

# Reputation Verification System Basics

# Why is Reputation Foundational for Decentralization / DAOs ?

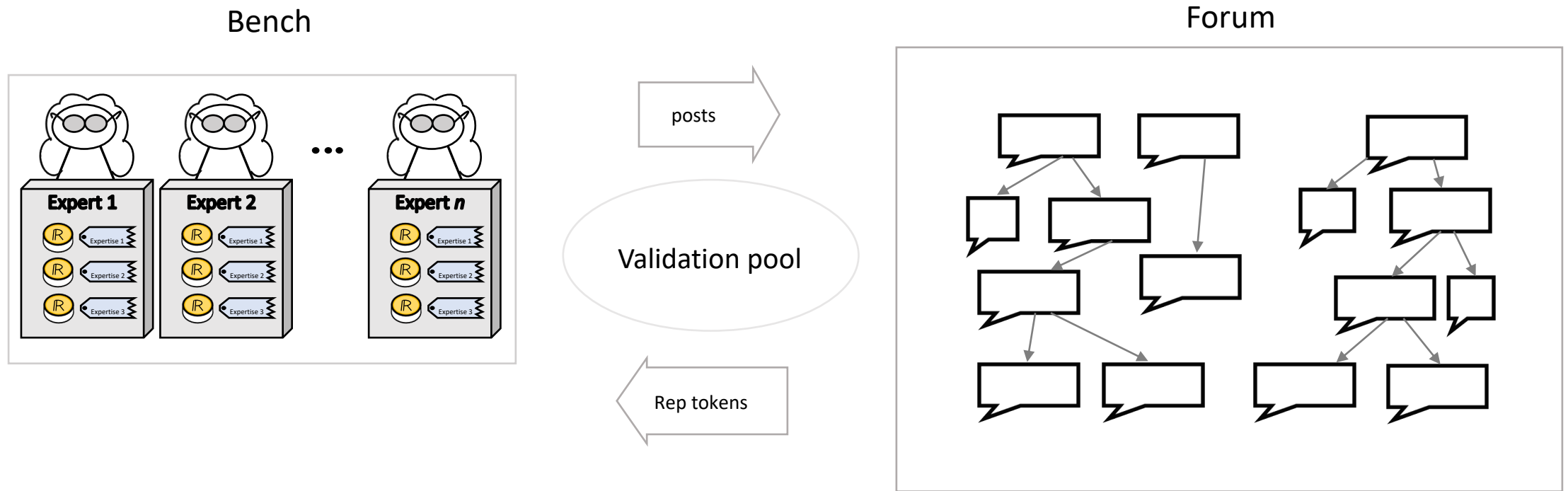
- **Problem with Web of Trust:** If good interaction both gain reputation, bad experience then they lose reputation. Use sockpuppets – sell to yourself and say good things about yourself. All sockpuppets gain reputation. Use sockpuppet reputation to cheat the DAO to lie and steal money from the DAO.
- Once Smart contract valuable enough, can only trust system to the degree that it costs more to cheat than to support.

# Reputation validation platform basics:

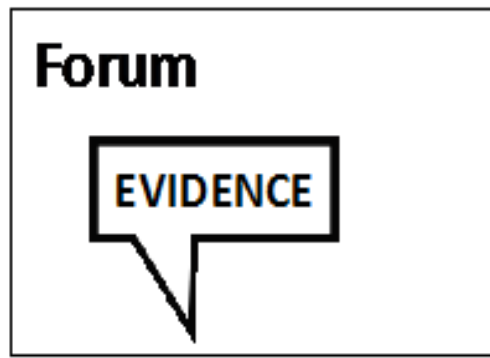
- A dynamic list of system-generated sub-tokens, representing reputation/expertise in any domain.
- The **forum** of expertises. For each expertise, there is a linked list of posts, where each list has a sub-token assigned to it, based on its root post, called the **expertise tag**, or **expertise**. Each post can include opinions, evidence of work, evidence of expertise, policies, and contract templates. A **post** is a trivial smart contract on the Ethereum blockchain, typically a short text post. The forum is housed on a blockchain to allow eternal verification and review of the reputation created in each post.
- The **bench of experts**. Experts are anonymous users who stake their respective sub-tokens to answer validation requests or proclaim their availability for off-platform work.
- The **validation pool**. Experts may stake their expertise-specific tokens in order to validate or invalidate posts through a betting pool. This is used to answer validation requests, set precedents, promote specialization and proficiency. The validation pool is the mechanism which creates and distributes reputation.

## Platform architectural specifics:

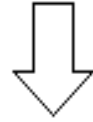
- *Necessity #1: **Forum**.* Evidence of all work needs to be posted to the blockchain for eternal review.
- *Necessity #2: **Validation pool**.* In a decentralized environment consisting of potentially anonymous actors, the only fair way to assign power is to allow all users to judge the value of contributions democratically.
- *Necessity #3: **Reputation token minting**.* All new *repute tokens* are minted in proportion to fees, and staked 50/50 in a validation pool, for and against a post.
- *Necessity #4: **Reputational salary**.* All fees should be shared with the entire group of token holders (the **bench of experts**) relative to their holdings
- *Necessity #5: **Precedent System**: Review through references.* Finally, each new post has the opportunity to reference older posts, changing the value of previous posts depending on how important users perceive the precedent for the system.



*The platform consists of a collection of experts, called the bench, and an openly readable forum which collects all evidence-of-work posts. A validation pool mediates between the two, determining power, reputation, and precedence in the system.*



**FEE 100** 

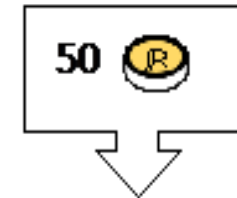
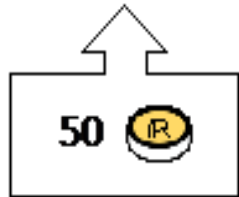


**MINT 100** 

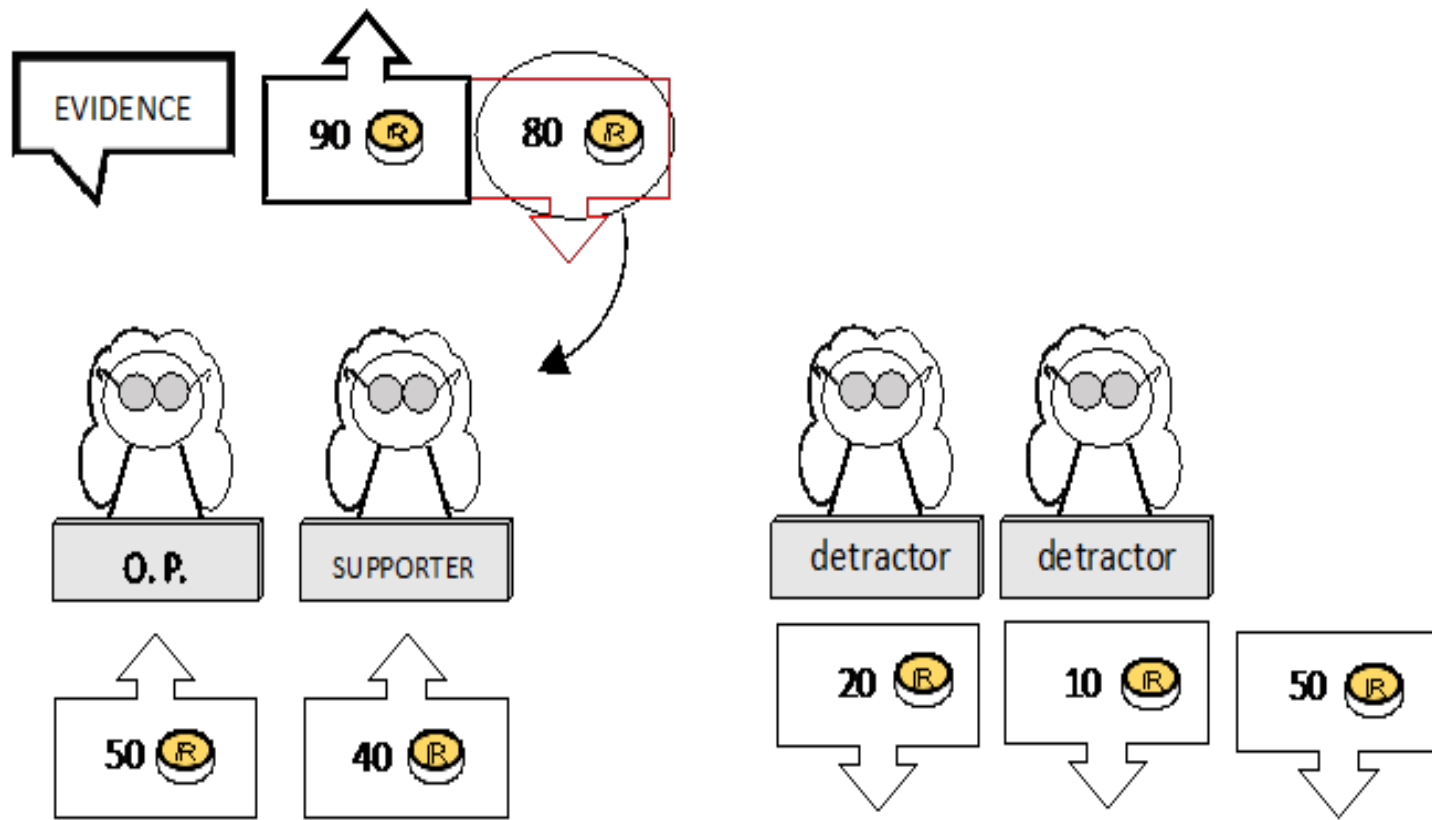


**STAKE 50 UP  
FOR EXPERT**

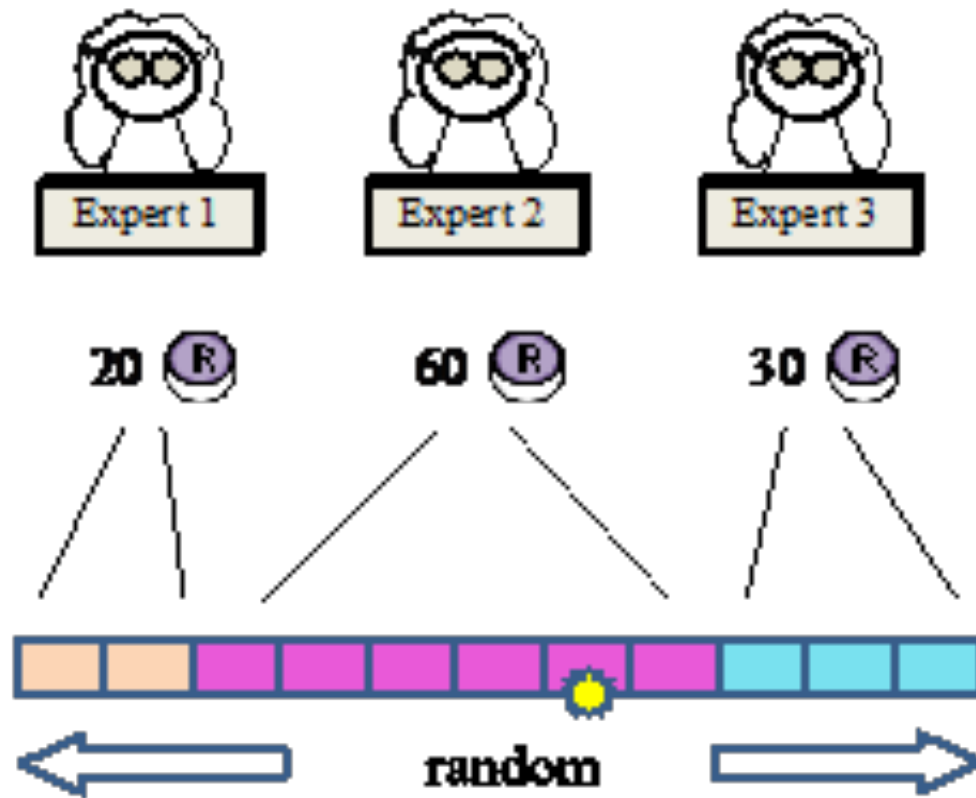
**STAKE 50 DOWN**



*All fees paid to the system are split amongst all experts, weighted according to their token holdings, as a reputational salary. Individual experts who do the work that attracts the fees are paid indirectly with tokens if their evidence-of-work post is accepted by a weighted majority of experts. The original poster (O.P.) sends their post to the forum associated with the fee. The platform mints new tokens proportional to the fee.  $\frac{1}{2}$  of the newly minted tokens are staked for the O.P. as an upvote,  $\frac{1}{2}$  are staked as a downvote, then the rest of the experts are allowed to evaluate the post and participate in the validation pool.*



