive version of the confederate's questionnaire. In one condition (hereafter called "similar"), all the responses – except one – were identical as those reported by the naïve participant. In another condition (hereafter called "dissimilar"), all the responses – except one – were different. Similar and dissimilar conditions were delivered randomly and for an equal number of times. Then, the fictive confederate's questionnaire was brought to the naïve participant with the request to carefully read it and getting an idea of the other participant. Finally, the naïve participant went back to the laboratory.

After the questionnaire filling phase, the two participants completed the joint-action task (for a video describing the task please visit: https://youtu.be/SIFwK5yb_J8). More specifically (hereafter, participant "A" = the naïve participant; and participant "B" = the confederate; please see also Figure 1) participants sat in front of each other with the metallic board placed in between them. They were asked to keep their eyes on the central fixation spot and their "home" buttons pressed by using the index finger of the dominant hand. The confederate always used the same hand as that of the naïve participant, in order to maintain the perceptual characteristics of the aiming movements identical across participants. Then, one of the two "target" buttons flashed for 100 ms, and one of the two participants (e.g., participant A), was instructed to rapidly release her/his "home" button and to press the "target" button that had lit up. Then, 1000 ms were allowed to go back pressing the "home" button again. Each of the two "target" buttons lit up for the same number of times. Moreover, the "target" button that had lit up on trial *n* had the same probability to be the same or different with respect to that on trial *n*−1 (see also Figure 1, panels C and D). This allowed to estimate the magnitude of IOR by comparing the performance on same vs. different target location trials. The whole experiment was executed following a structured response sequence. More specifically, each of the two participants responded to two consecutive trials, meaning that participant A responded to two trials and participant B responded to the next two trials, following a "AABBAABBAA … (and so on)" pattern. This sequence allowed to separately estimate IOR as a function of whether the respondent on a given trial "*n*" and the respondent to the previous trial "*n*−1" was the same (i.e., AA or BB) or different (i.e., BA or AB; see also Figure 1, panels C and D). In turn, this allowed us to determine both (1) individual IOR from same-individual trials (i.e., AA and BB trials) and (2) social IOR from different-individual trials (i.e., BA and AB trials) by comparing repeated-target location vs. different-target location trials (see also Figure 2). Four practice blocks, each composed of 16 trials, were followed by 20 experimental blocks, each composed of 33 trials. Hence, each pair of participants completed 660 experimental trials. Since, on each block, the first trial was not informative with regards to IOR, an additional response was provided by the first respondent at the end of each block, thus ensuring an identical number of trials in each cell of the experimental design.

At the end of the joint-action task a manipulation check was also administered, in which participants were required to fill again the questionnaire. However, they were asked to mark the answers reported by the opponent. This procedure aimed to verify that naïve participants had paid attention to and correctly retained in memory the social knowledge related to the opponent for the whole duration of the task. Finally, a second written informed consent was collected from the naïve participant informing about both the deception procedure and the opportunity to withdraw the data, if desired. All participants were satisfied with the debriefing procedure and all data were analysed. The whole experiment lasted about 1 h.

Results

Data handling

Only the data provided by the naïve participants were considered (i.e., AA and BA pairings[1]). Importantly, none of the naïve participants spontaneously reported suspicion about the fact that the other participant was a confederate. Following Welsh et al. (2005), Response Times (RTs) were measured as the time elapsing between the onset of the "target" button and the release of "home" button, whereas Movement Times (MTs) were measured as the time elapsing between the release of the "home" button and the pressing of "target" button. Importantly, while RTs are the key dependent measure to establish the presence and the

