

Naturalism and the social structure of science

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145 Philosophy of Science

Class 17, 27 May 2008

David Hull: *Science as a Process* (1988)

- success of science originates from beneficial interaction bw reward structure for individual and goals of sci as whole (cf. “invisible hand” structure, Kuhn)
- sci as combination of cooperation and competition
- most relevant form of recognition: **use** (Merton: priority)
- reward system of sci operates in inherited context, particularly in system of cooperation and trust
- scientists trade credit for support
- sci change as evolutionary process of variation and selection: ideas compete in a struggle for replication

- Laudan, Lakatos: rational choices by **individuals**
- but: what's the optimal *macro*-distribution of resources?
- not optimal: allocate all resources to most promising research program (RP), rather: “bet-hedging”
- problem of decreasing marginal return: each additional worker makes less and less contribution to success of RP
- Question: what kind of individual reward system will tend to produce the most beneficial macro-distribution of resources?

- ① Give fixed reward to everyone working in the ultimately successful RP, independently of how many workers there are in this RP \Rightarrow all eggs in one basket, bad!
- ② Reward only individuals in ultimately successful RP, but divide pie equally among all workers \Rightarrow reward of individual also depends on choices of others
 - much better because if RP is overcrowded, individuals have incentive to join alternative RP
 - problem (Strevens): may be most beneficial for individual to join promising RP without contributing much (would have contributed more in alternative RP) \Rightarrow “free-riding” is encouraged
- ③ (Strevens) Allocate rewards to individuals proportional to their contribution to successful RP, i.e. pie is shared **unequally** among workers in successful RP