*In this example the upvotes on the evidence-of-work post win with 90 tokens against 80 staked as downvotes. The original poster's (O.P.) newly minted 50 added to a supporter's 40, against the 50 newly minted downvote tokens added to 30 tokens cast as downvotes by detractors. The losers' 80 tokens are split between the O.P., who receives 50/90 of the 80 lost tokens, and his supporter, who receives 40/90. Then the post holds a record of how popular it was amongst experts to determine the post's power as precedence.*



*Random selection of experts is decided by relative weight of reputation. Before a smart contract is engaged, experts have the opportunity to stake reputation tokens to signal their availability for work. These availability stakes will be added as the chosen experts' upvote bet on their evidence-of-work post. In this example the yellow star stops randomly along the bar, but is most likely to stop on the 2<sup>nd</sup> expert.*



## Bench

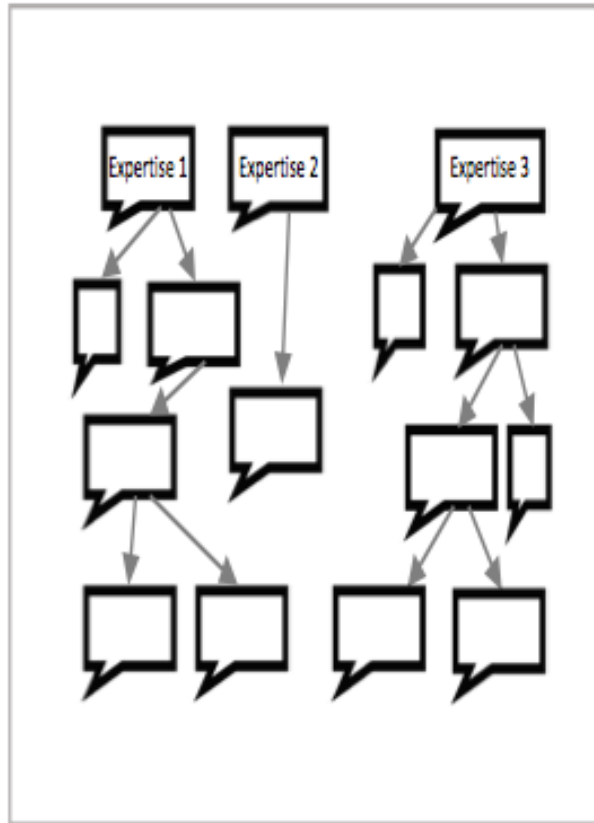


Posts/votes

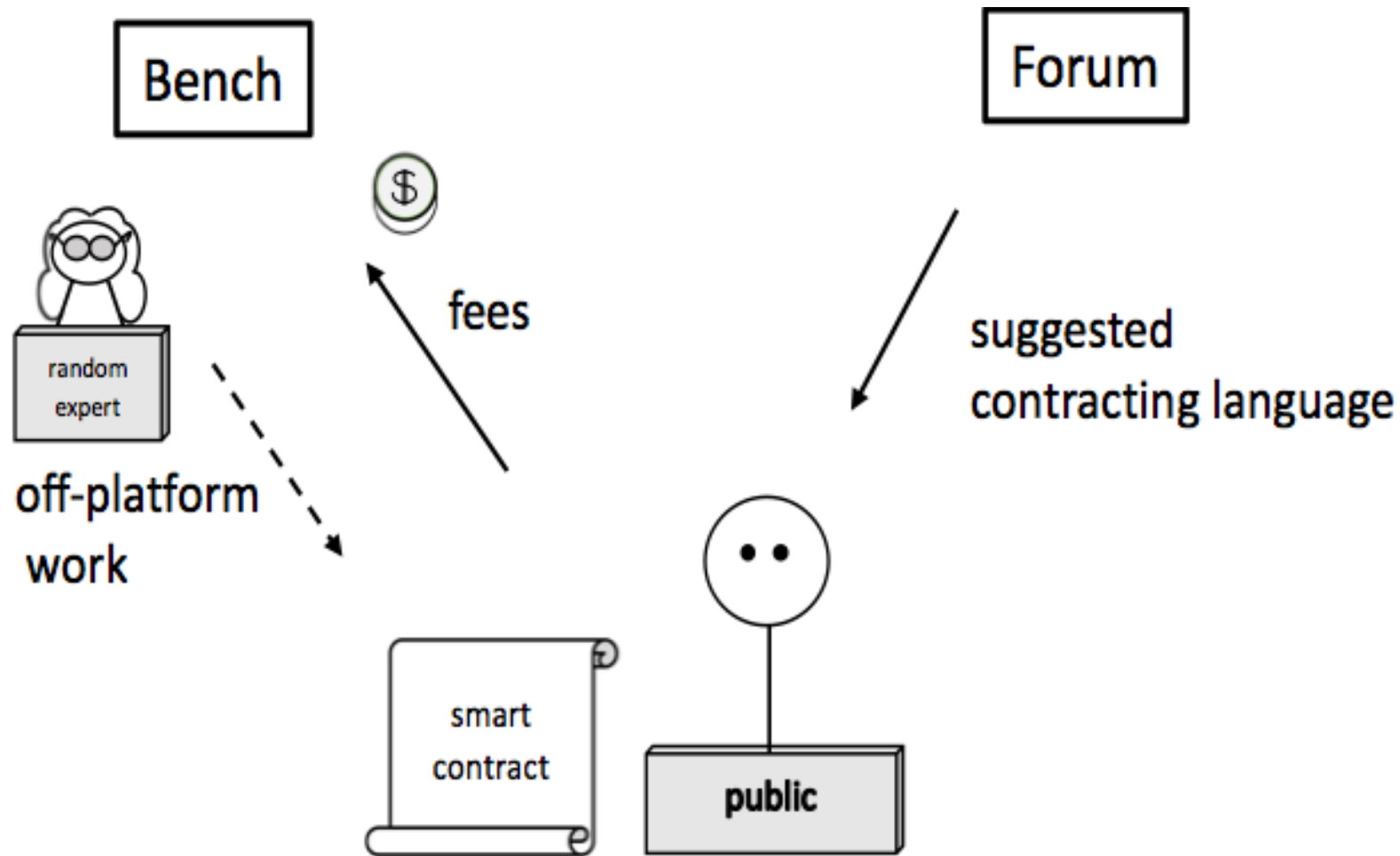
Betting pool

Rep tokens

## Forum




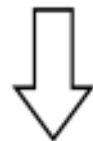
- The platform consists of a collection of experts, called the bench, and an openly readable forum which collects all evidence-of-work posts.
- A betting pool mediates between the two, determining power, reputation, and precedence in the system.




- Public users access the system by calling experts from the bench to perform off-platform work by sending fees to the platform.
- Public users will find successful smart contracting language for achieving such aims in the forum, as supplied by the bench experts who develop the forum in order to earn reputation.



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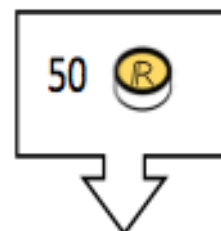
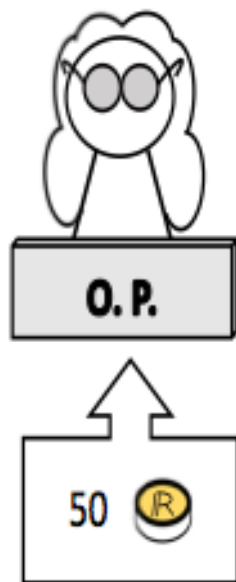


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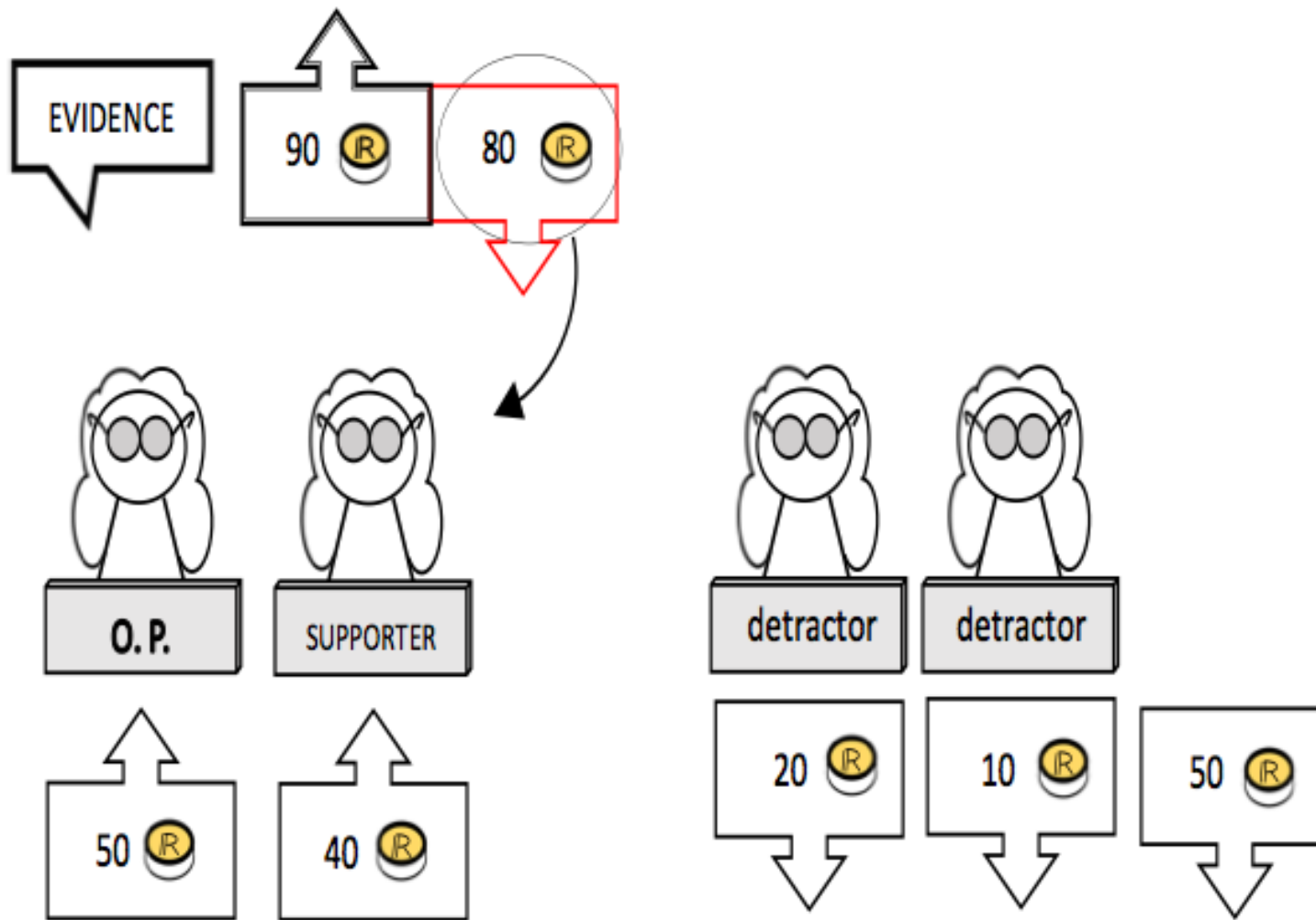


