Capitalizing on Market Manipulation with "Augmentation"

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Overview

Prediction markets (PMs) are difficult to manipulate, particularly when they are anonymous and competitive (as Truthcoin markets are). Attempts to knowingly distort the price must be done under paranoia: anyone who learns of the scheme (even a fellow schemer) can profit from anonymously un-manipulating. When barriers-to-entry for trading are low, any manipulative algorithmic-trader will open up profit opportunities for an anti-algorithmic-trader who tricks and robs the previous algorithm. Even if the manipulator is not un-manipulated by a rival manipulator, his (by-definition uninformed) trading activity increases the returns to informed trading and actually increases market efficiency.[1]

However, one specific type of manipulation is possible in all forecasting mechanisms (including all markets, prediction and otherwise): the self-fulfilling prophecy. This manipulation exploits the dual-role of a forecast as both aggregator and provider of information. In a PM, traders feed information into markets through their trades, and prices returned from those markets have an influence on consumption and investment decisions. If many believe in a startup, its financing costs may drop and odds of eventual success would therefore increase. Conversely, an unusual idea may never achieve financing at all, and thus never exist (remaining in a permanent state of non-success).

Truthcoin PMs allow users to create and profit from new markets. This ability can be used in a very specific way ("Augmentation"), which prevents the self-fulfilling manipulation and allows entrepreneurs to profit at the expense of manipulators.

Augmentation is the creation of a new market which simultaneously predicts the target outcome and any number of influential intermediate decisions . This allows for conditional predictions ("If X occurs, the probability of Y is 40%"), and allows the market to assess the relationship between decision and result as well as the marginal likelihood of an event (the probability given that all of the appropriate intermediate decisions are made).

[1] http://hanson.gmu.edu/biashelp.pdf

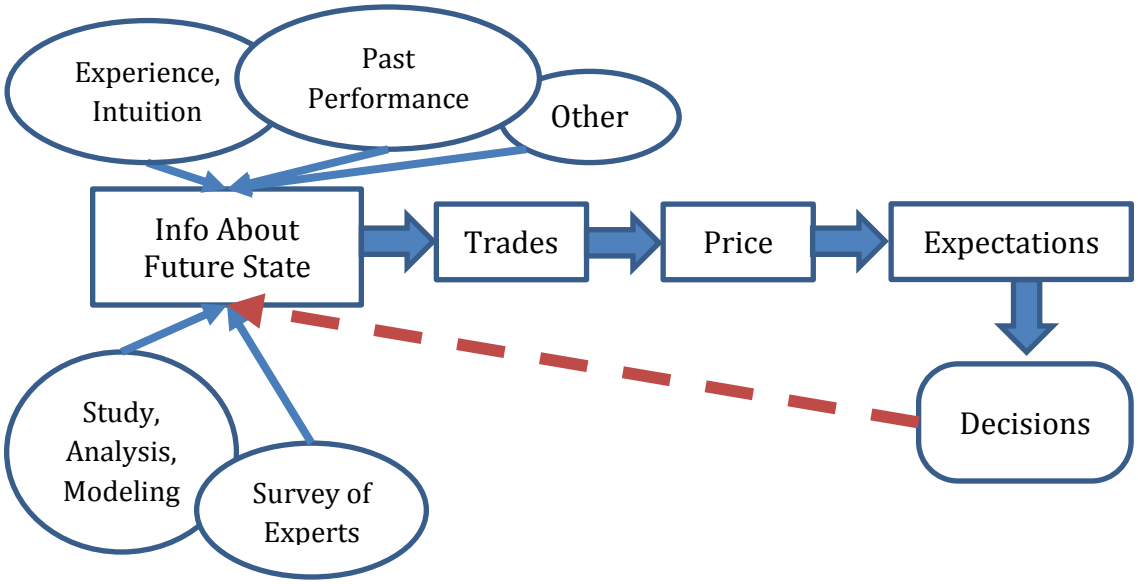
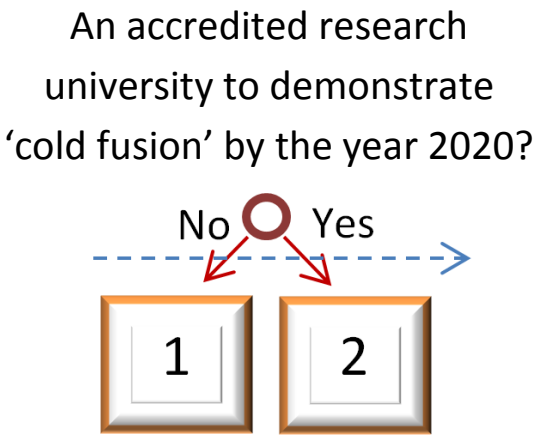
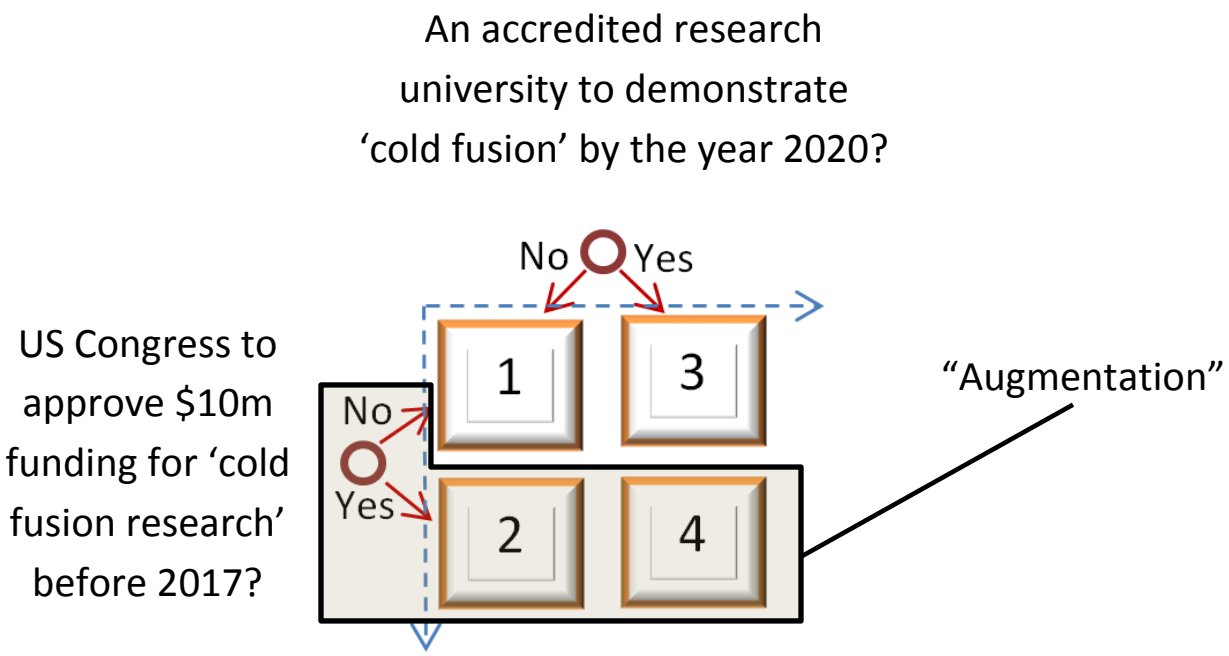


