

Freechains



www.freechains.org



github.com/Freechains/README



freechains@freechains.org



[@freechains_net](https://twitter.com/freechains_net)

peer-to-peer content dissemination

Reputation System

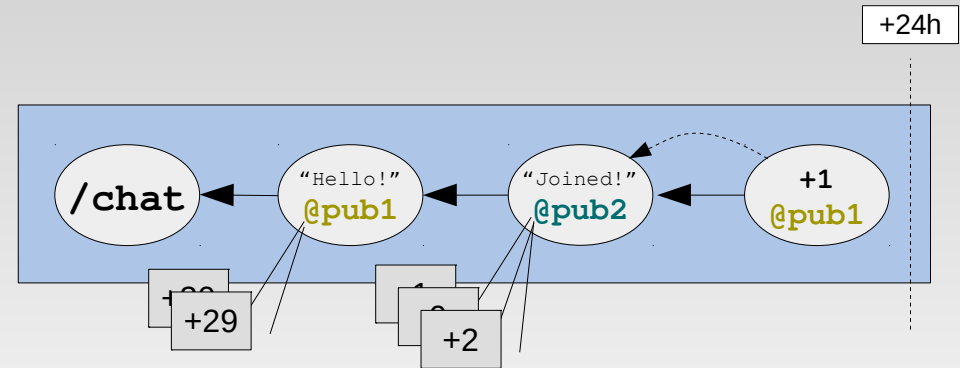
- Excess
 - restrict posts (quota)
 - appraise posts (likes)
- SPAM
- Fake
- Illegal
 - demand author reputation
 - account post reputation



- ✓ Fairness
 - Participants have equal opportunities to communicate
- ✓ Quality
 - Important messages are praised

Reputation System

- Likes & Dislikes → *reps*
 - Authors & Posts
- Create
 - First post → +30 *reps*
 - Consolidated posts → +1 rep
 - >24h, 1/day, 90 days, max +30 *reps*
- Spend
 - New posts
 - -1 source (requires +1 rep)
- Transfer
 - Likes and dislikes
 - -1 source / \pm target

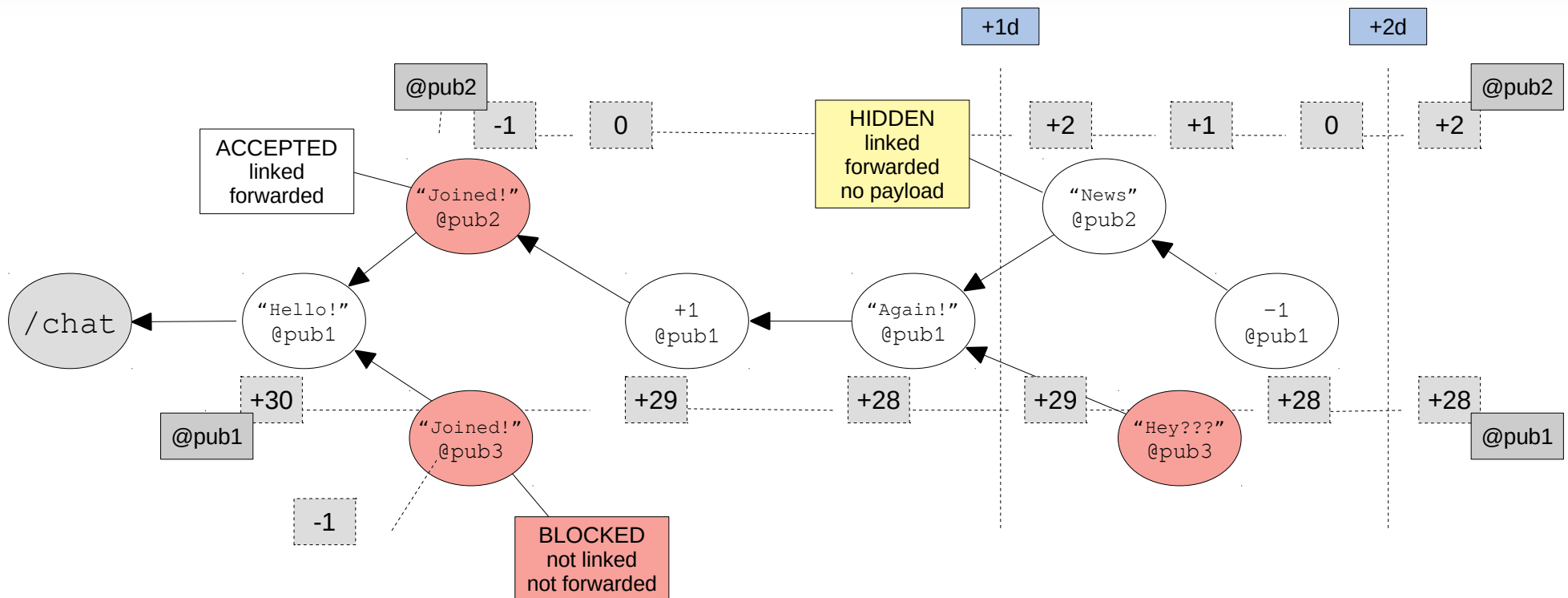
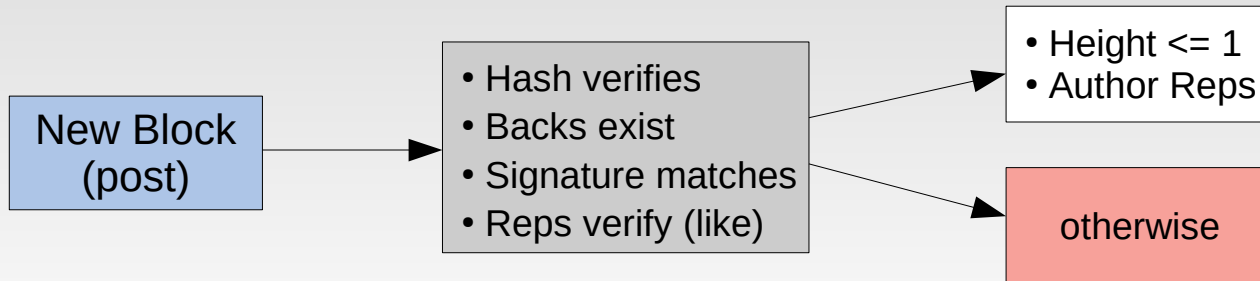


```
$ freechains chain post /chat "Hello!" --sign=pvt1
```