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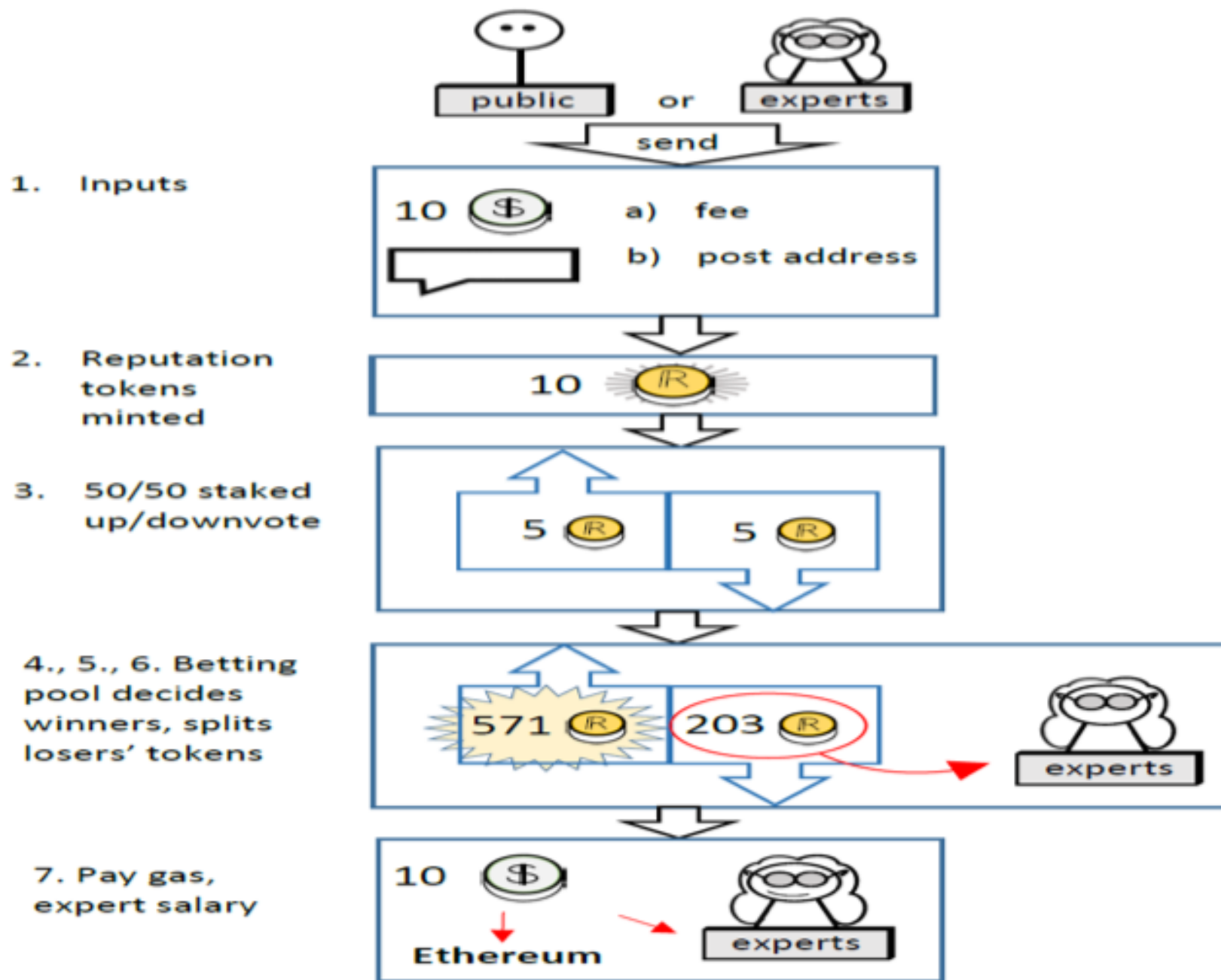
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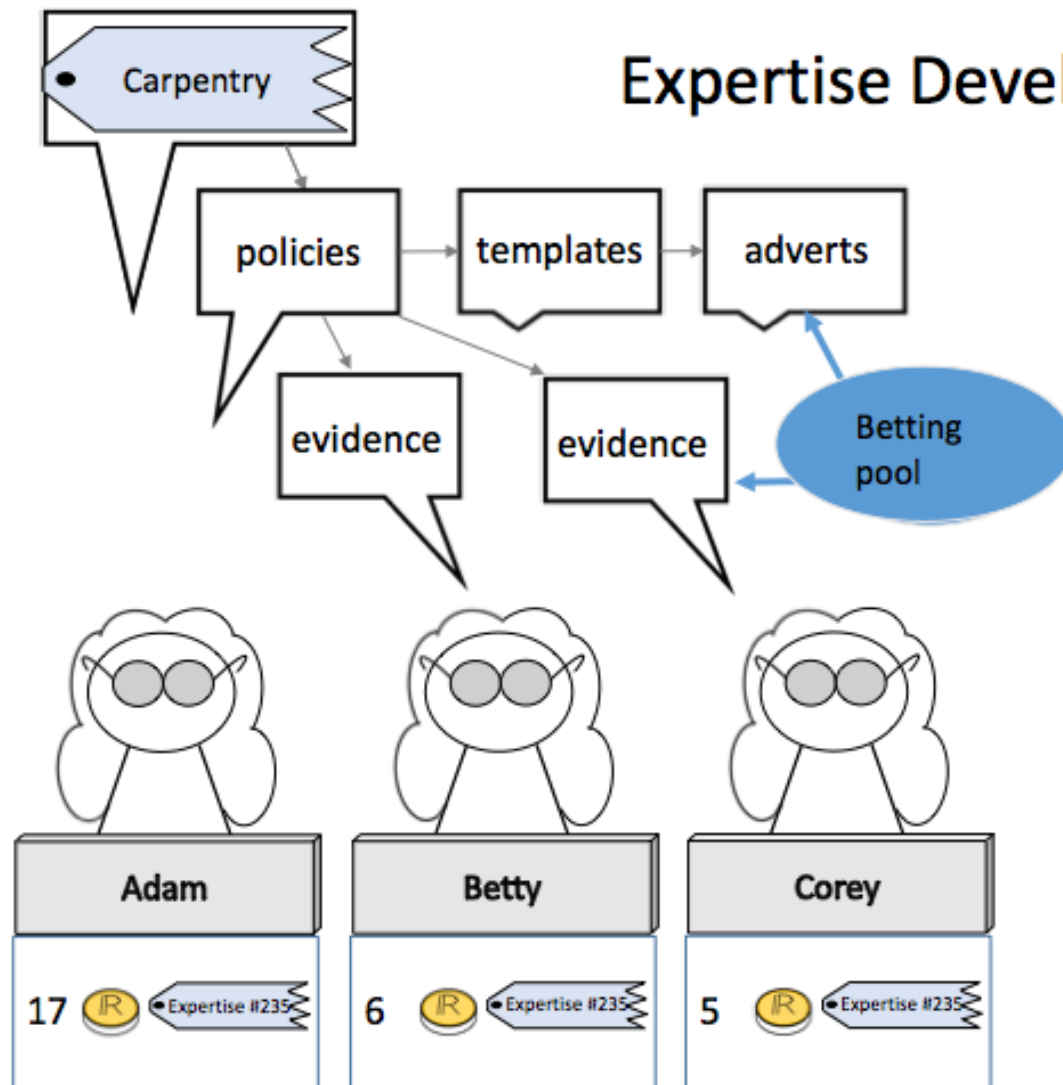


- *The original poster (O.P.) sends their post to the forum associated with the fee.*
- *Platform mints new reputation tokens proportional to the fee.  $\frac{1}{2}$  of the newly minted tokens are staked for the O.P. as an upvote,  $\frac{1}{2}$  are staked as a downvote*
- *Rest of the experts are allowed to evaluate the post and participate in the betting pool.*



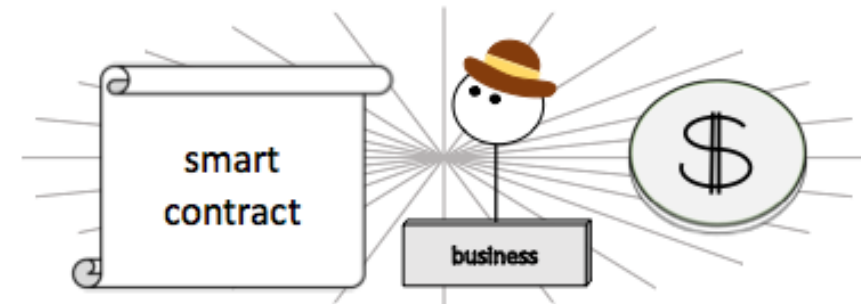
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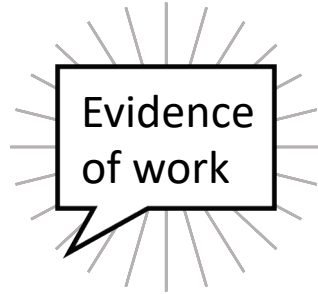
## Expertise Development

1. Adam creates carpentry expertise tag
2. Posts comments of good practices
3. Betty posts evidence of off chain work in forum
4. Adam evaluates and accepts Betty and Corey
5. A., B., & C., post policies, templates, & advertising
6. Business is engaged through smart contracts
  - fees split between all experts through salary
  - randomly chosen expert gets > 50% fee to Rep tokens if work is satisfactory

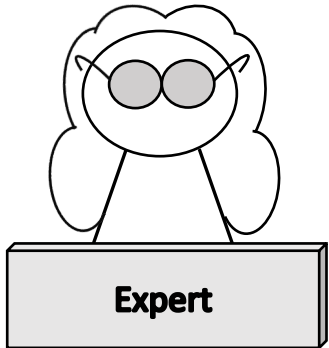


# Validation Pool

Betting pool on evidence of work post



availability stake 10 

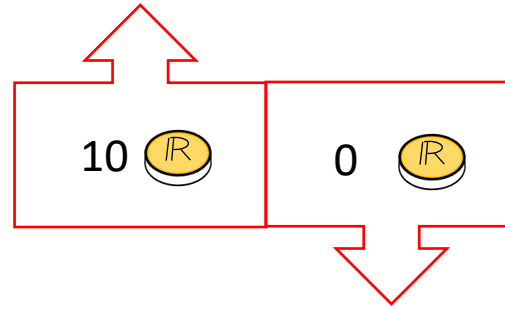


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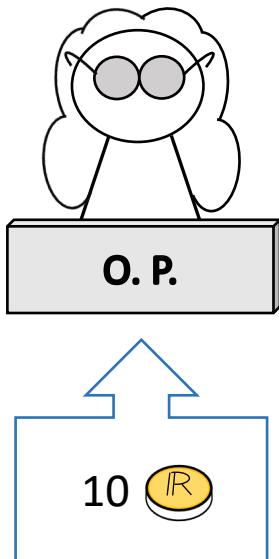
# Validation Pool