Figure 1. The flow of information through a Prediction Market, with private individual elements (ovals) contributing to public aggregations (rectangles). All PMs aggregate information in the hopes of providing accurate expectations and better decisions, but some PMs have an 'endogenous price' if a market price can influence its own future outcome (red, dashed arrow). This can only happen when the expectations produced by the market price on a given day will affect intermediate (between that day and maturation) and influential (having an effect on the event) decisions.

Example: Research and Funding



Market 1 (Un-augmented). Suppose that an individual, wishing to prevent the rise of cold fusion, has bet on State 1 (bringing the price up to, say, 80%), knowing that Congress (and others) will deny funding for a project with a low chance of success. When the required research goes unfunded, the technology is never developed, and the manipulator not only prevents the rise of cold fusion, but profits by selling his State 1 shares for 100% each.



Market 2 (Augmented). A 'protector-entrepreneur' (PE) may create this Market to more accurately capture the underlying uncertainties and attract Traders who are wary of manipulation. The prices of this Market could tell a different story, for example 79%, 1%, 11%, 9%, (for States 1, 2, 3, 4) would reveal that, if funded, the likelihood of cold fusion demonstration within 5 years is 90% (.09/(.01+.09)). Research patrons would then see the likeliness of the anticipated merits of the research, leading to its funding and the probable discovery of cold fusion. Before creating this Market, the PE can actually take advantage of Market 1's incorrect prices. After creating this Market, the PE enjoys the resultant trading fees (Traders would leave Market 1, as it is dominated by Market 2, new Traders who disagree about the relationship between decision and outcome are invited into Market 2, speculators enjoy a more liquid market, etc.).

Problem	Possible Augmentation(s)
Corporation X to have Q1 profits exceeding $1 million. (Corporation X would have these profits, but cannot prove this to financiers/lenders).	+Corporation X to borrow at a Y% APY cost of capital (or lower). +Corporation X to successfully float $Z in bonds by date D.
Technology X to be demonstrated within 5 years. (Technology X is more feasible than most suspect, and would be easily discovered with research effort).	+Congress to approve $Y in funding for Technology X by date D. +A private company to allocate $Y in funding for Technology X by date D.
Congress to successfully reform the current income tax system to System X. (Congress would reform the tax, but individual Congressmen feel it is a waste or politically dangerous use of their effort).	+Congress to pass a nonbinding resolution favoring System X. +Congress to remove Feature Y (the smallest unpopular feature) of the current income tax code. +President to make public speech indicating that a System X bill would be signed.
Candidate X will win the general election. (Candidate X does have a change of winning, but cannot prove his electability).	+Candidate X to win the party nomination. +Candidate X to appear on televised debates. + Candidate X to place Y or above in the AMES Straw Poll. + Candidate X to hold a rally in Ohio attracting +100,000 voters. +Candidate X to place Y or above in total campaign contributions for Month Z.

Table 1. Other examples. In general, Augmentations will be versions of the Problem-Market which are more specific and achievable, and occur earlier in time. This is because augmentations must still be probable under a climate of doubt and disunity.