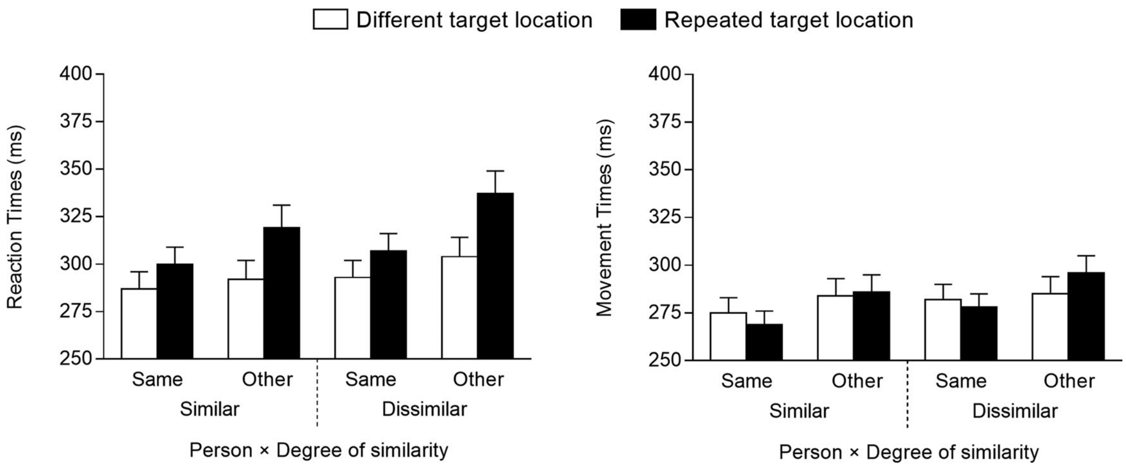

Figure 2. Mean RTs (left panel) and MTs (right panel) observed for repeated and different target location trials as a function of person and degree of similarity.

magnitude of IOR, MTs reflect more peripheral processing and are therefore less informative to investigate social attention mechanisms, at least in the present context. However, for completeness, MTs were analysed as well.

The first trial of each block was removed (3% of total trials) since, by definition, it was not preceded by another trial. Trials in which participants provided a wrong response or broke the response pattern were also removed (1.9% of total trials). Finally, trials in which RTs were smaller than 100 ms or greater than 1000 ms were classified as outliers and therefore they were also removed (0.7% of total trials). Both frequentist and Bayesian analyses were performed using JASP (JASP Team, 2020). Bayesian analyses were included in order to estimate which model was more likely supported by the data (e.g., Wagenmakers et al., 2018).

Manipulation check analyses

In order to verify that social information related to the opponent was attended to and correctly retained in memory by the naïve participants, their mean accuracy at the manipulation check was analysed with an independent sample t-test (two-tails) with degree of similarity (similar vs. dissimilar) as grouping variable. This showed that mean accuracy was high and not statistically different for both similar ($M =$ 98.5%, $SE = 3.66$) and dissimilar ($M = 96.5\%$, $SE =$ 9.33) conditions, $t(38) = -.892$, $p = .378$, $d = -.282$, *95%CI* [−.903, .343]. Hence, irrespective of the degree of similarity, social knowledge associated with the opponent was retained in memory by naïve participants accurately.

Response times analyses

Preliminary analyses showed that the gender of the two individuals within the pair led to non-significant theoretically-relevant results and therefore it was not considered further.[2] Mean RTs were analysed with a repeated-measures ANOVA with target location (repeated vs. different) and person who provided the response on the previous trial (same vs. other) as within-participant factors, and with the degree of similarity (similar vs. dissimilar) as between-participant factor. The main effect of target location was significant, $F(1, 38) = 119.964$, $p < .001$, $\eta_p^2 = .759$, due to smaller RTs on different ($M = 294$ ms, $SE = 6.503$) than on repeated ($M = 316$ ms, $SE =$ 7.068) locations, as well the main effect of person, F $(1, 38) = 16.911$, $p < .001$, $\eta_p^2 = .308$, due to smaller RTs when the response on the previous trial was provided by the same ($M = 297$ ms, $SE = 6.271$) than the other ($M = 313$ ms, $SE = 7.655$) person. Interestingly, the target location × person interaction was also significant, $F(1, 38) = 17.266$, $p < .001$, $\eta_p^2 = .312$. The two-way interaction was further analysed through two-tailed paired t-tests comparing repeated vs. different target locations separated by person. These revealed that RTs were smaller on different than on repeated target locations for both the same, $t(39) = 4.925$, $p < .001$, $d = .779$, *95%CI* [.420, 1.129], and the other person, $t(39) = 10.590$, $p < .001$, $d = 1.674$, *95%CI* [1.187, 2.153], but the difference was greater in the latter case (14 ms vs. 30 ms). Neither the target location × degree of similarity nor the person × degree of similarity interactions were significant (*Fs* < 1, *ps* $> .312$), as well as the theoretically-relevant target location × person × degree of similarity interaction, $F(1, 38) = .377$, $p = .543$, $\eta_p^2 = .010$ (see also Figure 2, left panel). A Bayesian ANOVA, identical as that used for the frequentist approach, confirmed that the best model fitting the data included target location and person as main effects, and their interaction. This model was also preferable over the model also including the target location × person × degree of similarity interaction, $BF_{10} = 32$.[3]