Betting pool on evidence of work post

Evidence  
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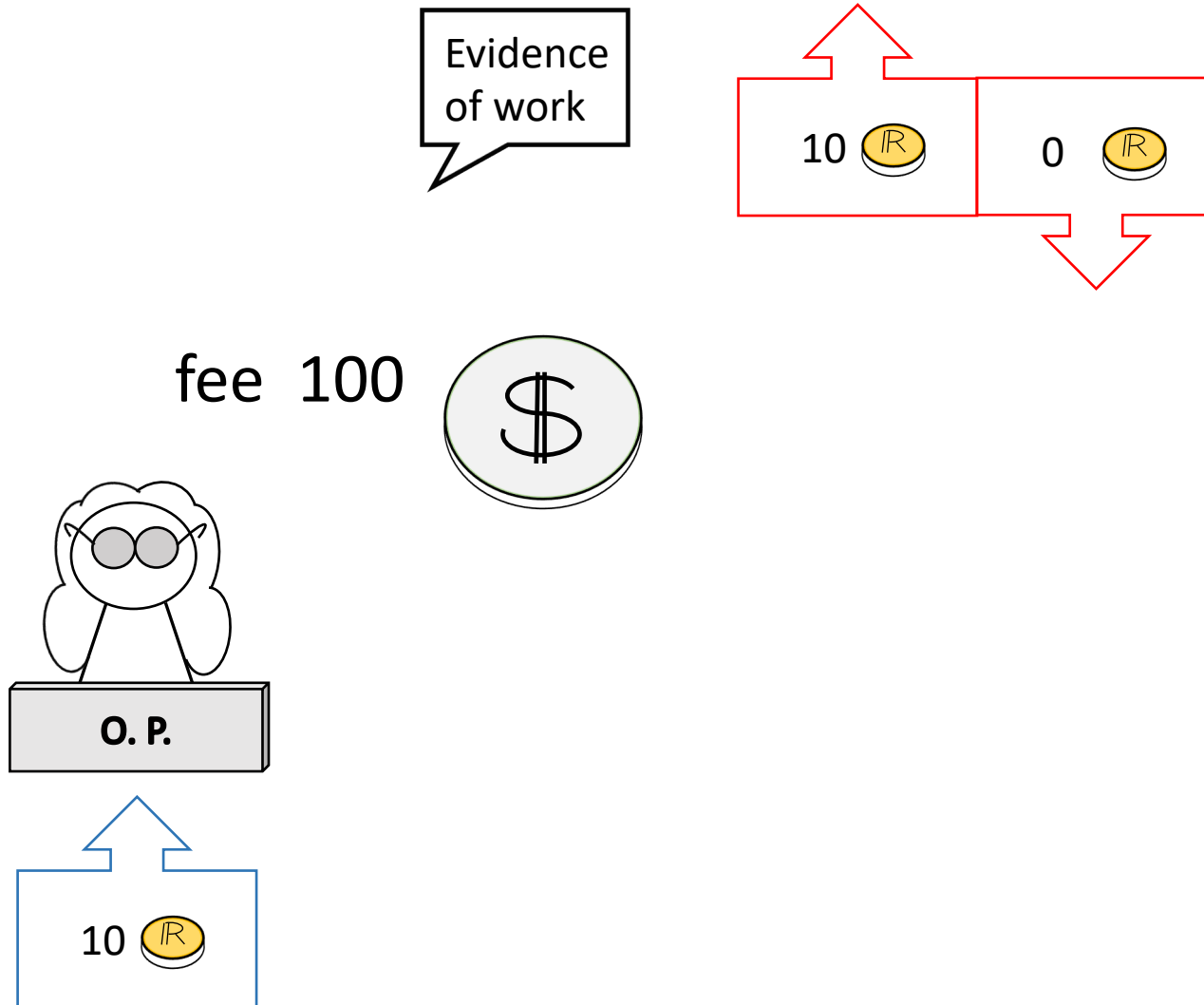
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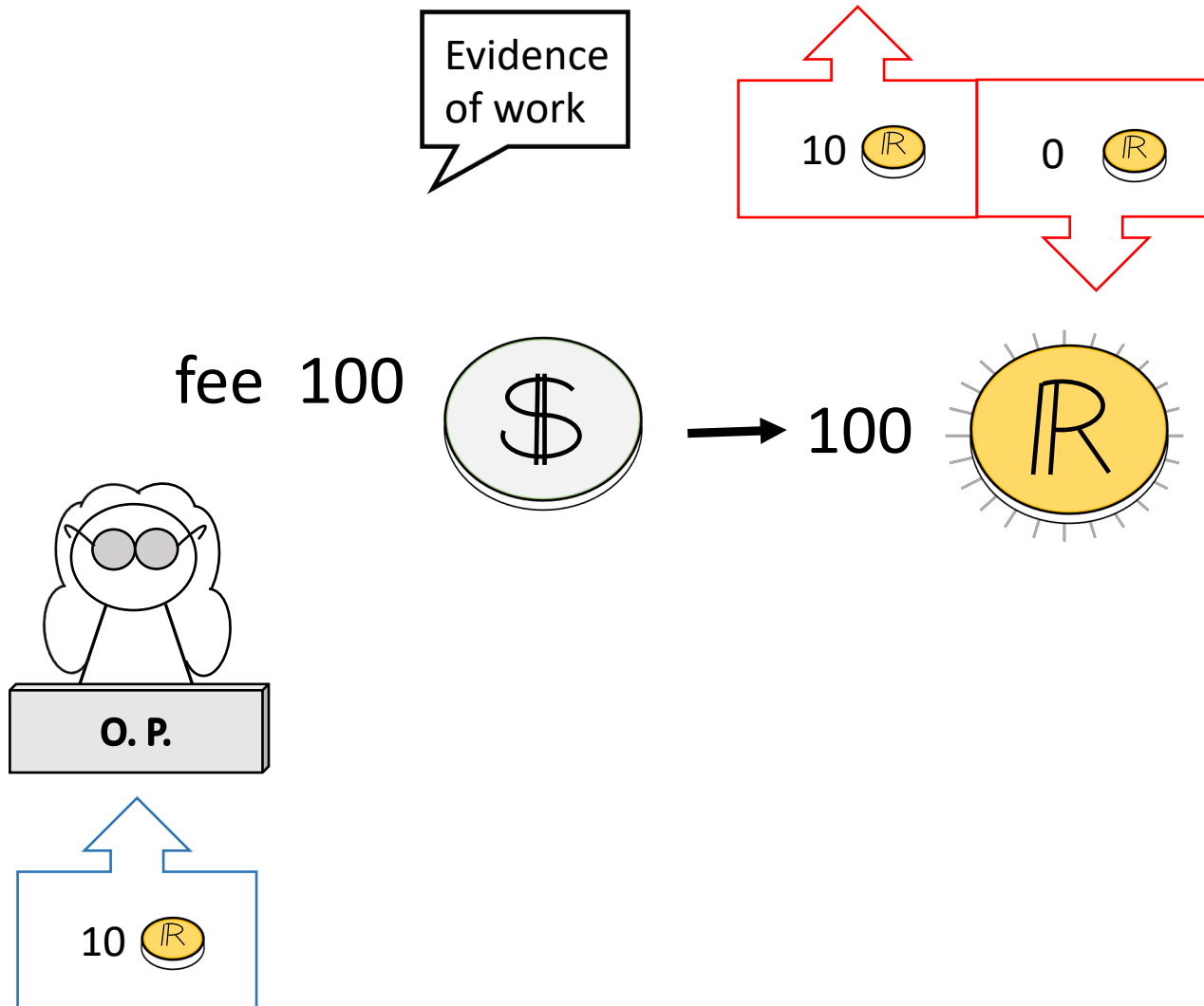
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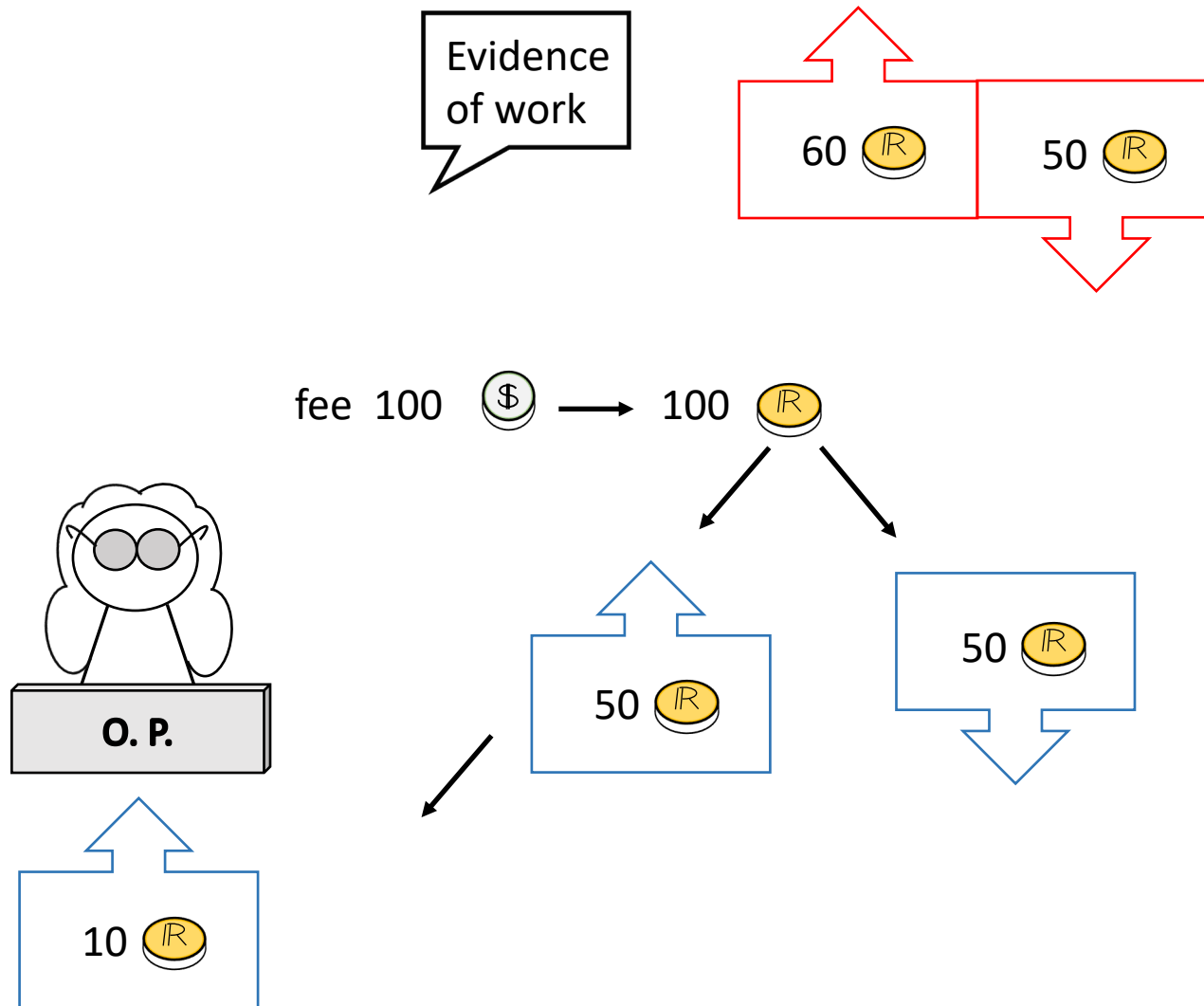
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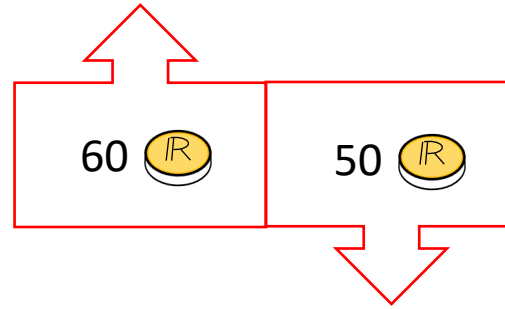


