

Sunday Funday Forum Session

Sunday Dec 11th 7AM PST / 4 PM CET

There are a lot of different types of voting, traditional yes-no time boxed, dot, conviction, ranked choice, quadratic, nakomoto consensus... What is your favorite and where is it best applied?

Agenda

Write Forum Comments on Impact Hours post

1. Impact Hours Post needs a lot of updates from our last sesh
 - We need comments on Min/Max Hatch Goal as something connected to min/max IH rate (DAI/IH)
 - We need to hack on a proposed equation that has the right impact parameters
 - We need comments on Impact Hours minimum wage price
 - We need to call out that if the hatch fails, then people get nothing (This is not a post about a specific course of action. It is simply defining a failed Hatch and what could be done about the Impact Hours wage)
 - Resources:
 - Link to IH Post: <https://forum.tecommons.org/t/impact-hour-rewards-deep-dive/90>
 - Video of IH Deep Dive: <https://youtu.be/GJcaiopzSSE>
 - Notes for that video session: <https://docs.google.com/document/d/1hotbM3fiYumtgQimhc4gwn79wFsQi2GPuvTpRxPBPV8/edit#heading=h.kw5maga80kky>
 - Spreadsheet that explores the DAI/hr equation (See Sems newst work in the "Other explorations" tab: https://docs.google.com/spreadsheets/d/1qWHdLAVSEm_bP5fhBpEYwdEYC5zTxdzqWArSwBKcJo8/edit?usp=sharing

Write Forum Posts for Conviction Voting Params

CV Math:

<https://docs.google.com/document/d/1I73bt5h9H5zcOGr6qeRKSIaf-WOsp-fpm2ygskbEF1k/edit>

DEEP DIVE into the 1hive CV implementation that we will use: [Understanding Real-Time 'Vote Streaming' | by Jeff Emmett | The Commons Stack](#)

The Solidity:

<https://github.com/1Hive/conviction-voting-app/blob/master/contracts/ConvictionVoting.sol>

The code base: [1Hive/conviction-voting-app: Aragon app used to collectively allocate funds from a shared treasury](#)

The rest of the default parameters are:

- `decay = 0.9999599`, which sets up conviction halftime to 3 days.
- `maxRatio = 0.2`, which sets the threshold formula to only allow proposals that request less than 20% of the funds.
- `rho = 0.002`, which fine tunes the threshold formula.
- `minThresholdStakePercentage = 0.2`, which sets the minimum percent of stake token active supply that is used for calculating the threshold

2. [CV Alpha / Half life](#) ← Tamara

- Things to Define: [Original info link](#)
 - [Leaky integrator](#)
 - [Exponential Decay using alpha](#)
 - [Simulation](#)
- What is Conviction anyway?!?
 - Voting Power is measured as “Conviction” what does this mean!?
 - How is it calculated?

Questions to ask at the end:

- What should determine the Half Life for the Conviction decay/growth?
- What factors should we consider when determining how long it should take to reach 50% voting power and 80% voting power
-

This simple equation sums up what's happening.

$$y_{t+1} = \alpha y_t + x_t$$

Actual Math USED IN 1hive's CV

```
a^t * y(0) + x * (1 - a^t) / (1 - a)
```

a = alpha = decay = half life = the rate that conviction grows

t = timePassed = Number of blocks since the last time conviction was recorded

y(0) = _lastConv = Last conviction recorded

x = number of tokens staked on the block that conviction is being calculated

3. Max Ratio/Beta (Santi) [Link for document](#)

- [Conviction voting algorithm jupyter notebook](#)
- Things to define:
 -
 - What is the Threshold, and how is it calculated?
 - [Jupyter notebook](#)
 - The role of the trigger function in the conviction voting algorithm is to determine if a sufficient amount of conviction has accumulated in support of a particular proposal, at which point it passes from being a candidate proposal to an active proposal.
 - Proposals have an “upper ceiling” in asking funds that is proportional to the total holdings of the commons.
 - $\beta \in (0, 1)$ is the max % of total funds that can be discharged by a single proposal, and is the asymptotic limit for the trigger function. It is impossible to discharge more than β share of funds.
 - $\rho \in (0, \beta^2)$ is a the scale factor for the trigger function. This factor is used to weight the effective supply **S** of governance tokens

```
 $\rho * \text{totalStaked} / (1 - a) / (\beta - \text{requestedAmount} / \text{total})^{**2}$ 
```

ρ = weight = Min Effective Supply

totalStaked = total effective supply?