Movement times analyses

Mean MTs were analysed with an identical ANOVA as that used for RT analyses. The main effect of person was significant, $F(1, 38) = 36.782$, $p < .001$, $\eta_p^2 = .492$, due to smaller MTs when the response on the previous trial was provided by the same ($M = 276$ ms, $SE = 4.938$) than the other ($M = 288$ ms, $SE = 6.176$) person. Neither the main effect of target location, $F(1, 38) < 1$, $p = .705$, $\eta_p^2 = .004$, nor the main effect of the degree of similarity, $F(1, 38) < 1$, $p = .530$, $\eta_p^2 = .010$, were significant. Interestingly, the target location × person interaction was significant, $F(1, 38) = 11.910$, $p = .001$, $\eta_p^2 = .239$. The two-way interaction was further analysed through two-tailed paired t-tests comparing repeated vs. different target locations separated by person. These revealed that MTs were smaller on different than on repeated target locations when the previous response was provided by the other person, $t(39) = 3.201$, $p = .003$, $d = .506$, *95%CI* [.174, .833], while the opposite pattern of results emerged when the previous response was provided by the same person, even if in this latter case the result only approached the canonical level of significance, $t(39) = 1.886$, $p = .067$, $d = .298$, *95%CI* [−.020, .613]. The target location × degree of similarity interaction approached the canonical level of significance, $F(1, 38) = 3.824$, $p = .058$, $\eta_p^2 = .091$. For completeness, two two-tailed paired t-tests comparing repeated vs. different target locations further confirmed non-significant results for both similar, $t(19) = 1.078$, $p = .295$, $d = .241$, *95%CI* [−.207, .683], and dissimilar, $t(19) = 1.711$, $p = .103$, $d = .382$, *95%CI* [−.077, .832], conditions. No other results were significant (*Fs* < 1, *ps* $= .384$; see also Figure 2, right panel). A Bayesian ANOVA, identical as that used for the frequentist approach, indicated that the best model fitting the data included target location and person as main effects, and their interaction. This model was also preferable over the model also including the target location × person × degree of similarity interaction, $BF_{10} = 13$.

Discussion

In this work, we examined whether the degree of interpersonal similarity between two individuals can shape social attention mechanisms using the joint-action task proposed by Welsh et al. (2005). Overall, we replicated the main results reported by Welsh et al. (2005) and other research groups (for a review see Atkinson et al., 2018b), since participants were slower at initiating an aiming movement towards a spatial location that had been previously explored either by themselves (i.e., individual IOR) or by their opponent (i.e., social IOR). This confirms that, during a real social interaction, participants are not only influenced by their previous behaviours but also by signals coming from others, in line with a rich stream of studies that reported pervasive effects of real social stimuli on attentional mechanisms (e.g., Cole et al., 2016).

However – unlike previous works – our study also showed a peculiar pattern of results since social IOR was greater in magnitude than individual IOR, and this emerged irrespective of the degree of similarity between the two participants. This latter finding was unexpected, in light of the evidence according to which social orienting would be magnified in response to spatial cues provided by similar rather than by dissimilar others (e.g., Ciardo et al., 2014; Hungr & Hunt, 2012; Pavan et al., 2011; Porciello et al., 2016).

One possibility to address this unexpected lack of modulation is by analysing how social variables have been manipulated in previous studies focusing on the role of social factors in performing a joint-attention task. Indeed, two overall approaches have been pursued. On the one hand, the interaction partner can be presented as either an in-group or an out-group member. For instance, Nafcha, Morshed-Sakran et al. (2020), who used a dyadic computerized task to address social IOR (see also Nafcha, Shamay-

Tsoory et al., 2020), manipulated group membership by asking to Muslim and Hebrew individuals to complete the task with an individual belonging either to their religious in-group or out-group. Intriguingly, social IOR was nullified when the partner was a member of the out-group while a reliable social IOR emerged when the partner was a member of the in-group. Similar findings have also been reported by Gobel et al. (2018), who had participants completing a similar dyadic task with a confederate described as belonging to a higher- vs. a lower-rank social group (see also Gobel & Giesbrecht, 2020).