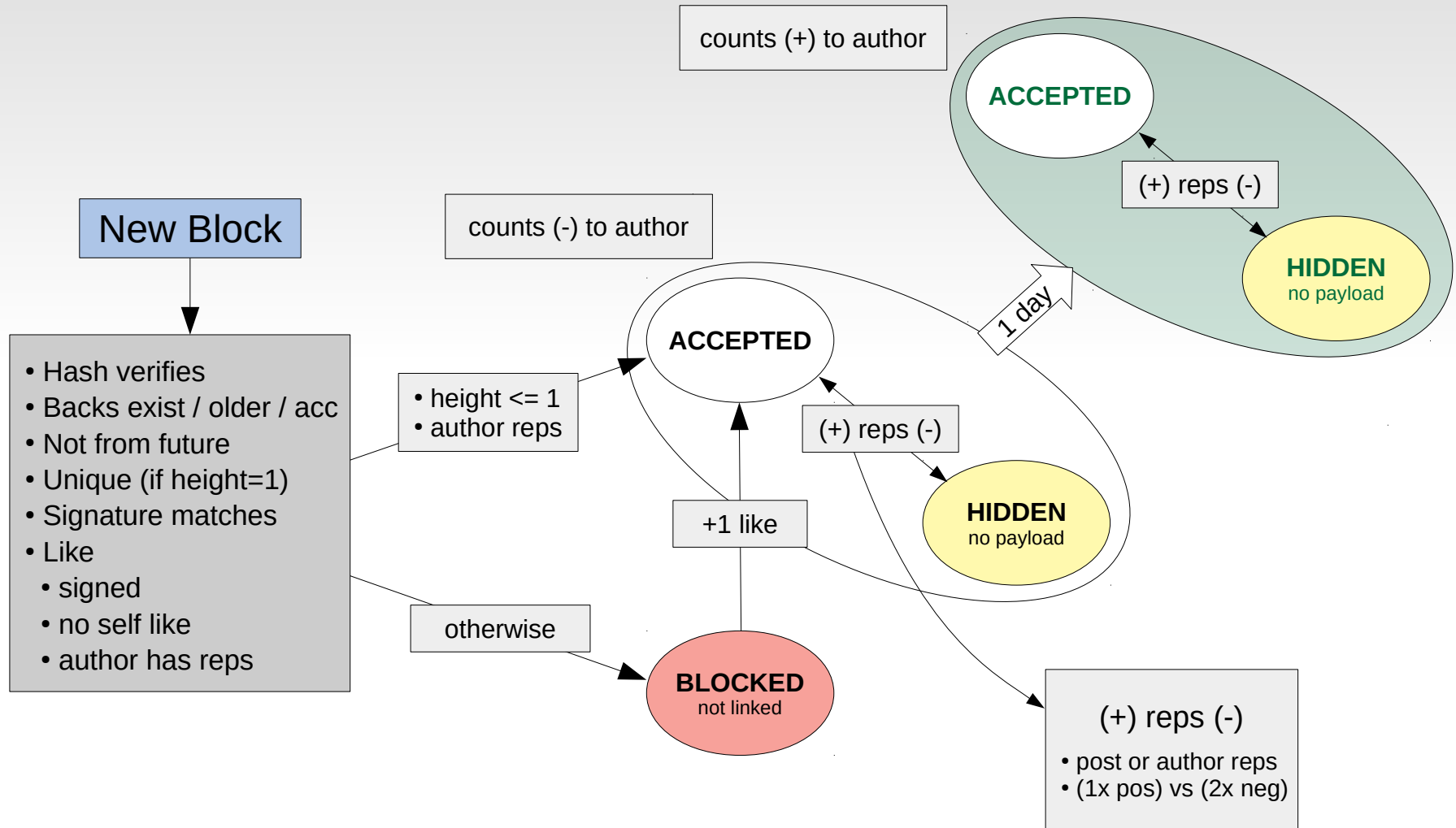
```
$ freechains chain post /chat "Joined!" --sign=pvt2
```

```
$ freechains chain like /chat 2_FFR8XZ --sign=pvt1
```

