Withholding Verifiable Information

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I study a class of verifiable disclosure games where the sender’s preferences are state independent and the receiver’s optimal action depends solely on the expected state. In such games, the receiver’s preferred equilibria are relatively well studied, but other equilibria are less so. This paper characterizes the sender’s preferred equilibria and equilibrium payoff set in this class of games.

In the baseline model, the sender’s private information is one-dimensional, and the receiver has finitely many actions. The receiver wishes to take higher actions in higher states while the sender always prefers the receiver to take higher actions. Using a belief-based approach, I show that there exists a sender’s preferred equilibrium, and I characterize its properties. In this equilibrium, every on-path message of the sender can be interpreted as an action recommendation that the receiver finds optimal to follow, and the messages have a simple “laminar” structure [Candogan and Strack, 2022]. Moreover, I find that any payoff that is below the sender’s payoff in her preferred equilibrium and above her payoff in a fully revealing equilibrium can be sustained in an equilibrium in which the on-path messages have the properties described above.

I also provide sufficient conditions on model primitives under which the sender can attain her commitment payoff, that is, the highest payoff that is achievable by committing to an information structure as in the information design literature. Roughly, if the sender’s (highest attainable) expected payoff as a function of the expected state increases sufficiently fast, the information design outcome can be attained in an equilibrium. These conditions identify a class of communication environments in which the sender does not benefit from commitment power. Consequently, in such environments, there exists an equilibrium that yields the sender a (generically) much higher ex ante payoff than in the fully revealing equilibrium. This may suggest that focusing on the fully revealing equilibrium outcome in policy debates need not always be appropriate. The key forces that prevent the sender from attaining her commitment payoff are also discussed.

I then apply these insights to study selling with quality disclosure and influencing voters. In the selling setting, Milgrom [1981] shows that if the product is perfectly divisible, the seller fully reveals the quality of her product in every equilibrium of the game. By contrast, I show that if the buyer is restricted to buying integer units, the seller may be able to achieve the same outcome as if she has commitment power. Next, I consider an expert who discloses verifiable information to a group of voters in an amendment voting setting. Interestingly, the expert can be hurt even if, all else equal, all voters are more inclined toward the expert’s most preferred outcome.

Finally, I show that some of my results extend when either the sender’s private information is multidimensional, or the receiver has a continuum of actions.

Full paper available at: https://arxiv.org/abs/2206.09918.

ACM Reference Format:
Kun Zhang. 2023. Withholding Verifiable Information. In Proceedings of the 24th ACM Conference on Economics and Computation (EC ’23), July 9–12, 2023, London, United Kingdom. ACM, New York, NY, USA, 1 page. https://doi.org/10.1145/3580507.3597661