On the other hand, the peculiar individuating characteristics of the interaction partner can be varied across experimental conditions. This is the approach that has been employed in the two studies mentioned in the introduction section, in which a naïve participant completed a joint-action task with a confederate behaving either positively or negatively (Doneva et al., 2017), or in which the two participants were asked to complete a joint-action task in either a cooperative or a competitive way (Atkinson et al., 2018a). The pattern of results emerged in the present study is in line with this latter piece of evidence and follows the same approach to manipulate social knowledge. Indeed, unlike Nafcha, Morshed-Sakran et al. (2020), our experiment and those reported by Atkinson et al. (2018a) and Doneva et al. (2017) relied on the manipulation of the peculiar individuating characteristics of the interaction partner, rather than on category-based information. In this regard, it is worth noting that Müller et al. (2011) have provided evidence showing that actions executed by in-group members are typically co-represented while actions of out-group members are not. However, participants co-represented actions performed by both in-group and out-group members after being asked to read a text about an out-group member with the request to take the perspective of the main character. This suggests that, when participants are prompted to focus on individuating rather than category-based characteristics of the interaction partner, no relevant modulation due to social factors seems to emerge. In our study, the greater social IOR as compared to individual IOR might result from the specific type of experimental manipulation, in that we implicitly asked participants to switch from a less demanding, automatic-like category-based processing mode to a more effortful processing mode focusing on the individuating characteristics of the interaction partner (Fiske & Neuberg, 1990). This, in turn, might have favoured to place the interaction partner into the attentional spotlight, thus increasing the monitoring of his/her behaviours regardless of his/her specific characteristics.

It is worth noting that, despite the literature suggests that differences may take place depending on whether same-gender or different-gender groups are involved in a cooperative task (see Charness & Rustichini, 2011), our results were not influenced as a function of whether the couple was composed by either same- or different-gender individuals (see Footnote 1). In this regard, however, it is important to remark that gender relations present unique features that make them different from other types of intergroup relations (Fiske & Stevens, 1993), and that several dynamics that typically characterize ingroup-outgroup distinctions do not apply to gender-based categories (Rudman & Goodwin, 2004). Thus, given the specificity of gender relations, the null findings observed in the present study are not necessarily in contrast to the data reported in previous studies manipulating group membership (e.g., Gobel et al., 2018; Nafcha, Morshed-Sakran et al., 2020).

Intriguingly, some previous studies have reported a greater orienting for social stimuli (i.e., enhanced gaze-cueing effects) among individuals who embrace a more liberal view of the world, as compared to individuals who embrace more conservative views (e.g., Carraro et al., 2015; Dodd et al., 2011). Unfortunately, even if the questionnaire we used to manipulate attitude similarity was composed of items assessing different social views, it was not developed with the specific aim to classify participants as either more liberal or conservative. Future studies could therefore focus on the potential role of political temperament in shaping social IOR, for instance by assessing whether liberals exhibit a greater social IOR with respect to conservatives, in line with previous evidence (e.g., Carraro et al., 2015; Dodd et al., 2011). Importantly, since it is known that university students typically express more liberal than conservative views, it will be critical to also involve individuals with different backgrounds other than academic (see also, e.g., Carney et al., 2008).

Future studies may also address some limitations that characterized the experimental procedure we have adopted. First, at the end of the joint-action task, the manipulation check could be complemented with an additional, explicit measure of similarity to be obtained by asking participants to report how similar they felt to the other individual. In so doing, a more direct similarity score characterizing each dyad could be collected. Second, a further condition without any social knowledge could be also included, thus providing a baseline to be contrasted with both the "similar" and "dissimilar" levels. This could help to further uncover the actual impact of similarity on social IOR.

To sum up, our study indicates that the effects exerted by social knowledge can be multifaceted in that interpersonal similarity did not influence social IOR, but findings are suggestive of possible generalized effects on social IOR when prompting participants to focus on the individuating features of their interaction partner.

