Price oracle properties

Broad idea: Users provide intervals (lower and upper bounds) in which they believe that a true value lies. To the degree that these intervals are incoherent, Kleros jurors rule on a number of disputes, ultimately producing an output value. Note if all submissions are coherent, no Kleros rulings are required.

- Time grief: As all disputes are judged in parallel, the oracle is guaranteed to execute in time takes to perform a single dispute, including appeals. By repeatedly appealing a dispute, the attacker can perform a time grief that delays the result $O(log_2(\text{attacker resources}))$ time.

- Submitters are not penalized if the output of the oracle is in their interval.

    - If jurors rule correctly, then a submitter can only be penalized due to a dispute resolving incorrectly due to the dishonest party paying her fees and the honest party not paying her fees.

    - Any given submitter can assure that such a situation does not cause her to lose her deposit if she makes sure that required appeal fees are paid in at most $\lceil \log \frac{\text{attacker(s) resources}}{\text{deposit size}} \rceil$ many cases.

- User-tuned precision:

    - If a user submits an interval with the "true value" in it, to the degree that the jurors always rule "correctly," the output will be in the user's interval. Hence honest users that want a precise result can submit very precise intervals.

    - If a submitter provides a very large interval (that ultimately contains the output value), that submitter is not penalized, but their reward for providing a correct submission is correspondingly negligible.