Majeur: Receipt Futarchy and Prediction-Weighted Governance

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Abstract

Majeur is a minimally maximalized DAO framework built on top of a Moloch-style governor. Proposals are decided by standard token-weighted voting, but every vote mints tradeable ERC-6909 *receipts* that represent a conditional claim on a governance reward pot. After the proposal outcome is realized, only receipts on the winning side can be redeemed for a share of the pot. When the reward is paid in non-voting loot, Majeur acts as a participation and prediction incentive layer. When the reward is paid in voting shares, repeated correct prediction causes governance power to flow toward addresses that consistently back realized outcomes, a property we call *Prediction-Weighted Governance*.

1 Core Governance Primitive

Majeur keeps the base decision rule simple and familiar:

- Each proposal is identified by a hash of the intended call:

$$\texttt{id} = \texttt{keccak}(\texttt{dao}, \texttt{op}, \texttt{to}, \texttt{value}, \texttt{keccak(data)}, \texttt{nonce}, \texttt{config}).$$

- On first open, the DAO fixes a snapshot block $b-1$ and uses ERC20Votes-style checkpoints:

$$w_i = \texttt{getPastVotes}(i, b-1), \quad W_{\text{tot}} = \texttt{getPastTotalSupply}(b-1).$$

- For each proposal p, the contract maintains tallies (F_p, A_p, B_p) for `FOR`, `AGAINST`, and `ABSTAIN`.
- A proposal succeeds if:
  1. absolute and/or BPS quorum are met (turnout thresholds over W_{tot}),
  2. a minimum YES floor is satisfied, and
  3. $F_p > A_p$.

The governor is therefore a conventional snapshot-based majority system. Futarchy does not alter the state machine; it adds a payoff mechanism on top.

2 Receipt Futarchy: Vote Once, Trade the Outcome

2.1 Voting Receipts

When an address i votes on proposal p with support $s \in \{0, 1, 2\}$ (AGAINST, FOR, ABSTAIN), Majeur:

1. Reads voting weight at the snapshot:

$$w_i = \texttt{getPastVotes}(i, \texttt{snapshotBlock}[p]).$$

2. Updates the tallies (F_p, A_p, B_p) accordingly.
3. Mints an ERC-6909 receipt token

$$r(p, s) = \texttt{keccak}(\text{“Moloch:receipt”}, p, s),$$

with amount w_i to the voter.

These *voting receipts* are:

- fungible per (p, s) id;
- fully transferable (they are not marked as SBTs);
- the only way to access futarchy rewards: only voters mint them.

A voter may later call `cancelVote` while the proposal is still `Active`. To cancel, the contract requires burning exactly the original weight w_i of receipts *from the voter's address*. If the voter has transferred away any portion of those receipts, they must rebuy them on the market to regain the ability to cancel. Selling receipts therefore monetizes the claim on the futarchy pot but makes changing one's vote more expensive.

2.2 Futarchy Pools and Resolution

For each proposal p, Majeur maintains a futarchy configuration:

$$F_p = (\texttt{enabled}, \texttt{rewardToken}, \texttt{pool}, \texttt{resolved}, \texttt{winner}, \texttt{finalSupply}, \texttt{payoutPerUnit}).$$

Pools can be:

- auto-earmarked per proposal as a function of snapshot supply (via `autoFutarchyParam` in BPS or absolute units, with a per-proposal cap), and/or
- manually funded in ETH, DAO shares, non-voting loot, or a designated treasury token.

The reward token is chosen once per proposal and fixed thereafter. For minted rewards, the contract uses special sentinel addresses (e.g., a reserved address for “minted loot”) and mints at payout time.

Resolution ties the futarchy pool to the realized governance outcome:

- If proposal p is successfully executed, the YES side (s=1) is declared winner.
- If p is defeated or expires without execution, the NO side (s=0) is declared winner.