a = alpha = half life = decay rate

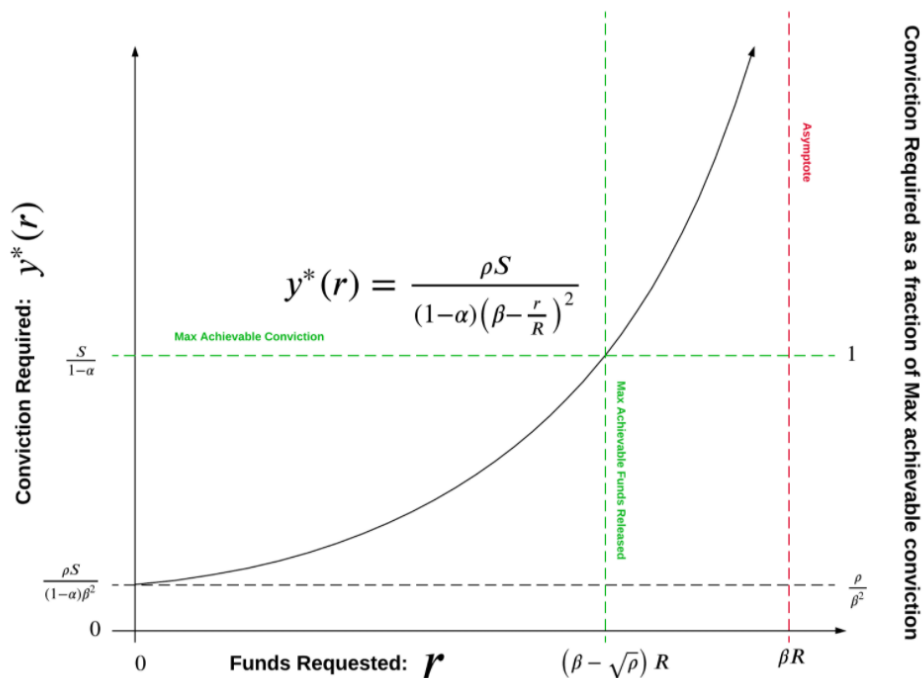
β = Max Ratio

requestedAmount = The amount that the proposal is asking for.

total = Total amount of funds in the pool

** = ^ = to the power of ;-)

$$y^*(r) = \frac{\rho S}{(1-\alpha)\left(\beta - \frac{r}{R}\right)^2}$$



- What is Conviction anyway?!?!
- Conviction can be considered like a fluctuating kinetic energy, with the Trigger function acting as a required activation energy for proposals to pass. This is the mechanism by which a continuous community preference turns into a discrete action event: passing a proposal.
- Voting Power is measured as “Conviction” what does this mean!?
- At any moment t , $h[a]$ represents the total holdings of participant a so $x[a,k]$ represents the amount of power participant a gives to proposal k at any given time t . That power is his conviction towards proposal k .

- What is Effective Supply?
 - S is the effective supply which is the subset of the total Supply for the governance token in question.
- How exactly does this act as a quorum?
- Commons Stack's original design called it "Beta" is this different or the same?

•

4. Min Threshold Jake

- which sets the minimum percent of stake token active supply that is used for calculating the threshold
- <https://docs.google.com/document/d/13SHON38cQ0GBEYURpQR655Naxe2IzBVFwtwQc9qDUw/edit?usp=sharing>
- What factors should we consider when determining how long it should take to reach 50% voting power and 80% voting power and setting a minimum threshold?

$\rho * \text{totalStaked} / (1 - a) / (\beta - \text{requestedAmount} / \text{total})^{**2}$

$\rho = \text{weight} = \text{Min Effective Supply}$

$\text{totalStaked} = \text{total effective supply?}$

$a = \text{alpha} = \text{half life} = \text{decay rate}$

$\beta = \text{Max Ratio}$

$\text{requestedAmount} = \text{The amount that the proposal is asking for.}$

$\text{total} = \text{Total amount of funds in the pool}$

$** = ^ = \text{to the power of ; -)}$

Questions to ask at the end:

- If 100% of the effective supply is voting on a proposal, how long should it take to reach the Minimal threshold?
- What should be the minimum number of tokens that can reach a Min threshold?
- What other factors should we consider when choosing the min conviction threshold for any proposal to pass?

5. Min Effective Supply

- Called “ Weight” in the code

```
 $\rho * \text{totalStaked} / (1 - a) / (\beta - \text{requestedAmount} / \text{total})^{**2}$ 
```

```
 $\rho$  = weight = Min Effective Supply
```

```
totalStaked = effective supply?
```

```
a = alpha = half life
```

```
 $\beta$  = Max Ratio
```

```
requestedAmount = The amount that the proposal is asking for.
```

```
total = Total amount of funds in the pool
```

```
** = ^ = to the power of ;-)
```

[Conviction Voting: A Novel Continuous Decision Making Alternative to Governance](#)

Jeff and Z Breakdown the Commons Stack Design [Intro to the Cyber-Physical Commons Framework with Jeff and Zargham](#)

<https://forum.tecommons.org/t/conviction-voting-parameters-general-discussion/84>

Notes

- The purpose of these posts is to just define the parameter and open to questions
- Opinions can be expressed in the Replies of the Post

Action Items

1. Coordinate who will write what on volunteerism and hack out the posts
2. Post to Forum and close issues