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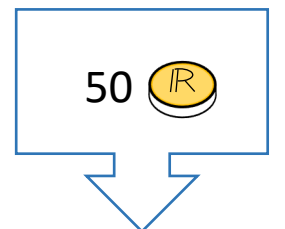
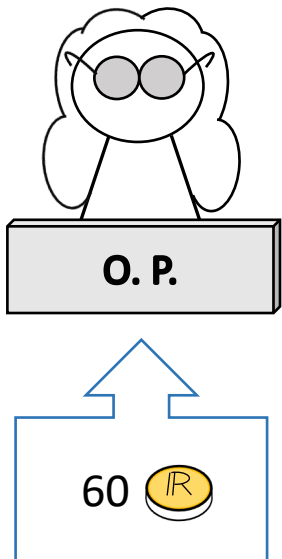
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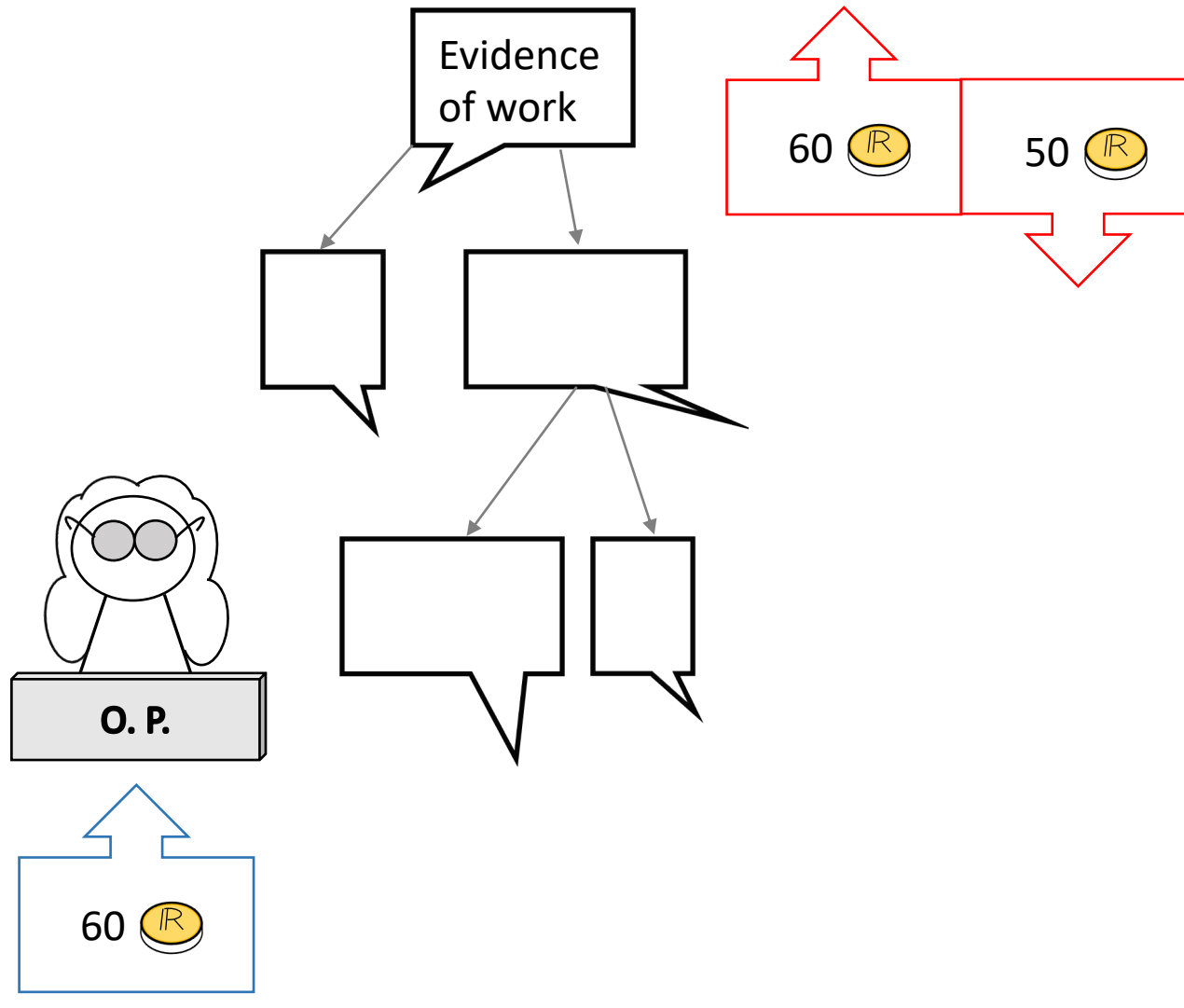


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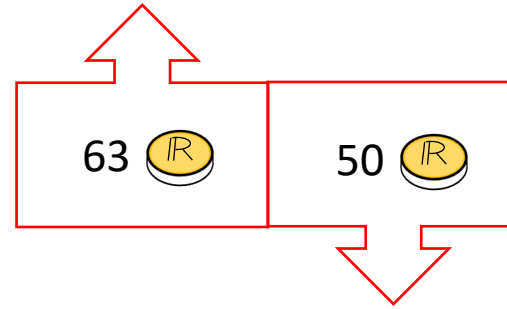


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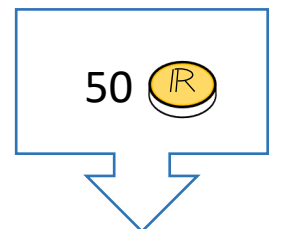
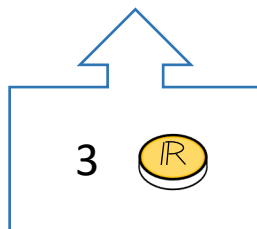
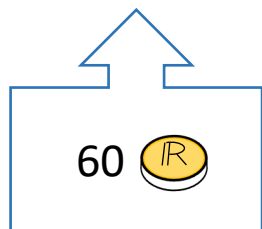
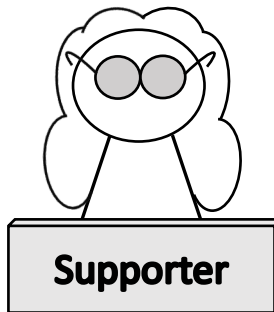
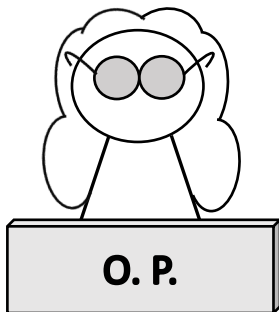
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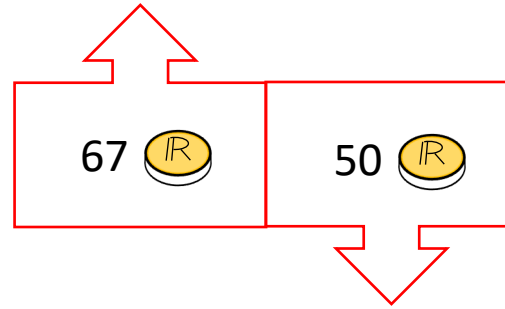
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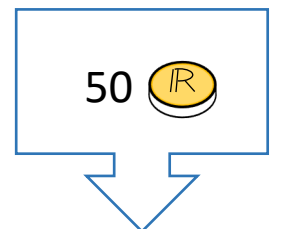
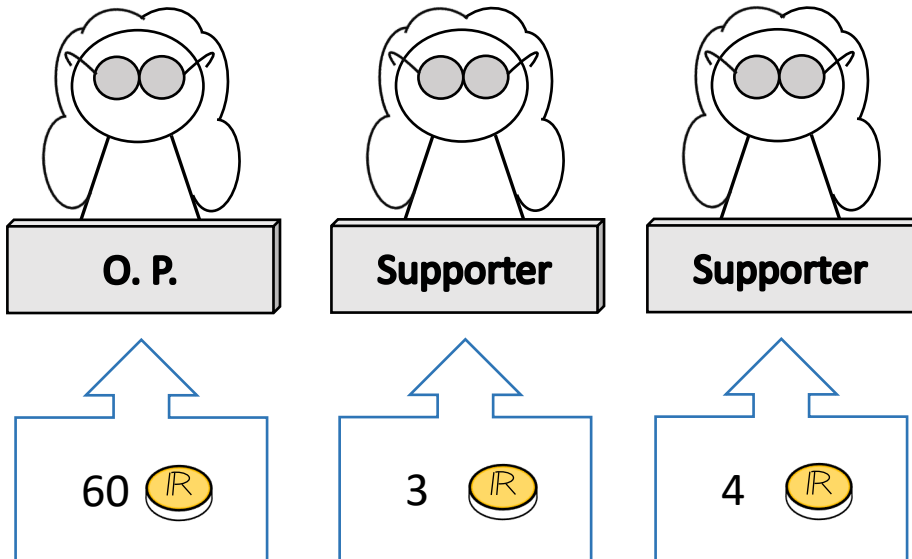
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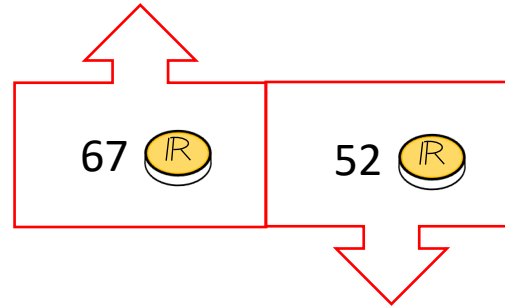
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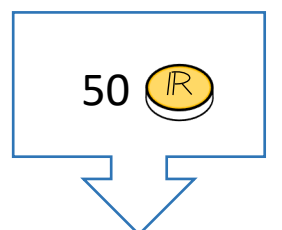
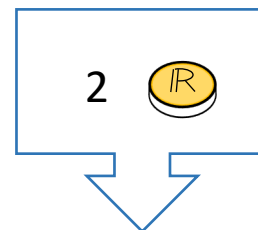
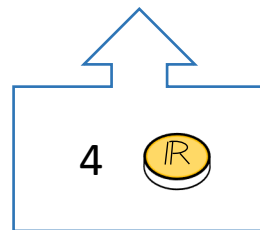
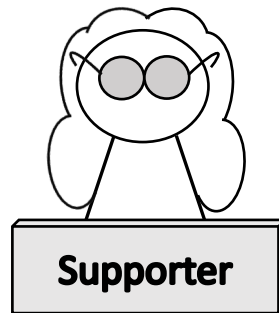
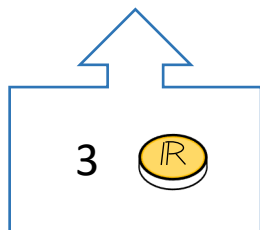
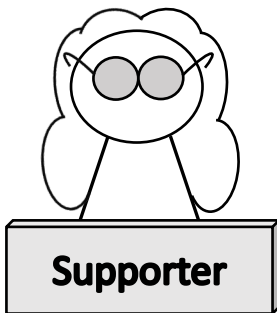
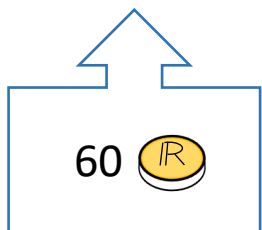
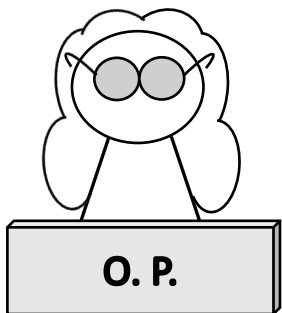
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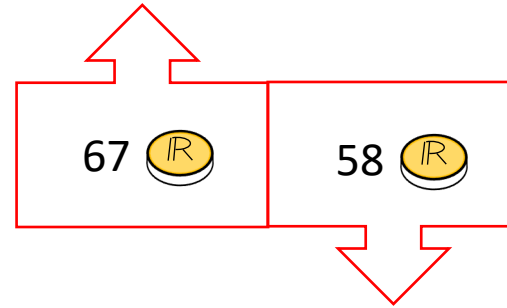