Reputation System

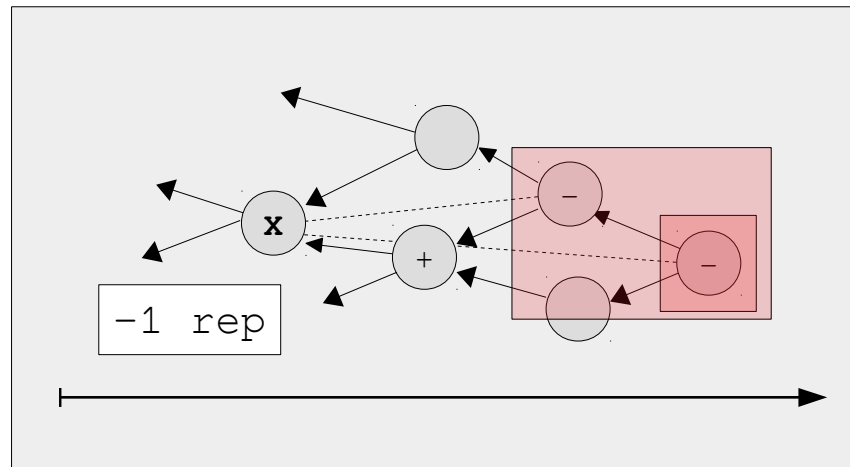


State Machine



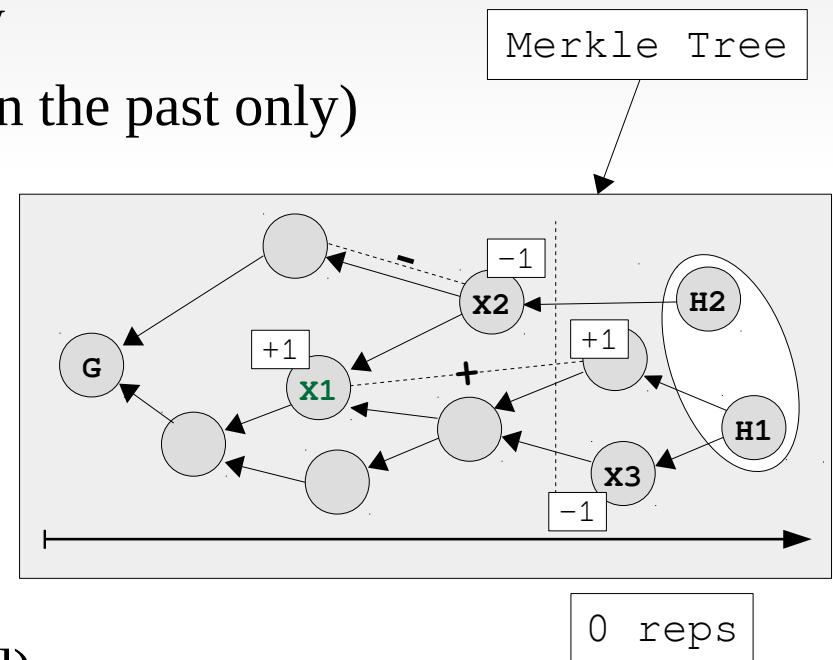
Post & Author Reps

- Post
 - counts its likes and dislikes towards heads
 - they lead back to liked block (directly or indirectly)
 - affects block perception
 - affects block state: *accepted* \leftrightarrow *hidden*
 - since depends on future, hosts may diverge temporarily