Let s^* be the winning side, $r^* = r(p, s^*)$ its receipt id, and

$$S^* = \texttt{totalSupply}[r^*], \qquad P = \texttt{pool}_p.$$

If $S^* > 0$ and $P > 0$, the contract sets:

$$\texttt{payoutPerUnit}_p = \frac{P \cdot 10^{18}}{S^*}.$$

Any address may then call `cashOutFutarchy` for proposal p, burning a units of r^* to receive:

$$\text{payout} = a \cdot \frac{\texttt{payoutPerUnit}_p}{10^{18}}$$

units of the reward token. Economically, this is a pari-mutuel pool: the pot P is split pro rata among holders of the winning receipts.

3 Prediction-Weighted Governance

When the reward token is set to non-voting loot, futarchy rewards act purely as an economic side-channel: voters who back realized outcomes accumulate more loot but no additional governance power.

When the reward token is set to DAO voting shares, Majeur implements a simple share-mining scheme:

- On each resolved proposal, new shares are minted only to winning receipt holders, pro rata to their voting weight on the winning side.
- Over many proposals, addresses that repeatedly vote with the realized outcome accrue more voting shares; those that consistently oppose realized outcomes are diluted.

Let x_i^t denote voter i's share balance after proposal t. If proposal t mints Δ_t new shares to the winning coalition W_t proportionally to their existing weights, then:

$$x_i^{t+1} = \begin{cases} x_i^t + \Delta_t \dfrac{x_i^t}{\sum_{j \in W_t} x_j^t} & \text{if } i \in W_t, \\ x_i^t & \text{otherwise.} \end{cases}$$

Over time, governance power drifts toward addresses that consistently back realized outcomes—a property we term *Prediction-Weighted Governance*. The decision rule remains token-weighted voting, but the token distribution becomes endogenous to prediction performance.

4 Incentive Properties

4.1 Participation Incentives

Because only voters mint receipts, any agent who wants exposure to futarchy rewards at minimal cost is incentivized to cast votes. Non-voters can only participate by buying receipts from voters. Each proposal becomes an instance of *governance mining* with a correctness filter: rewards flow only to those who took a side.

4.2 Incentives to Predict Outcomes

For a given proposal p and side s, the economic value of a receipt is approximately

$$\mathbb{E}[\text{payout} \mid s] \approx \Pr(s \text{ wins}) \cdot \frac{P}{S^*},$$

up to time discounting and risk. Rational voters who care about futarchy rewards are encouraged to:

- form beliefs about how the rest of the DAO will vote and whether the proposal will be executed;
- vote on the side they believe is most likely to be the realized outcome;
- adjust their position by trading receipts as information changes.

The requirement that a voter must hold their full original receipt balance to cancel adds an additional layer: selling receipts monetizes expected futarchy rewards but makes it more costly to change one's mind later. Receipts thus behave like bonds on one's vote, with market-priced flexibility.

4.3 Market Layer and Vote-Buying

Because receipts are fungible tokens, they can be listed on AMMs or order books. This enables:

- pure speculation on governance outcomes by non-voters;
- hedging (e.g., vote YES but buy some NO receipts);
- on-chain, measurable vote-buying schemes (e.g., "vote YES and sell me your YES receipts at price p").

Importantly, however, markets cannot directly override the decision rule: only governance token holders can cast and cancel votes, and tallies depend solely on snapshot weights, not on prices.

5 Limitations and Open Questions

Majeur is intentionally not pure futarchy: prediction markets do not decide policy; they reward being on the winning side of a majority vote. This has both advantages (compatibility with existing governance norms, simpler mental model) and drawbacks (strong token holders can still push through unpopular choices).

Key design questions include:

- choice of pot size, reward token, and auto-funding rules;
- long-run centralization risks when rewarding in shares;
- robustness to collusion and structured vote-buying using receipts;
- optimal UX for exposing receipt markets and futarchy data to voters.

6 Conclusion

Majeur preserves a simple, battle-tested governance core while introducing a thin but expressive futarchy layer: *Receipt Futarchy*, where each vote mints a tradeable outcome receipt that may share in a governance reward pot. When those rewards are paid in loot, the mechanism encourages participation and outcome-aware voting without altering control. When paid in shares, the system naturally implements *Prediction-Weighted Governance*, letting voting power flow over time toward addresses that repeatedly back realized outcomes.

In short: vote once, trade the outcome, share the pot.