Notes

1. Although data collected from the confederates may be biased by the fact that they were fully aware of the experimental logic and they were overexposed to the task, exploratory descriptive statistics have been nonetheless carried out for completeness. These suggested the lack of a consistent pattern of results across the two confederates.
2. Even if we did not have any specific hypotheses concerning the gender of the couple (i.e., same vs. different), an identical number of same- and different-gender couples was associated with the two conditions of attitude similarity (i.e., same vs. dissimilar), in order to avoid possible imbalances. Hence, we felt it was important to also explore the potential role of this additional social factor (i.e., gender of the couple) in shaping our data. Therefore, we initially performed two explorative repeated-measures ANOVAs – for both RTs and MTs – with target location (repeated vs. different) and person who provided the response on the previous trial (same vs. other) as within-participant factors, and with the degree of similarity (similar vs. dissimilar) and gender of the couple (same vs. different) as between-participant factors. As for RTs, both the target location × person × gender and the target location × person × degree of similarity × gender interactions were not significant ($Fs < 1$, $ps > .465$). The same pattern also emerged in MTs analyses ($Fs < 1.057$, $ps > .311$). Bayesian ANOVAs, including the same factors used in the frequentist analyses, confirmed that the models including either the target location × person × gender or the target location × person × degree of similarity × gender interactions (or both) were not supported by the available data (BF_{10}s < 1 for both RTs and MTs).
3. To provide further evidence that the degree of similarity led to comparable results on both individual and social IOR, two additional ANOVAs, separated as a function of the person who provided the response on the previous trial (same vs. other), were executed with target location (repeated vs. different) as within-participant factor and the degree of similarity (similar vs. dissimilar) as between-participant factor. In both ANOVAs, the main effect of target location was significant ($Fs > 23.673$, $ps < .001$), while neither the main effect of the degree of similarity ($Fs < 1$, $ps > .341$) nor the interaction term ($Fs < 1.208$, $ps > .279$) were significant. The two Bayesian ANOVAs, identical as that used for the frequentist approach, confirmed that the best model fitting the data only included target location as main effect. This model was also preferable over the model also including the target location × degree of similarity interaction, BF_{10}s > 3.18.

   In addition, given that the experimental task was relatively long, we also explored whether our manipulation impacted social IOR in the initial part of the experiment, based on the possibility that an effect of similarity, if any, might wash out over time. Therefore, we re-analysed RTs by binning trials in both two (i.e., first half, second half) and four (i.e., first-to-fourth quartiles) clusters. However, in both cases, the critical interaction involving target location × person × degree of similarity × cluster led to non-significant results ($Fs < 1$, $ps > .772$), thus making it unlikely that the modulatory role of the degree of similarity was indeed present at the beginning of the experiment and then vanished with time. Moreover, Bayesian analyses confirmed that, irrespectively of the number of clusters (i.e., two or four), the best model fitting the data included target location, person, and cluster as main effects, and the target location × person interaction, and this model was preferable over the model including the target location × person × degree of similarity × cluster interaction, BF_{10}s > 150.

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No potential conflict of interest was reported by the author(s).

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Data availability statement

The data are available on OSF at https://doi.org/10.17605/OSF.IO/WQNT9.

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Appendix A

Questionnaire items.

1. Are you in favour of death penalty? YES – NO
2. What is your political temperament? LIBERAL – CONSERVATIVE
3. Are you in favour of abortion? YES – NO
4. What is your religious orientation? CATHOLIC – ATHEIST – OTHER
5. Are you in favour of the legalization of the light drugs? YES – NO
6. Are you in favour of the use of nuclear energy in Italy? YES – NO
7. Are you in favour of Italian military interventions abroad? YES – NO
8. Are you in favour of the extension of civil rights to same-sex couples? YES – NO
9. Are you in favour to adoption by same-sex couples? YES – NO
10. Do you think that euthanasia should be legalized in Italy? YES – NO
11. Do you agree with the recent settlement of a government of technicians? YES – NO
12. Are you in favour of the parliamentary immunity? YES – NO
13. Are you in favour of the intervention of the Church in Italian politics? YES – NO