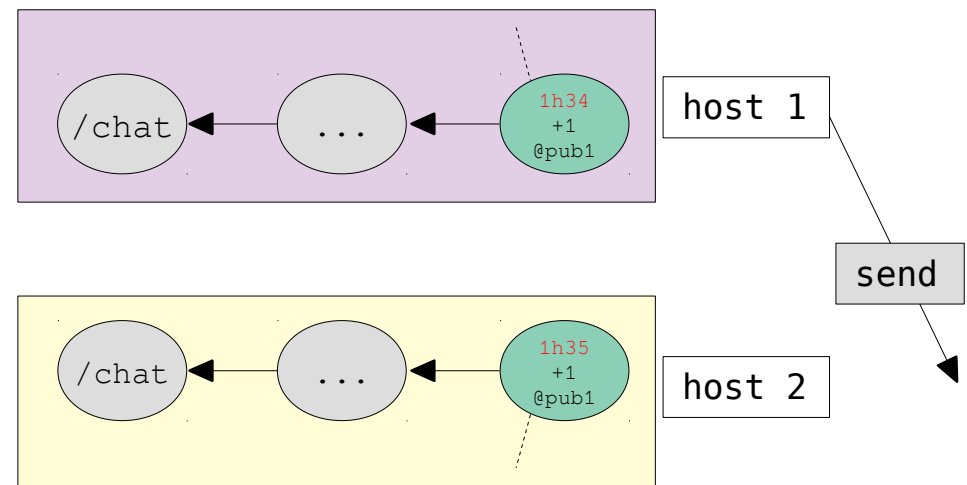
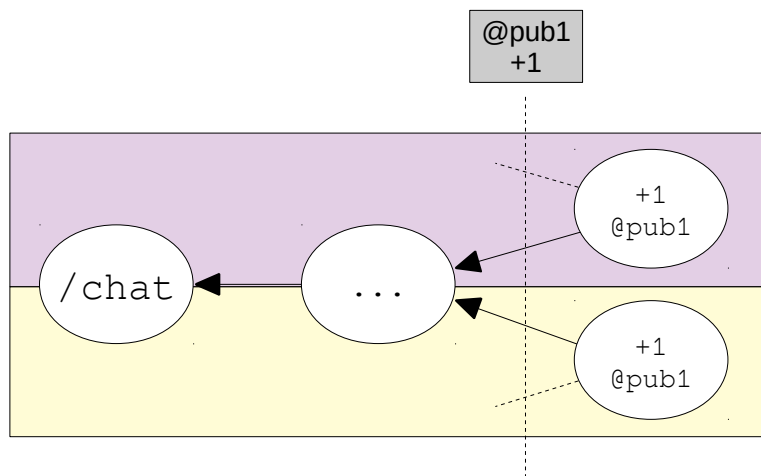
Post & Author Reps

- Author
 - counts chain past back to genesis
 - starting at specific block(s) only
 - same sum anywhere (depends on the past only)
 - sum of
 - + consolidated blocks
 - received +likes and -dislikes
 - given -likes and -dislikes
 - affects
 - new post (if blocked or accepted)
 - starts at previous author's block
 - new like or dislike (if allowed or not)
 - starts at chain heads



