

Supplementary Materials

Experiment 1

Methods

Participants

Although participants' cultural background was not systematically collected as part of the main study, partial information was available from 37 participants who provided this detail during pre-screening. Specifically, 10 participants identified as Asian (including Indian and Filipino), 20 as White/European origin, 2 as Middle Eastern/North African, 2 as both Latina(o)/Latinx/Hispanic and White/European origin, 1 as both White/European origin and Asian, 1 as both White/European origin and Middle Eastern/North African, and 1 as Other.

Stimuli

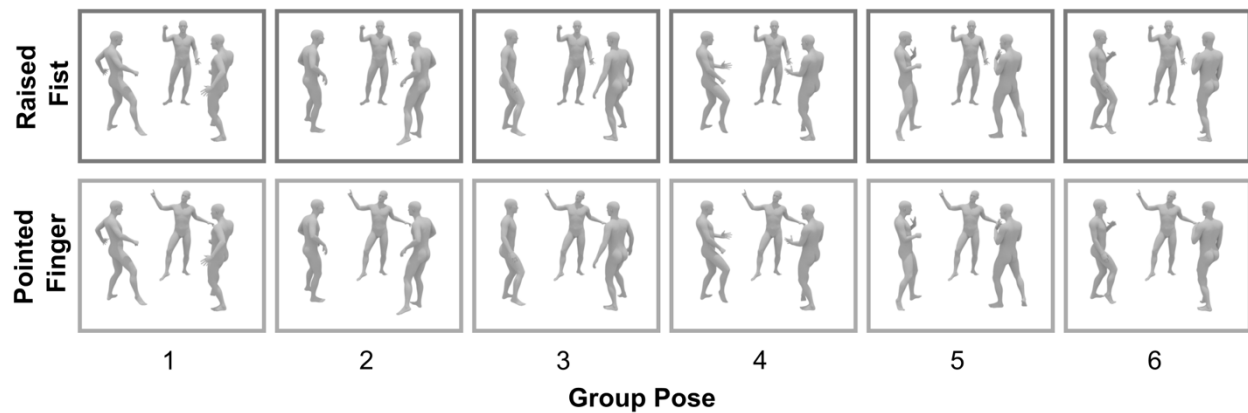


Figure S1. Illustration of group pose variations. Images show the slight variations in the body postures of the non-target members which made the group pose variations. Note that the target individual always maintained the same pose within each group.

Control Experiment

The main experiment examined search performance for target individuals who were positioned in groups in which the target and non-target members shared the same group context: facing targets were embedded in triads where all individuals were facing each other, and conversely, non-facing targets were embedded in triads where all individuals were facing away from the center. This allowed for examining the strength of perceptual grouping of individuals when the group context was extremely salient, since all individuals (even non-target ones) were either facing or non-facing. In a new experiment, we asked whether the individuation of targets required this broader cohesive facing versus non-facing group context, or whether it may also arise when only the group context is constant (i.e., all-facing) but the individual target orientation varies (i.e., facing toward vs. away from the group).

Specifically, here we manipulated the orientation of the target individual while keeping the orientations of the remaining non-target group members constant as facing towards the center. Thus, only facing groups from the main experiment were utilized (Figure S2A), with the following conditions: *(i)* the intact triad condition, in which the target individual faced toward the center of the group along with the other two members; and *(ii)* the disrupted triad condition, in which the target individual faced away from the center of the group, while the other two members remained facing toward the center of the group. This manipulation allowed us to compare search performance for individual targets that shared the same overall orientation as the rest of the triad (i.e., all members facing inward within an intact triad) relative to the same targets that did not share the same orientation as the rest of the triad (i.e., a disrupted triad).

Methods

The study was preregistered at <https://osf.io/hpxwb>. The custom script for data exclusion and the summarized anonymized data from participants who consented to their data sharing is available at <https://osf.io/hy36m>.

