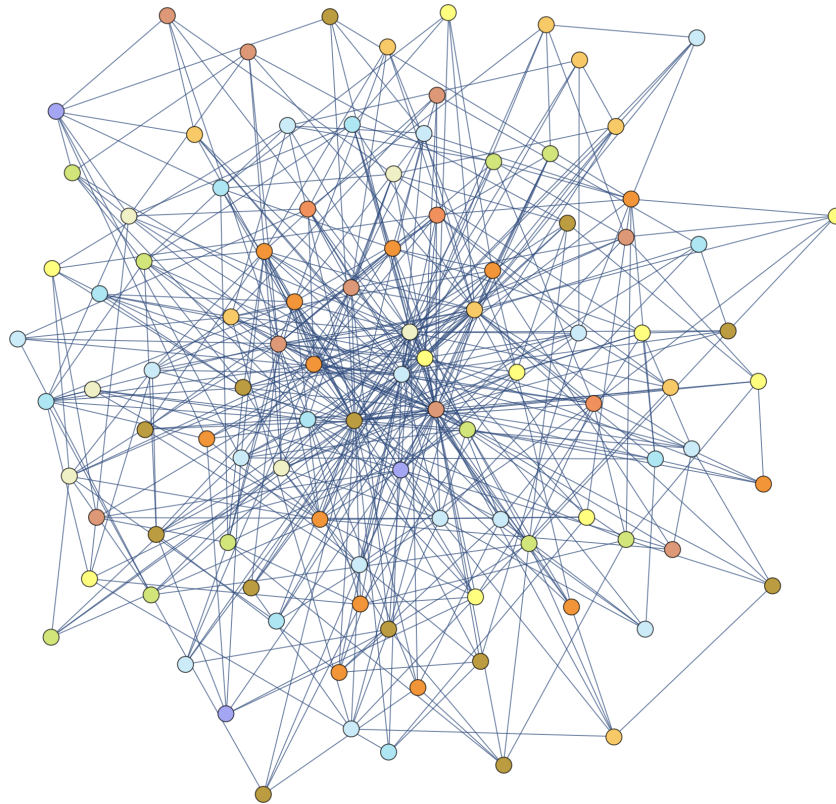# Diversify Voting Influence

Cardano Catalyst Report 4-1, August 13, 2021
Kenric Nelson and Andre Vilela

Abstract

Kenric Nelson and Andre Vilela kicked-off Diversify Voting Influence, a Cardano Catalyst project supporting the Fund 4 Decentralized Decision making challenge. Nelson is participating in the Catalyst Swarm discussions related to Governance in order to initiate collaborations with the Catalyst community. Vilela has initiated a literature review on voting strategies. A meeting with IOG is scheduled to discuss access to voting data.

Accomplishments

Literature Review - Planned reading

Quadratic Voting

1. Eric A. Posner and E. Glen Weyl. "Quadratic Voting as Efficient Corporate Governance", Coase-Sandor Working Paper Series in Law and Economics, University of Chicago Law School Chicago Unbound, 2013.

2. Steven P. Lalley and Glen Weyl. "Quadratic Voting: How Mechanism Design Can Radicalize Democracy", Aea Papers and Proceedings, Vol. 108, 2018.

3. Eric Posner and E. Glen Weyl. "Quadratic Voting and the Public Good: Introduction", 172 Public Choice 1, 2017.

4. Vitalik Buterin, Zoë Hitzig and E. Glen Weyl. "Liberal Radicalism: A Flexible Design For Philanthropic Matching Funds", Arxiv preprint, 2020.

Correlation Functions

5. S.Braun. "Correlation Functions", Encyclopedia of Vibration, Elsevier, 2001.

Governance Theory

6. André L. M. Vilela and H. Eugene Stanley. "Effect of Strong Opinions on the Dynamics of the Majority-Vote Model", Scientific Reports, Nature, 2018.

7. André L. M. Vilela; Chao Wang; Kenric P. Nelson; H. Eugene Stanley. "Majority-vote model for financial markets", Physica A - Statistical Mechanics and its Applications, Elsevier, 2018.

8. M. J. Holler and H. Nurmi, Eds., Power, Voting, and Voting Power: 30 Years After. Heidelberg: Springer, 2013.

9. Werner Kirsch, On Penrose's Square-Root Law and Beyond, in Power, Voting, and Voting Power: 30 Years After, Heidelberg: Springer, 2013.

Synopsis of Catalyst Swarm Governance discussion
August 11th

- Johnathan led a discussion on Cardano governance including the current Catalyst voting system and plans toward the Voltaire integration of governance into the mainnet.
- Kenric Nelson provided an overview of the goals of the Diversify Voting Influence
- Robert O'Brien provided a thorough review of different voting systems including
  - *This is Nelson's synopsis and is not necessarily O'Brien's exact statements*
  - The current system of one coin - one vote isn't perfect but is common in DAO's due to its simplicity. Other systems could create confusion.
  - Conviction & Commitment voting systems require the voter to stake their assets for a period of time
  - A contrarian view of Treasury management is that
    - You don't want to vote, since voting is expensive and cumbersome
    - You don't want to spend the treasury. Instead it should be used as a bonded reserve to provide backing for other financing mechanisms
  - Prediction markets are an alternative to voting
  - Revealing of preference has a lot of attractive properties
  - In contrast reputation can be gamed
  - Direct democracy does not scale - reviewing proposals overwhelming
  - Multiagent simulation (part of plan for DVI project) is important
  - Elinor Ostrom important writer on governance

- About 20 individuals attended and provide a variety of input to the discussion including
  - Locking Ada in a smart contract for a period of time could be used as a gage of how strongly the voter's convictions were about a particular project
  - A problem arose with the Fund 5 NFT - DAO proposal when several of the original members left. Raises the issue of how funds can be managed beyond just the proposal voting process
  - Integrate representation and reputation weighting; delegation would be more democratic representation
  - Gitcoin is a model of managing funding for open-source projects
  - Oracle Pools voting is another model of governance
  - Stake pools are a type of liquid democracy (see planned literature review)
  - How can we keep the judgement objective? Need for domain expert representatives

- ○ Non-voting governance is also critically important; such as the work the Catalyst Swarm team is doing
- ○ Other models of funding include salaries for long-term engagement; venture capital investment and return
- ○ Different voting systems can be used for different decision points
- ○ As the Treasury grows in value, the threat of gamification will grow, including concerns about just distributing the Treasury without project returns

Open Issues

- Seeking to clarify ability to access prior Catalyst voting and what the appropriate restrictions are on revelation of the distribution of voting. There is a need to balance privacy, security, and transparency concerns.
- Seeking to determine the best vehicle to engage effectively with the Cardano community. Currently utilizing Discord, Github repository, and Catalyst Swarm participation.

Plans

- For month of August 2021 the plan is to
  - ○ Complete thorough literature review of decentralized governance
  - ○ Identify datasets which will provide basis for analysis
  - ○ Identify weighting functions which can diversify voting influence
- For September 2021 focus will be on completing analysis of voting strategies
- For October 2021 focus will be on proposing more extensive simulation plans and completing a recommendation for weighting of votes.