**Supplementary file 2**

**Results**

**Manipulation check of expectation**

Figures 3 and 4 show the means of expectation by gender and conditions. To test whether the manipulation of group knowledge was success, a 2 (gender) × 2 (threat condition) × 5 (knowledge) ANOVA on expectation revealed a significant main effect of knowledge (*F* (4, 620) = 72.27, *p*< .01, η2e = .32). Other main effects (*F*s (1, 155) <0.06, *p*s> .80, η2es < .00) and interaction effects (*F*s (1/4, 155/620) <0.86, *p*s> .71, η2e s< .07) were not significant. A 2 (threat condition) × 5 (knowledge) ANOVA by gender also revealed a significant main effect of knowledge (*F*s (4, 620) >32.99, *p*s< .01, η2e> .31) and no other significant effects (*F*s (1/4, 155/620) <1.07, *p*s> .35, η2es < .01). Multiple comparisons using the Holm’s method in each gender group revealed that the ingroup-bilateral condition was significantly different from the other four conditions among both women and men (*t*s(155) >6.38, *p*s < .01, *d*s > .53). These results showed that ingroup cooperation was enhanced only in the situation wherein participants can expect reciprocity from their partner in both genders. This is consistent with previous studies (e.g., Yamagishi, Jin, & Kiyonari, 1999). Therefore, the manipulation of the knowledge of group belonging was successful. Holm’s method also revealed significant differences between the unknown condition and the outgroup-bilateral condition (*t*s(155) > 2.63, *p*s < .04, *d*s > .18), and between the outgroup-bilateral and unilateral condition (*t*s(155) > 3.36, *p*s < .01, *d*s > .24) among both women and men. Only men showed a significant difference between the ingroup-unilateral condition and the outgroup-bilateral condition (*t*(155) = 4.13, *p*< .01, *d* = .33).



**The additional analysis of rewards – post-hoc comparisons**

To investigate whether the effect of outgroup threat priming on cooperative behavior differed by gender, we performed 2 (threat condition) × 5 (knowledge) ANOVAs separately by gender. In both gender groups, significant main effects of knowledge (Female: *F*s(4, 332) = 16.82, *p* < .01, *η*2e= .17, Male: *F*(4, 288) = 7.67, *p* < .01, *η*2e = .10) were found. However, there was no significant main effect of threat condition (*Fs* (1, 83female/72male) < 0.37, *ps* > .54, *η*2e*s* < .01) or any interaction effects (*Fs* (4, 332female/288male) < 1.39, *ps* > .25, *η*2e*s* < .02).

To examine the differences within the pattern of cooperation behavior in each of the five knowledge conditions by outgroup threat condition and gender, one-way ANOVAs were performed within each condition (control vs. threat) and gender (women or men) respectively. Among women, there were significant effects of group knowledge (Control: *F*s(4, 164control / 168threat) > 8.81, *p*s < .01, *η*2e > .17). A post-hoc comparison using Holm’s test revealed that rewards in the ingroup-bilateral condition significantly exceeded rewards of the other four conditions (*t*s(42control, 43threat) > 3.09, *p*s < .02, *d*s > .39) in both control and threat conditions. As expected, these results showed that women favored the ingroup based on reciprocity regardless of the cued outgroup threat. On the other hand, among men, a significant difference was found only in the control condition (*F*(4, 144) = 6.10, *p* < .01, *η*2e = .15). Post-hoc comparisons showed that rewards in the ingroup-bilateral condition were above the unknown and outgroup-bilateral condition (*t*s(36) > 3.20, *p*s < .03, *d*s > .48). The rewards in the outgroup-unilateral condition did not significantly exceed the ones in the ingroup-bilateral condition (*t*(36) = 2.72, *p* = .08, *d* = .47), but the effect sizes were almost equal when examining the ingroup-unilateral condition and the outgroup-bilateral condition. As expected, the rewards in the ingroup-bilateral condition were higher than the other conditions. However, in the threat condition, contrary to our predictions, there was no significant difference (*F*(4, 144) = 2.18, *p* = .11, *η*2e = .06). In other words, the results showed that male participants did not show any bias after being presented with the cued outgroup threat.