Participants

The main experiment yielded a medium effect size ($\eta_p^2 = 0.056$) for a significant repeated measures interaction between Group and Target Type, with a sample size of 73 participants. Based on this result and previous power analyses, we set the target sample size for this experiment at 90 participants to also account for variability in effect size estimates (Giner-Sorolla et al., 2024; Pek et al., 2024).

A total of 118 naïve participants were recruited from a volunteer undergraduate student pool and received course credits. Data from 90 participants were analyzed (Women = 85, Men = 4, Other = 1, Mean Age = 20 years old, Age Range = 18–29 years old). Data from 28 participants were excluded because of technical difficulties ($N = 10$), and an overall response accuracy falling below 65% ($N = 18$) as per the preregistration plan. As before, we excluded erroneous trials in which participants did not respond during the response window (6.68%) and trials with a response time 2.5 standard deviations below or above the individual's mean (0.75%).

The cultural background of participants was systematically collected in this experiment. Among the 90 participants, 18 identified as Asian, 5 as Black, 9 as Mixed, 9 as Other, and 49 as White.

Apparatus and Stimuli

The apparatus, stimulus presentation parameters, and experimental timeline were the same as in the main experiment. Figure S2A shows the images of groups of three, with the all-facing

intact triad condition and the disrupted triad condition along with the two target types. In the disrupted triad, the target individual was rotated 180 degrees around the y-axis away from the center.

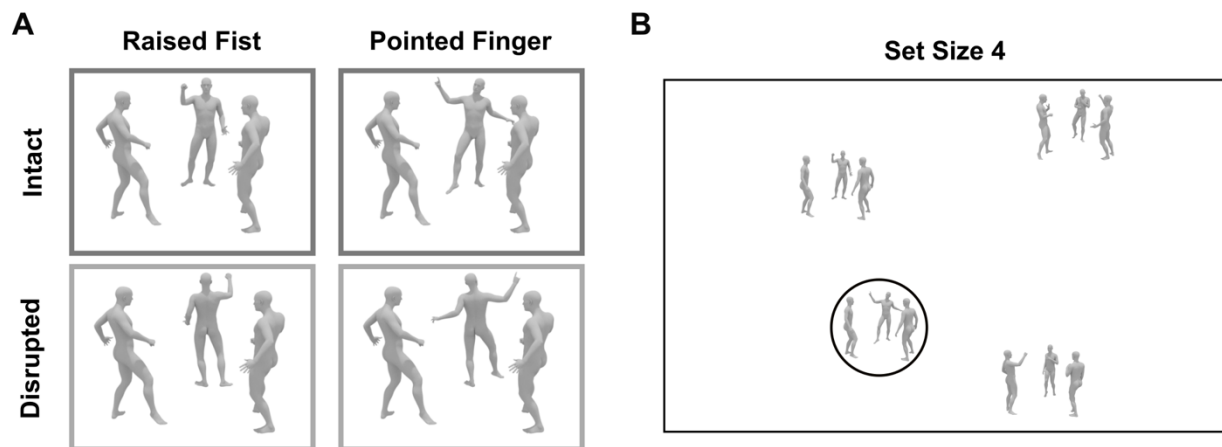


Figure S2. Example stimuli and search display. A. Example stimuli depicting target individuals with a raised fist and a pointed finger in the Intact Triad condition (top), and the Disrupted Triad condition (bottom). B. Example search display with a set size of four intact triads, showing a pointed-finger target individual. Note: Stimuli are not drawn to scale. Target is highlighted for illustration purposes.

Design and Procedure

The experiment was a repeated measures design, with *Target Type* (2: Raised Fist; Pointed Finger), *Triad Type* (2: Intact; Disrupted), *Set Size* (2: 4; 8), and *Target Location* (2: Left or Right side of the screen). Triad Type, Set Size, and Target Location were randomly intermixed within each block. Target Type was blocked with the order of presentation randomized across participants.