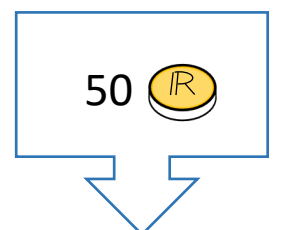
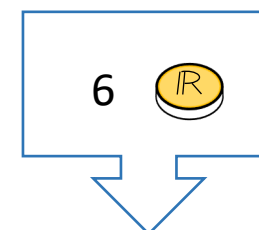
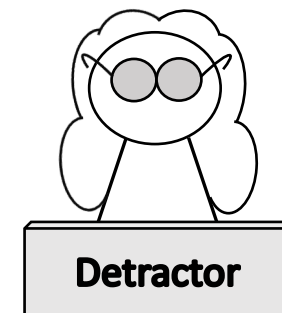
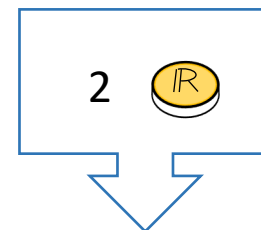
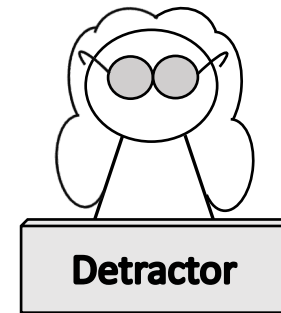
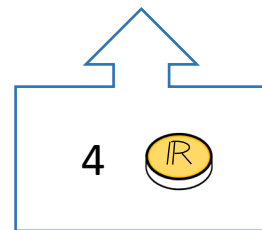
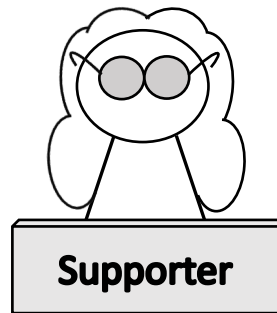
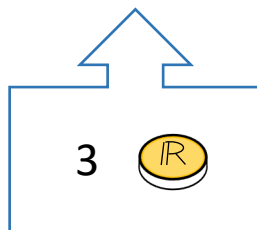
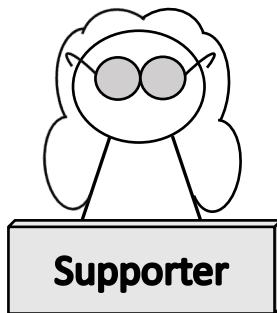
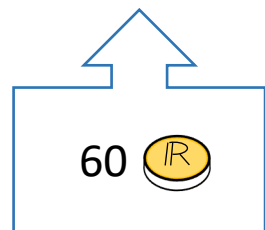
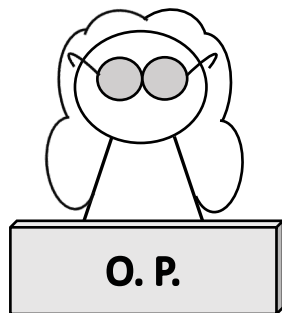
# Validation Pool

Betting pool on evidence of work post

Evidence  
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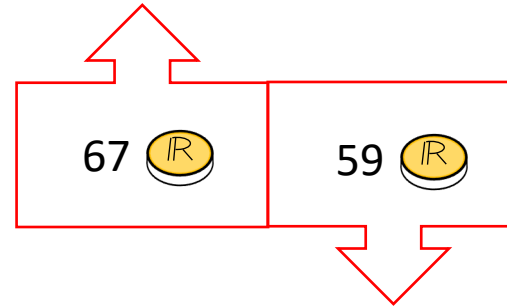
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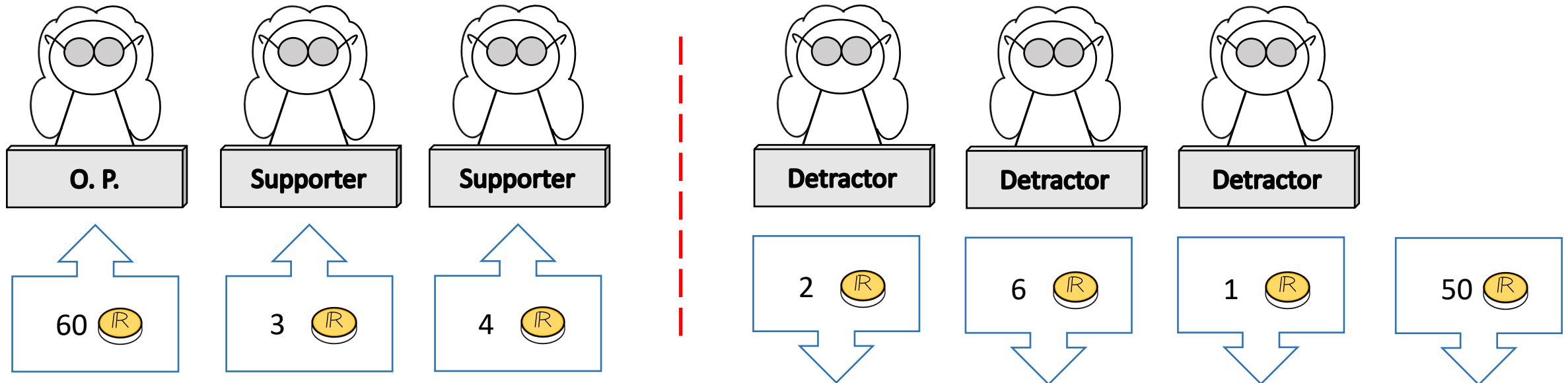
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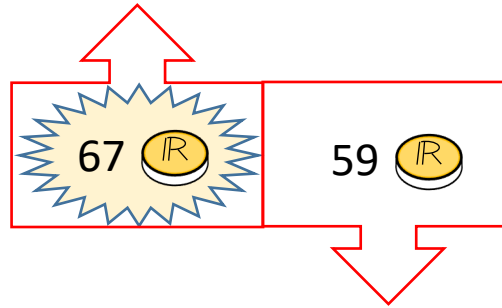
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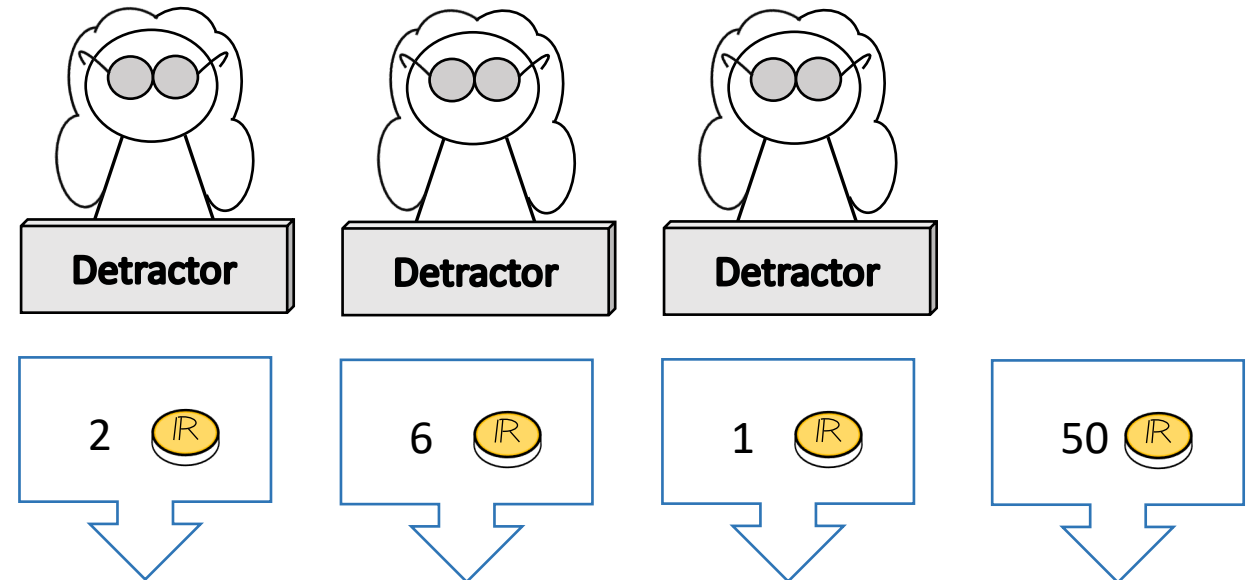
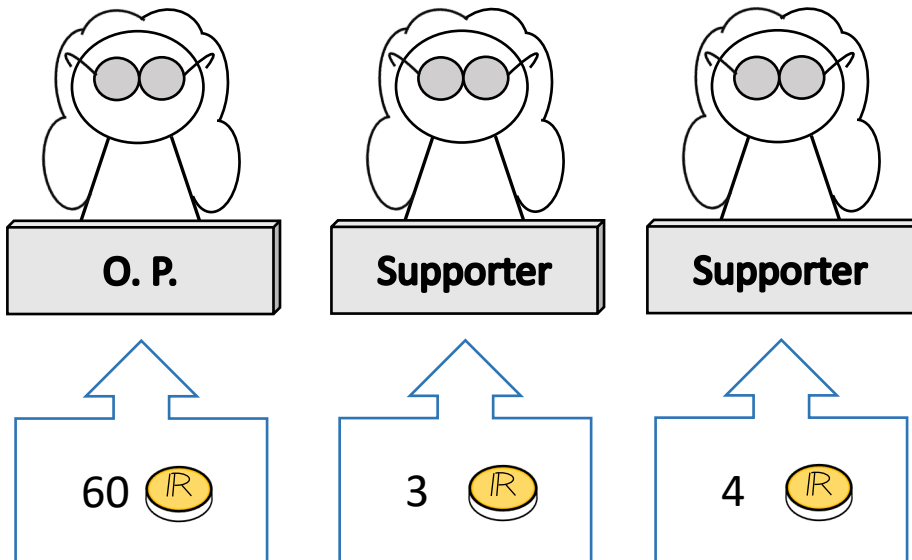
# Validation Pool

Betting pool on evidence of work post

Evidence  
of work

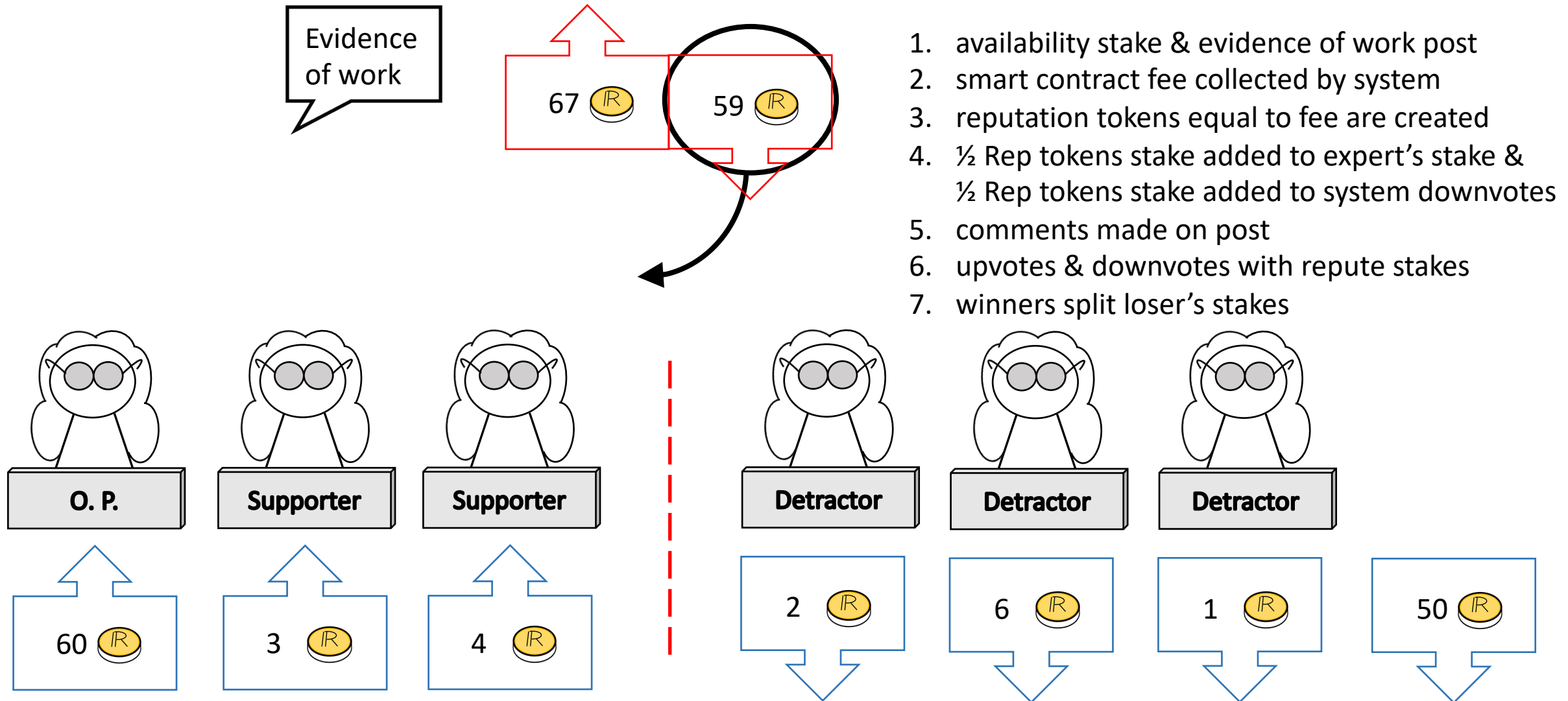


1. availability stake & evidence of work post
2. smart contract fee collected by system
3. reputation tokens equal to fee are created
4.  $\frac{1}{2}$  Rep tokens stake added to expert's stake &  $\frac{1}{2}$  Rep tokens stake added to system downvotes
5. comments made on post
6. upvotes & downvotes with reputе stakes
7. winners split loser's stakes



