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ORAL COMMUNICATIONS

The Involvement of Contributors in Decentralized Autonomous Organizations' (DAOs) Governance

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1 Introduction

Decentralized Autonomous Organizations (DAOs) have become the primary organizational form for nowadays projects in the Decentralized Financial (DeFi) ecosystem. DAOs aim to democratize decision-making by enabling everyone's vote on *proposals*, i.e., suggested protocol changes and future developments, in a decentralized manner. The ownership of governance tokens in the DeFi ecosystem provide participants with voting rights, typically following the principle of 'one token - one vote'. Previous studies have extensively investigated the high concentration of governance token ownership.[1–4] The initial allocation of governance tokens typically involves team members, investors, or project treasuries. These actors often emerge as major shareholders and decision-making authorities.[5,6]

In this work, we focus on the voting activity of DAO *contributors*, including administrators, developers, and owners. These entities constitute the technical and managerial core staff necessary for the DAOs to function. Often on-boarded during the early stages of a project, they actively engage with the organization's development and evolution. In the following, we present an extended abstract of our work on the involvement of contributors. We examine the role of contributors from two perspectives. First, we measure the *involvement of contributors* in DAO voting. Second, we create a co-voting network and identify to what extent contributors are central in the community structures.

2 Data, Methods and Results

Data To analyze the contributors' involvement, we utilized two primary data sources: the off-chain voting platform Snapshot[7] and an Ethereum blockchain. We gathered a comprehensive voting dataset

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from Snapshot and cleaned it by removing immature DAOs. We obtained 986,557 users voting on 35,124 proposals across 872 different DAOs. Furthermore, we collected 7,478 contributors' addresses from DAO administrators on Snapshot, contract creators on the Ethereum chain, and owners of DAO names on the Ethereum Name Service (ENS) using The Graph and the Ethereum blockchain.

Methods The voting power of a user in a proposal corresponds to the number of governance tokens they hold at the time of the vote. We are interested in the voting power of contributors in contrast to non-contributors and how their structural role differs in co-voting patterns. First, we defined a metric to measure the involvement of contributors in a given DAO by the average share of exercised voting power they have in proposals associated with that space. Second, we created co-voting networks of user nodes that are linked when they vote together on more than ten proposals on the decision, i.e. the option that get the most votes. Then we performed Louvain community detection to find common-voting patterns and measured the concentration of contributors in contrast to non-contributors, using the Herfindahl-Hirschman concentration index.

Results We measured the average voting power of contributors in each DAO. The results are shown in Figure 1. In descending order, the first 66 (7.54%) DAOs have an average involvement of contributors of more than 50%, meaning that contributors possess, on average, a majority of voting power and can determine single-handedly the outcome of proposals. The Herfindahl-Hirschman index in Figure 2 outlines a higher concentration of contributors in the detected co-voting communities, contrasting with non-contributors, as indicated by the higher value of the index.

3 Conclusion

Our work examines the role of contributors in the DAO decision-making process. We find evidence of involvement with voting power to influence the trajectories of some DAOs, along with higher concentration of contributors in the detected co-voting communities. Our findings provide valuable insights into the governance process and challenge the decentralized notion in DAOs.

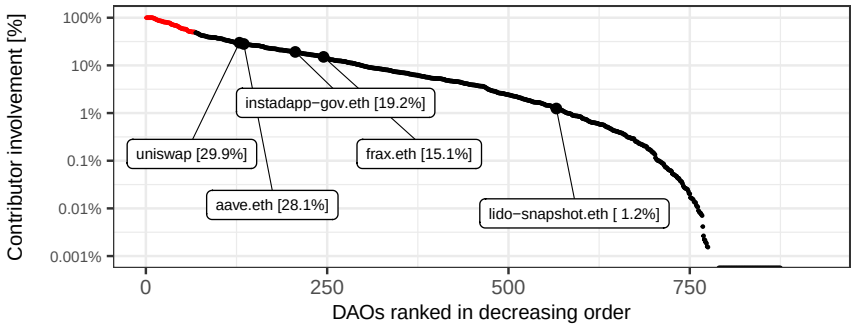

Fig. 1: **Contributor involvement across DAO spaces.** The DAOs are ranked by contributor involvement (•), some high-TVL dApps (●) are marked for illustrative purposes and contributor involvement of more than 50% is colored (•).

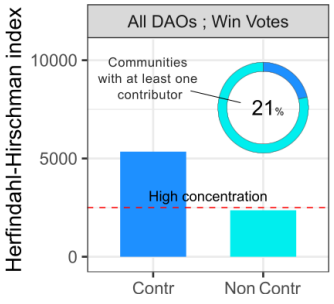

Fig. 2: **Concentration comparison.** The HH-index of contributors (■) is significantly higher than for non-contributors (■) in co-voting communities.

Notes and References

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