Target Type varied between an individual displaying a raised fist and an individual displaying a pointed finger. The target individual was present in one triad in the display, while the remaining distractor triads displayed an individual showing the opposite gesture. Within each triad, the target individual could be placed in the left, center, or right position. Half the blocks presented

a target individual with a raised fist, and the other half presented a target individual with a pointed finger. The response target was present on each trial. *Triad Type* varied the type of the triad, between an intact triad where all group members faced toward the center of the triad and a disrupted triad in which the target individual faced away from the center of the triad. Triad Type was kept constant within each search display. *Set Size* varied the number of triads present in the display between four and eight. *Target Location* varied the position of the target individual on the left or right side of the screen, distributed equally across trials. The design of the search display and the random variables (i.e., *Target Placement* and *Group Pose*) were the same as in the main experiment.

Procedure

Figure S2B shows an example search display with a set size of four. Each trial started with the presentation of a fixation cross (72×72 pixels) for 500ms, which was followed by a search array. The search array remained visible for 3500ms or until response. A blank screen appeared for 500ms between trials.

Participants completed 320 trials, organized into 8 blocks (4 for each Target Type), with each block containing 40 trials. The trials consisted of 8 unique combinations ($\text{Set Size} \times \text{Triad Type} \times \text{Target Location}$), with each repeated five times. At the beginning of each block, participants were instructed to search for a target individual with either a raised fist or a pointed finger. They were asked to locate the target quickly and accurately as positioned either on the left or right side of the screen, by pressing a “b” or “h” key on the keyboard. The assignment of target location to response key was counterbalanced across participants. The experiment lasted around 30 minutes and started with sixteen practice trials.

Results

Response accuracy and RTs on correct trials were examined using two separate three-way repeated measures ANOVAs with *Target Type* (2: Raised Fist; Pointed Finger), *Triad Type* (2: Intact; Disrupted), and *Set Size* (2: 4; 8) included as factors. All other analyses parameters matched the main experiment.

The average accuracy was 88.35%, without speed-accuracy trade-offs ($r(90) = .116, p = .276$). The ANOVA on accuracy returned a significant main effect of Set Size ($F(1, 89) = 32.53, p < .001, \eta_p^2 = .268$), with a greater response accuracy for displays with a set size of four ($M = 89.76\%$, $SE = 0.71\%$) than those with a set size of eight ($M = 86.93\%$, $SE = 0.88\%$). No other effects were significant (all $F_s \leq 1.29$, all $p_s \geq .259$).

The ANOVA on the mean correct RTs indicated a significant main effect of Triad Type ($F(1, 89) = 5.12, p = .026, \eta_p^2 = .054$), with faster overall responses to targets located within intact ($M = 1749.18\text{ms}$, $SE = 22.25\text{ms}$) relative to disrupted triads ($M = 1766.41\text{ms}$, $SE = 23.68\text{ms}$). There was also a significant main effect of Target Type ($F(1, 89) = 67.79, p < .001, \eta_p^2 = .432$), with faster overall responses to targets with a pointed finger ($M = 1690.47\text{ms}$, $SE = 24.06\text{ms}$) relative to those with a raised fist ($M = 1825.12\text{ms}$, $SE = 24.11\text{ms}$). Finally, a main effect of Set Size ($F(1, 89) = 1064.29, p < .001, \eta_p^2 = .923$) indicated overall faster responses for displays with a set size of four ($M = 1542.70\text{ms}$, $SE = 23.04\text{ms}$) relative to those with a set size of eight ($M = 1972.89\text{ms}$, $SE = 24.14\text{ms}$). No other effects were significant (all $F_s \leq 1.88, p_s \geq .174$), including the interaction between Target Type and Triad Type ($F(1, 89) = 3.52, p = .064, \eta_p^2 = .038$).

Hence, although both a cohesive group context (i.e., intact triads) and pointed-finger targets independently facilitated the search performance for individual targets, there was no significant

interaction between group context and target type. This suggests that the effects of social grouping may depend on all group members sharing a common orientation.