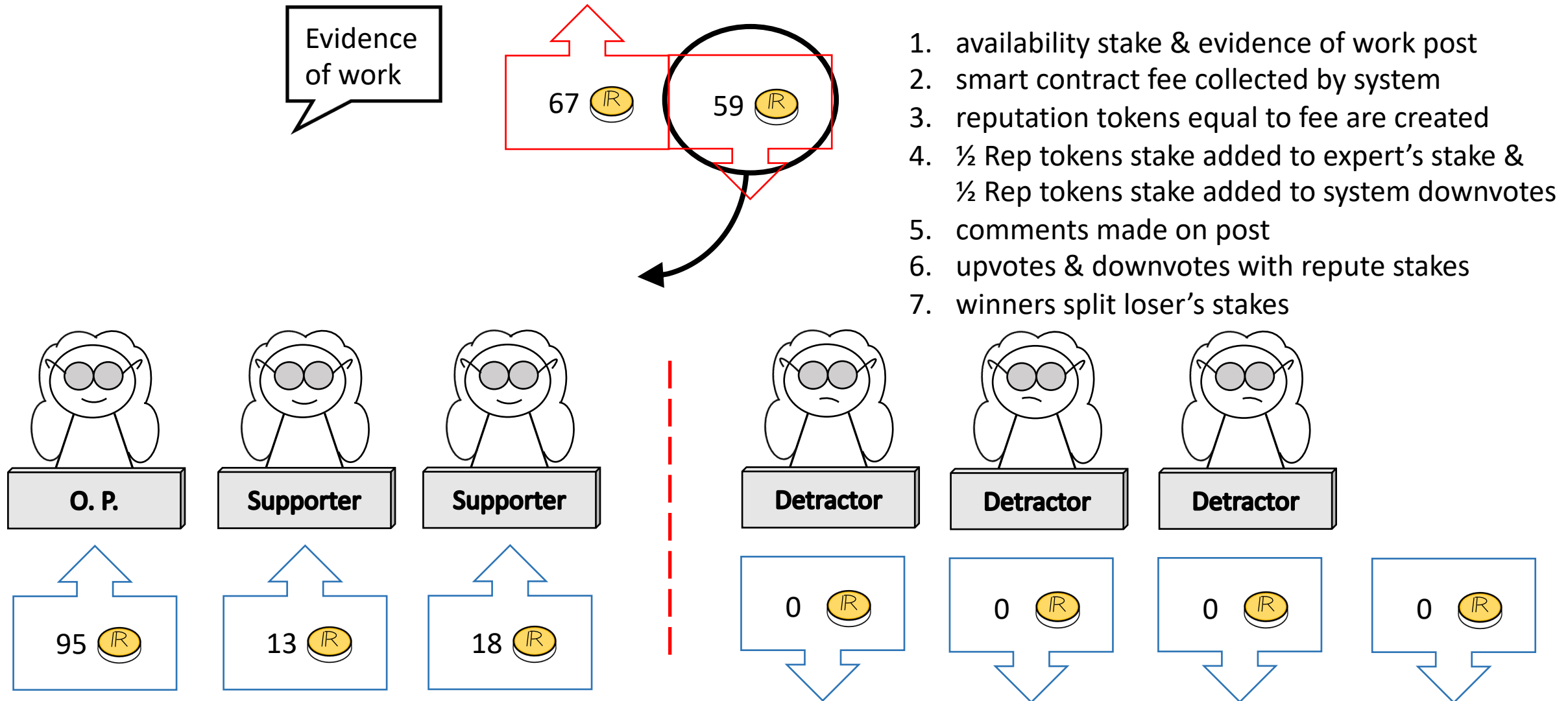
# Validation Pool

Betting pool on evidence of work post

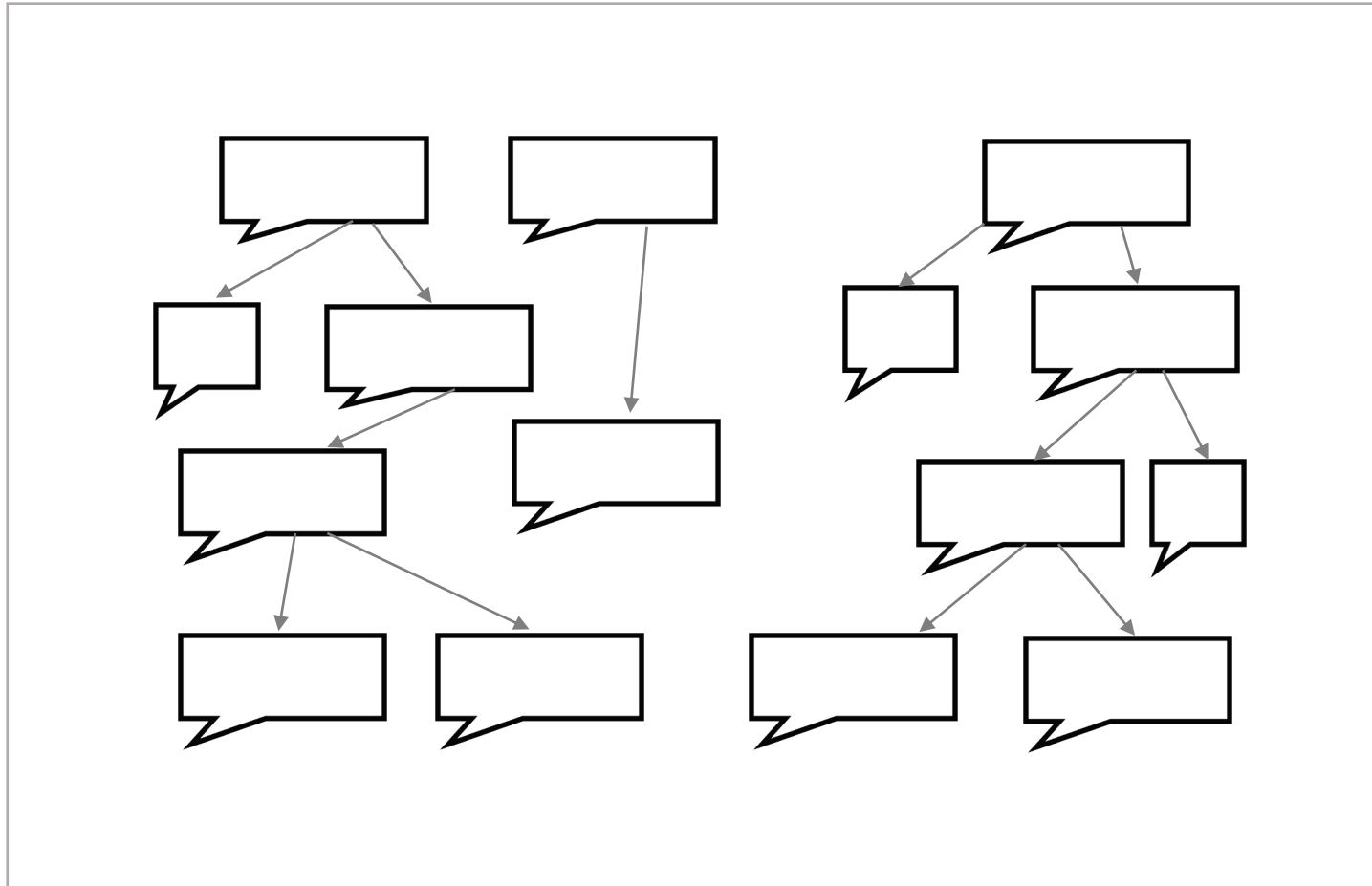


# Validation Pool

Betting pool on evidence of work post



# The Forum as a Weighted Directed Acyclic Graph (WDAG)

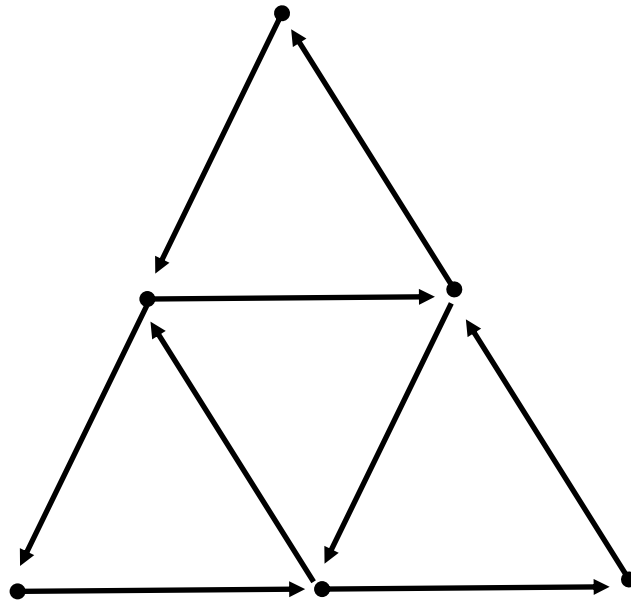




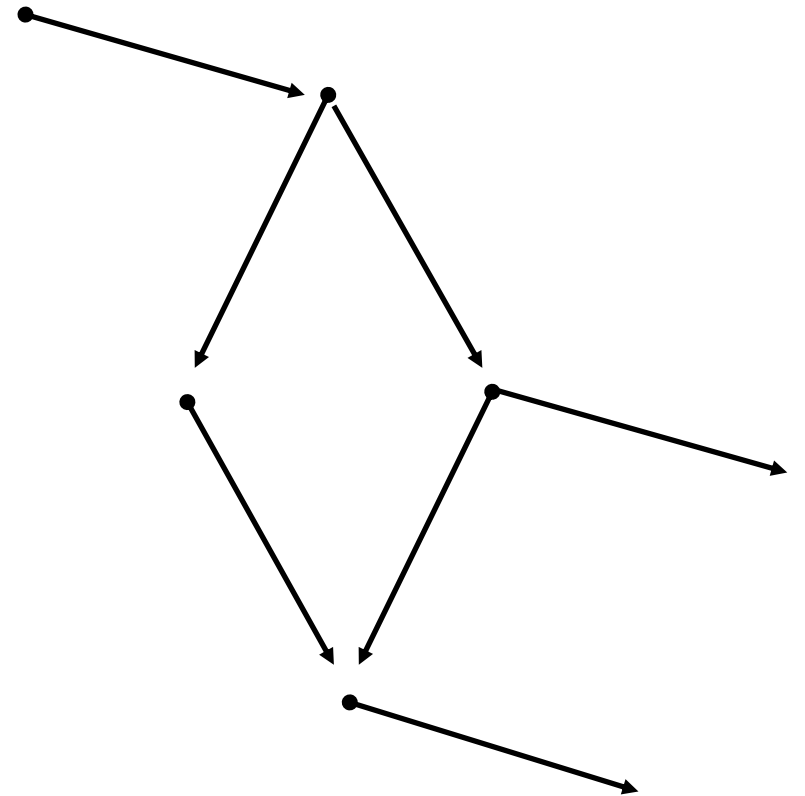
vertex/post



edge/reference



graph with cycles



DAG

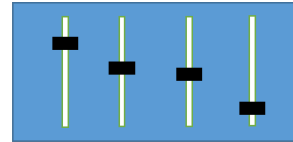


# PROBLEMS & SOLUTIONS

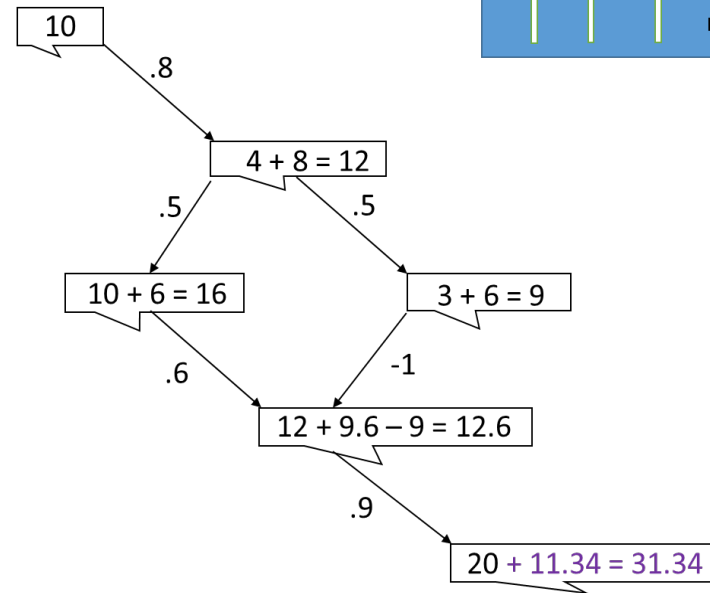
## Governing DAOs

18 basic parameters deciding  
how and when reputation  
tokens are minted and  
distributed and revaluated in  
review

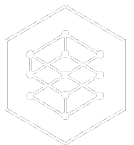
$$w_{4,5} = .8 \quad p_5 = 10$$



posts  $p_n$   
weights  $w_{n,k}$   
Total values  $t_n$



$$p_1 \quad t_1 = 31.34$$

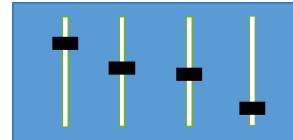
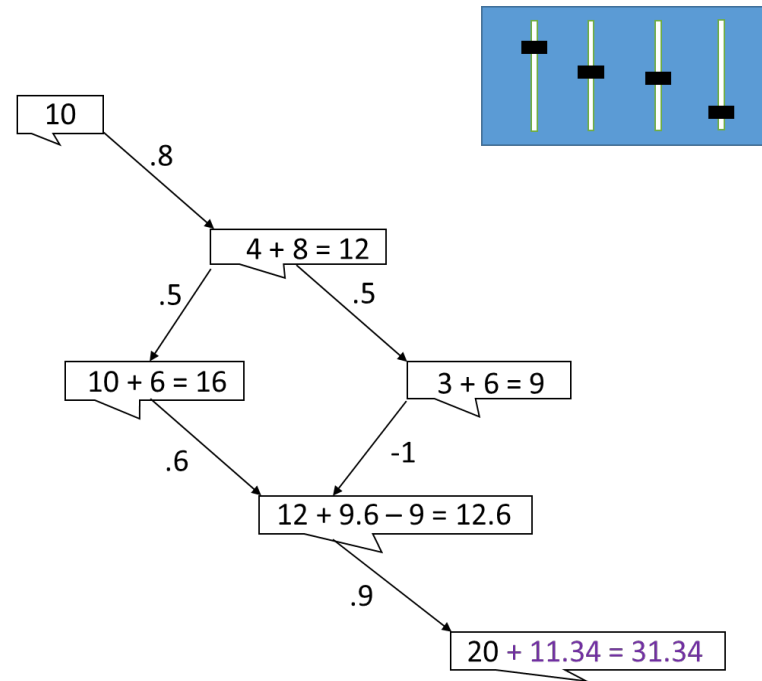


SEMADA





# PROBLEMS & SOLUTIONS



## Governing DAOs

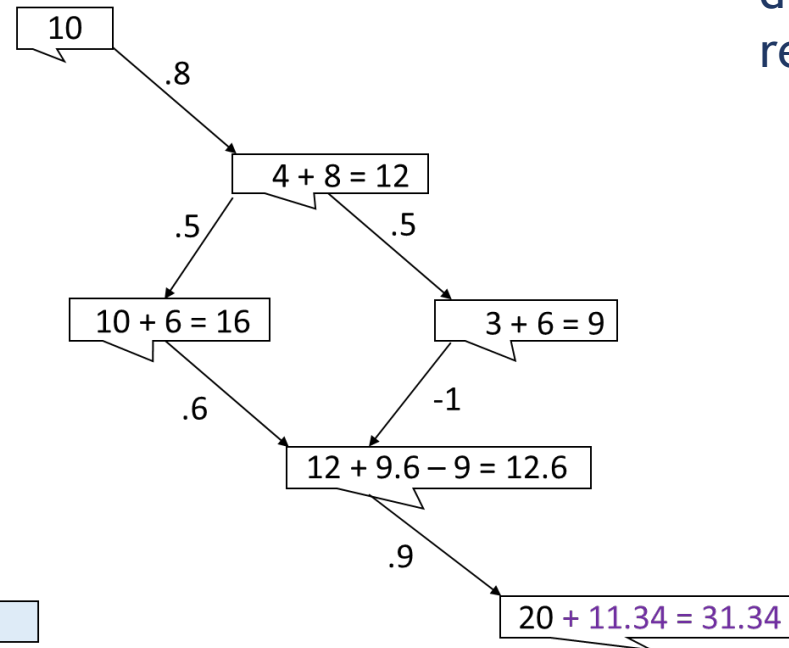