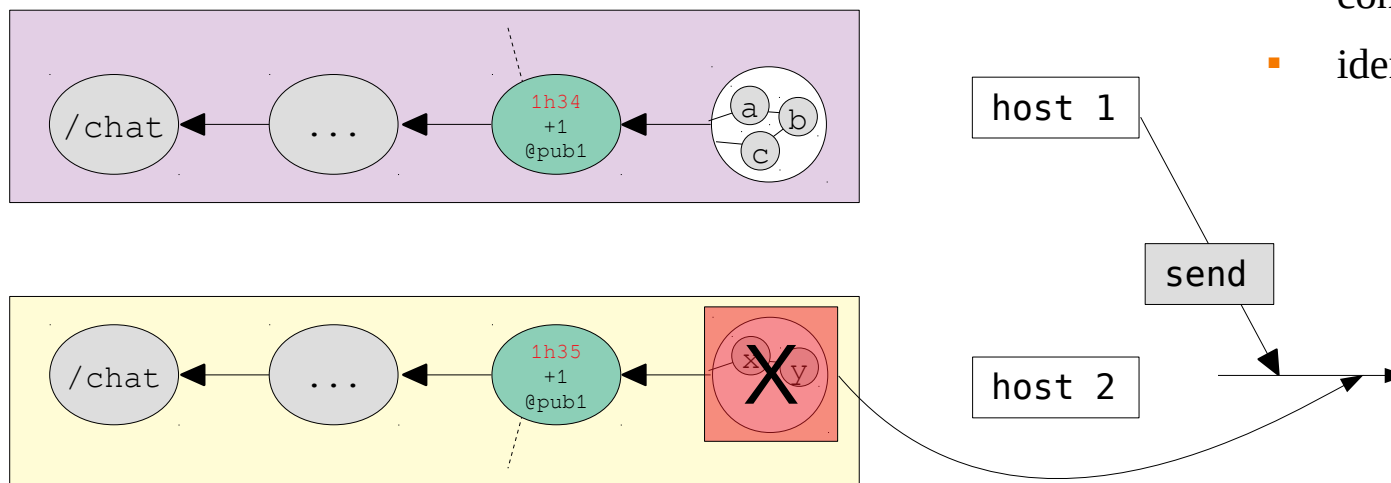
“Double spend”

- Chains are trees...
- ...but authors' posts must be linked lists
 - **it's their responsibility to maintain it**
 - **forks/merges: keep largest chain (more blocks)**



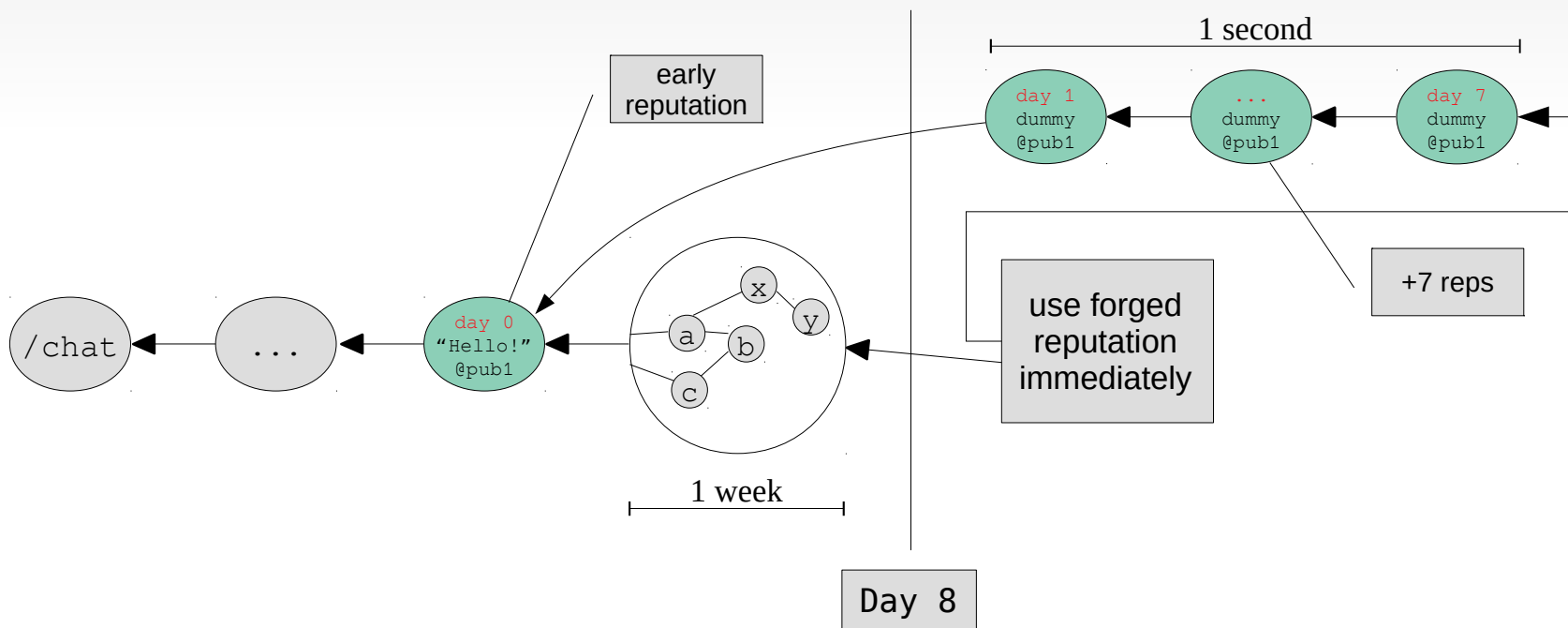
“Double spend”

