Supplemental materials: Strucutures of multi-level models

All analyses will be carried out in the R programming language and environment (R Development Core Team, 2016). We will test the effects of independent variables using mixed-effect logistic regressions, using lme4 package version 1.1 (Bates, Maechler, Bolker, Walker, Christensen, Singmann, Dai, Grothendieck, & Green, 2015). We will always use the maximal random structure justified by our design that allows the models to reach convergence (Barr, Levy, Scheepers, & Tily, 2013). To assess the significance of all main effects and interactions, we will use Wald tests.

Experiment 1

First, we will establish the degree of prediscussion agreement about the importance of the discussed issues, using two analyses. We will initially test whether dominant speakers agreed more with the rest of the group than non-dominant speakers prior to the discussion. Specifically, we will correlate the prediscussion rankings of dominant and non-dominant speakers with the prediscussion rankings of the rest of the group, and will regress the effect of **Dominance** (dominant versus non-dominant) against R scores. The model will include prediscussion R scores as the outcome variable, and **Visual Display** (speaker-view versus gallery-view), **Dominance**, and their interaction as fixed effects. The random structure will include random intercepts for **Participant** nested in **Group**. We will then test whether high-interaction partners agreed more about the importance of issues than low-interaction partners prior to the discussion. We will correlate each group member's prediscussion rankings against those of their high- and low-interaction partners, and will regress R scores against **Dyadic Interaction** (high versus low). The model will include prediscussion R scores as the outcome variable, and **Dyadic Interaction**, **Visual Display**, and their interaction as fixed effects. The random structure will include random intercepts for **Participant** nested in **Group**. If we find main effects of predictors, we will include them as random slopes in the relevant models.

Second, we will test the effect of **Visual Display** on conversational dominance and degree of interactivity. First, we will regress the **Proportion of Words** used by dominant speakers against **Visual Display**. The model will include **Proportion of Words** as the outcome variable, **Visual Display** as fixed effect, and random intercept for **Participant** nested in **Group**. **If hypothesis (i) is true, we should find a significant effect of Visual Display on Proportion of Words.** Second, we will calculate the difference between each member's **Proportion of Adjacent Turns** shared with the partner with whom they interacted the most and the **Proportion of Adjacent Turns** shared with the partner with whom they interacted the least, and will then regress this difference against **Visual Display**. The model will include **Adjacent Turn Differential** as the outcome variable, **Visual Display** as fixed effect, and random intercept for **Participant** nested in **Group. If hypothesis (ii) is true, we should find a significant main effect of Video Display on Adjacent Turn Differential.**

Third, we will test the effects of **Dominance** and **Dyadic Interaction** on the outcome of the discussion. To test the effect of **Dominance**, we will first correlate the postdiscussion rankings of each participant with those of dominant and non-dominant speakers separately, and then we will regress R scores against **Dominance**. The model will include participants' postdiscussion R scores as the outcome variable, and fixed effects for **Dominance**, **Visual Display**, and their interaction. The random structure will include random intercept for **Participant** nested in **Group** (and slope for **Dominance** if needed). **If hypothesis (iii) is true, we should find a significant interaction between Dominance and Visual Display.**

Similarly, we will run two analyses to test the influence of **Dyadic Interaction** on the outcome of the discussion. We will first correlate the postdiscussion rankings of each participant with those of both their low- and high-interaction partners. Then, we will regress such postdiscussion R scores against **Dyadic Interaction**. The model will include postdiscussion rankings as the outcome variable, and fixed effects for **Dyadic Interaction**, **Visual Display**, and their interaction. The random structure will include random intercept for **Participant** nested in **Group** (and slope for **Dyadic Interaction** if needed). **If hypothesis (iv) is true, we should find a significant interaction between Dyadic Interaction and Visual Display.**

Experiment 2

First, we will check whether participants agreed more with dominant speakers' opinions. We will correlate participants' prediscussion rankings with dominant speakers' rankings, and will then regress participants' prediscussion R scores against **Dominance** (dominant versus non-dominant). The model will include prediscussion R scores as the outcome variable, **Dominance** as fixed effect, and random intercept for **Participant** nested in **Group**.

Second, we will test the effects of **Dominance** on the outcome of the discussion. We will first correlate the postdiscussion rankings of each participant with those of dominant and those of non-dominant speakers separately. We will then regress R scores against **Dominance:** the model will include participants' postdiscussion R scores as the outcome variable, and fixed effects for **Dominance**, **Visual Display**, and their interaction. The random structure will include random intercept for **Participant** nested in **Group** (and slope for **Dominance** if needed). **If hypothesis (v) is true, we should find a significant interaction between Dominance and Visual Display.**

Experiment 3

We will regress participants' **Comprehensibility Ratings** against **Visual Display**: the model will include **Comprehensibility Ratings** as the outcome variable, and **Visual Display** as fixed effect. The random structure will include random intercept for **Participant** nested in **Group**. **If hypothesis (vi) is true, we should find a significant effect of Visual Display on Comprehensibility Scores.**

References

Barr, D. J., Levy, R., Scheepers, C., & Tily, H. J. (2013). Random effects structure for confirmatory hypothesis testing: Keep it maximal. *Journal of Memory and Language*, *68*(3), 255-278.

Bates, D., Maechler, M., Bolker, B., Walker, S., Christensen, R. H. B., Singmann, H., Dai, B., Grothendieck, G., & Green, P. (2015). "Package 'lme4'." *Convergence* 12, 1:2.

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