Mathematical representation

The model traits

* A - Indicator trait: A is a non-negative real value, representing the trait an individual actual capability is. It will be copied with a varying accuracy by copiers.
* B – Semantic trait: B is a non-negative real value, representing a trait in the domain of the indicator trait, that with a certain bias and accuracy will be copied by copiers.
* R– Social rank: R is a value between 0-1, representing the rank of the individual amongst society. The higher the rank, the more prestigious the individual. R is a function of clientele size and rank.
  + Cs - Clientele size: the number of clients copying from the model
  + Cr – Clientele rank: the mean rank of the clientele
* P – prestige score: P is the absolute score of the model. It’s a function of both A and R. Naturally the higher A and R are, the higher P is.
  + α - the weight of A in the P equation
  + ρ - the weight of R in the P equation

The copier traits

* Ea - Indicator copying error: Ea is a non-positive real value, representing the deviation from the model’s copied indicator intended trait.
* Eb – Semantic copying error: same as Ea, but regarding the deviation from the model’s semantic trait.
* Fpt(Pm,Pc) – Prestige tolerance: Fpt is a function that, given a prestige score of model m Pm, and a score of copier c Pc, returns its compatibility with the copier. Compatibility could be negative or zero and could be normalized to remain in the range: -1<=Fpt<=1.

Modeling concepts

* C – cost: a currency to spend in order to copy a trait.
* F – fame: a substitute for fitness. The concept is similar, but instead of number of reproducing offspring, it’s the number of influenced models
* There are two options for computing the components of the trait vector of the copier (A,B):
  + The first would be the mean of all the models, weighted by their tolerance (Fpt)
  + The second would be to inherit only from a single model, who is the most compatible (highest Fpt value). If there's more than one they could be averaged.

Equations

The following equations are relevant for model i and copier j:

* Ri = Csi\*Cri
  + computing the social rank of an individual
* Pi = αi\*Ai + ρi\*Ri
  + computing the prestige score of an individual
* (Am,Bm) = Σi [Fpt(Pi,Pj)\*(Ai,Bi)]/n
  + Computing the mean value of the traits of all the models weighted by copier j tolerance
  + Computing F (fame) in this model could be done by setting a threshold of tolerance and count only the copiers in which the model compatibility was higher than the given threshold
* (Aj,Bj) = (Am + Eaj, Bm + Ebj)
* m = # { Max [Fpt(Pi,Pj)] for all i }
  + Optional approach to compute (Am,Bm) - inheriting the trait vector of only the most compatible model