- Chains are trees...
- ...but authors' posts must be linked lists
 - **it's their responsibility to maintain it**
 - **forks/merges: keep largest chain (more blocks)**
 - requires rework from authors (signatures)
 - previous reputation
 - significant forks
 - considerable activity
 - identify disconnection



Forging Reps

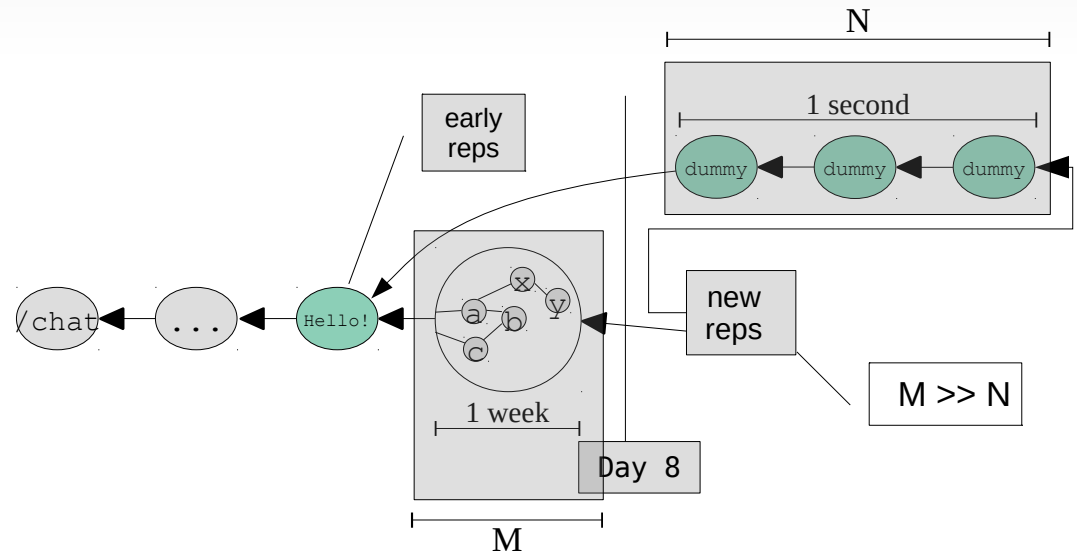
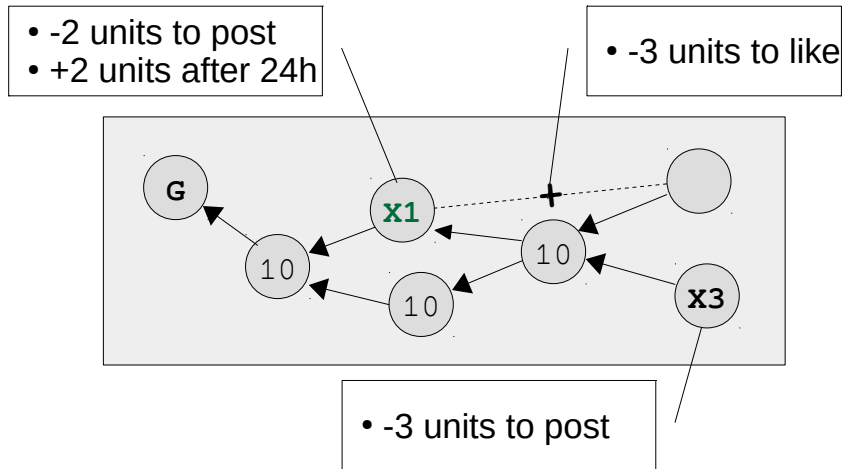
- Attacker forges a long fork to collect reps



Inflationary Reps

- Reputation value is adjusted as chain grows
 - from block back to genesis

$$rep = \lceil \frac{H}{10} \rceil \text{units}$$



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