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## Do Competing Alternatives Reduce Illusory Consensus in OSS Communities?

### **Introduction and Research Question**

Consensus is a fundamental principle to rational decision-making in any organization, yet in practice, the phenomenon is illusory. Hans Christen Anderson's parable of the emperor's new clothes demonstrates this phenomenon in extreme caricature. A deluded emperor wearing invisible clothes woven by conmen leads a procession in the streets of his kingdom, while his sycophantic advisors follow along with the decision despite knowing better. Not until an innocent child proclaims the emperor is wearing no clothes does the emperor realize his error, but by this point, the emperor has already subjected himself to abject humiliation. In the real world, silent majorities may lead to outcomes, such as the Challenger disaster, much worse than personal embarrassment. By explaining consensus as an illusory phenomenon, my project intends to identify the conditions under which teams and organizations can unveil this illusion.

Illusory consensus occurs when a group believes they have reached agreement despite members privately disagreeing with a decision (Healey et al., 2015). While this phenomenon is not unique to open-source software (OSS) communities, OSS communities are a prime research setting under which to study this problem due to the special place that consensus occupies in the philosophy of open source (O'Mahony & Ferraro, 2007). To prevent illusory consensus, many OSS projects with Python as an exemplar have adopted a governance rule requiring a rebuttal of competing alternatives within a proposal. This method is the opposite of a "stacked deck" where only supporting arguments are stacked in favor of the proposal. This opposition motivates the following research question, "Do competing alternative proposals reduce illusory consensus in open-source software (OSS) communities?"

## Theoretical Framework

My project predicts the following hypotheses resulting from this governance rule:

*H1: Proposals with multiple alternatives have a positive effect on the alignment of voting results with discussion valence (i.e., full consensus).*

*H2: Alternative proposals introduced late in the discussion increase the chances of illusory consensus (i.e., divergence of voting results and discussion valence).*

*H3: Discussion salience has a positive effect on the relationship between proposals with multiple alternatives and the alignment of voting results with discussion valence (i.e., full consensus).*

The theoretical explanation for these hypotheses is that competing ideas activate deliberative processing in the group and minimize the chances of illusory consensus, where voting becomes misaligned with the valence of a discussion. The one exception is alternative proposals introduced late in the discussion, as my framework predicts the late timing activates more reflexive processing. The foundation for this explanation is dual-process theory. Dual-process theory is a family of theories, reducing cognition to two types—reflexive (type 1 or “X system”) and reflective (type 2 or “C system”). The X system is automatic, relying on biases and heuristics (shortcuts), while the C system is deliberative but slow (Kahnemann, 2011). My project introduces a modified matrix from Healey et al. (2015) to illustrate how the interaction of the two systems affects consensus:

|                                 | <i>Low C-system similarity</i> | <i>High C-system similarity</i> |
|---------------------------------|--------------------------------|---------------------------------|
| <i>High X-system similarity</i> | <b>Illusory concordance</b>    | Full concordance                |
| <i>Low X-system similarity</i>  | Full discordance               | <b>Surface discordance</b>      |

## Research Design

My project will consist of two studies, one using primary data and the other secondary data. Study 1 will collect primary data through a randomized online experiment with a between-

subject design using Qualtrics. The purpose of this study is to establish construct validity of voting as a proxy for X-system cognition. Consensus is necessarily a group-level phenomenon, and one of the challenges of this project is mapping group-level cognition to reflexive and reflective processes. To test voting as a reflexive act, Study 1 will consist of two parts, a survey to detect between-group differences when voting is combined with reflection and an Implicit Association Test (IAT) to correlate the differences with implicit bias as the mechanism for the difference. Study 2 will collect observational data from online Github discussions from two OSS projects, Python and Rust. The purpose of this study is to test the framework that proposals with multiple alternatives minimize the likelihood of illusory consensus due to activation of C-system processes during discussion leading to a vote.

## **Contributions**

This project contributes both theoretical and practical insights to the literature. The theoretical contributions are three-fold. First, my project applies dual-process theory to the group level of analysis, while most previous studies have limited application to the individual level. Second, my project presents a redefined concept of illusory consensus to the literature, as previous literature associates the concept with low X-system similarity, not low C-system similarity (Healey et al., 2015). Third, my project tests empirically a framework that previously has only been articulated as a thought experiment (Healey et al., 2015; Pretorius et al., 2024). Finally, if consensus can be explained in OSS communities where the concept is ineluctable, then the phenomenon can be generalized for other organizations and teams as well. By understanding the conditions under which illusory consensus and silent majorities are created, organizations can learn practical lessons to avoid these pitfalls and promote more enduring consensus in decision-making.

## References

- Healey, M. P., Vuroi, T., & Hodgkinson, G. P. (2015). When teams agree while disagreeing: reflexion and reflection in shared cognition. *Academy of Management Review*, 40(3), 399–422. <https://doi.org/10.5465/amr.2013.0154>
- Kahneman, D. (2011). *Thinking, fast and slow* (First edition.). Farrar, Straus and Giroux.
- O'Mahony, S., & Ferraro, F. (2007). The Emergence of Governance in an Open Source Community. *The Academy of Management Journal*, 50(5), 1079–1106.
- Pretorius, C., Razavian, M., Eling, K., & Langerak, F. (2024). When rationality meets intuition: A research agenda for software design decision-making. *Journal of Software: Evolution and Process*, 36(9), e2664.