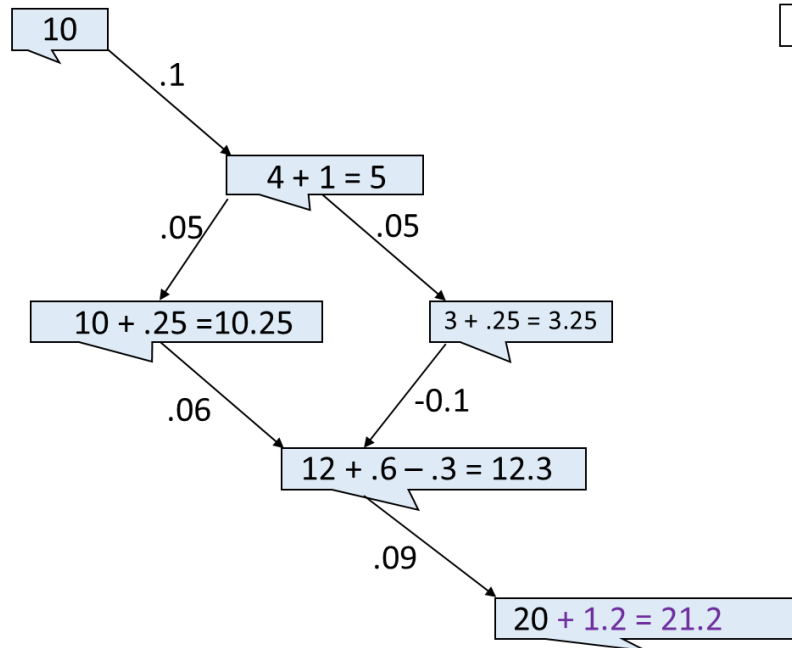
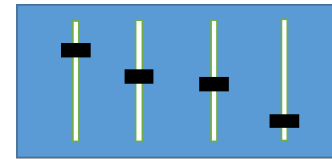
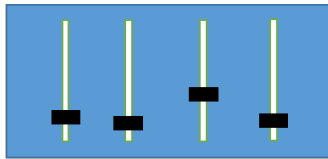
18 basic parameters deciding how and when reputation tokens are minted and distributed and revaluated in review



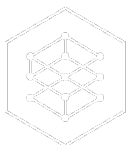


# PROBLEMS & SOLUTIONS

## Governing DAOs



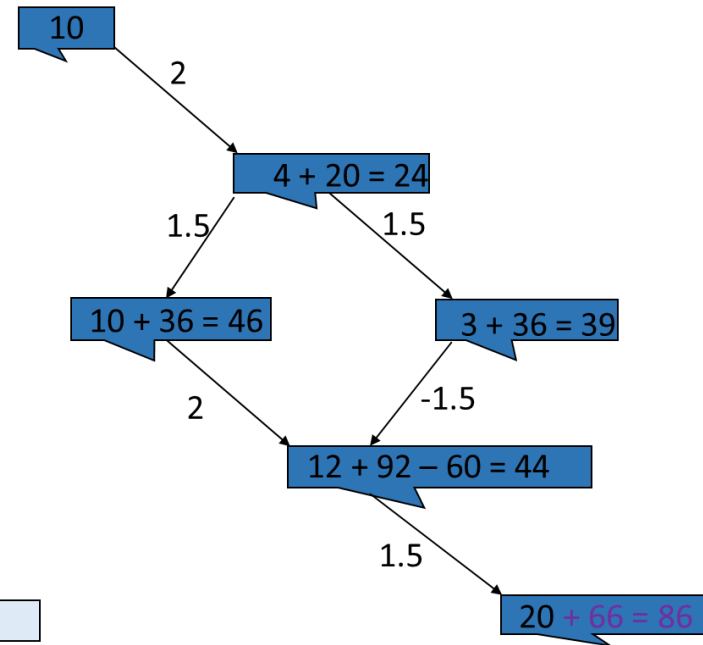
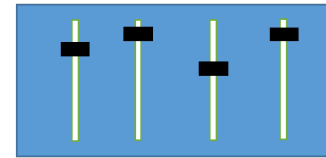
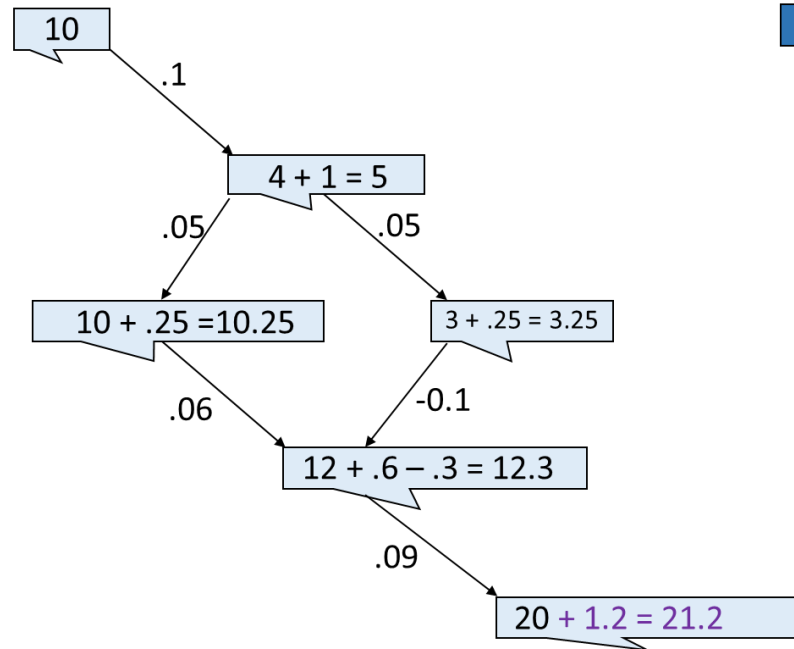
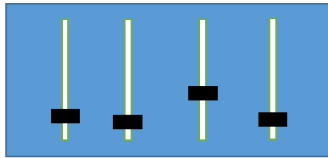
18 basic parameters deciding how and when reputation tokens are minted and distributed and revaluated in review



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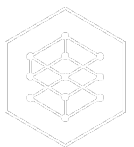


# PROBLEMS & SOLUTIONS



## Governing DAOs

18 basic parameters deciding how and when reputation tokens are minted and distributed and revaluated in review



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