FoodThought

Seamless money allocation manager

Components

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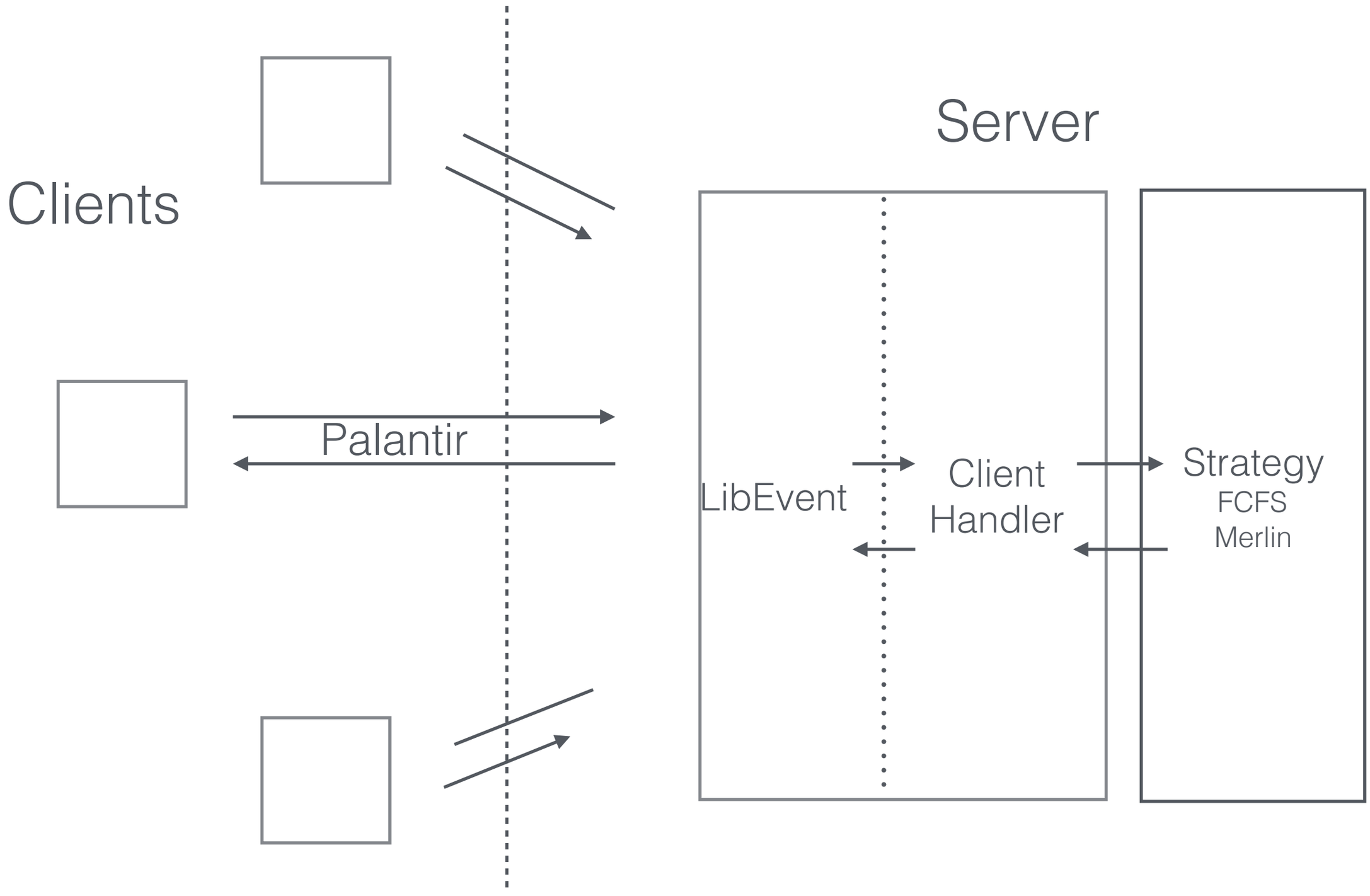
- Boost

Architecture



StrategyBase

```
 9   class StrategyBase
10   {
11      public:
12         ~StrategyBase() {  }
13
14         // returns false only if we tried to add a client and couldn't.
15         // return true if the name if already present
16         virtual bool addNewClient(const std::string& name) = 0;
17
18         // shutdown/cleanup function to be called at the end. (against RAII)
19         // This can't be put in the destructor because it is part of the static
20         // class which gets destroyed at the end of the overall process. At that stage
21         // things like logger and others are not present
22         virtual bool shutdown() = 0;
23
24         // onTimeout callbacks from server
25         virtual void onTimeout() = 0;
26
27         // queries the amount of money available in the global pool
28         std::string virtual query() = 0;
29
30         using RequestReturnType = std::tuple<bool, std::string>;
31         using DonateReturnType  = std::tuple<bool, std::string>;
32
33         // For request - tuple's first argument tells whether request was successful or not.
34         //      - if successful, a string of who helped and by how much
35         //      - if not, reason (usually no money, or unknown name)
36         // For donate - tuple's first arguments tells whether donation was succssful or not.
37         //      - if successful, string argument to be ignored
38         //      - if not, reason (usually unknown name)
39         virtual RequestReturnType request(const std::string& name, double amount) = 0;
40         virtual DonateReturnType donate(const std::string& name, double amount) = 0;
41   };
```

FCFS

FCFS

- First Come First Serve

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- Global pool

FCFS

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- Unfair

Merlin Strategy

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  - F1 = Time elapsed (γ, T)
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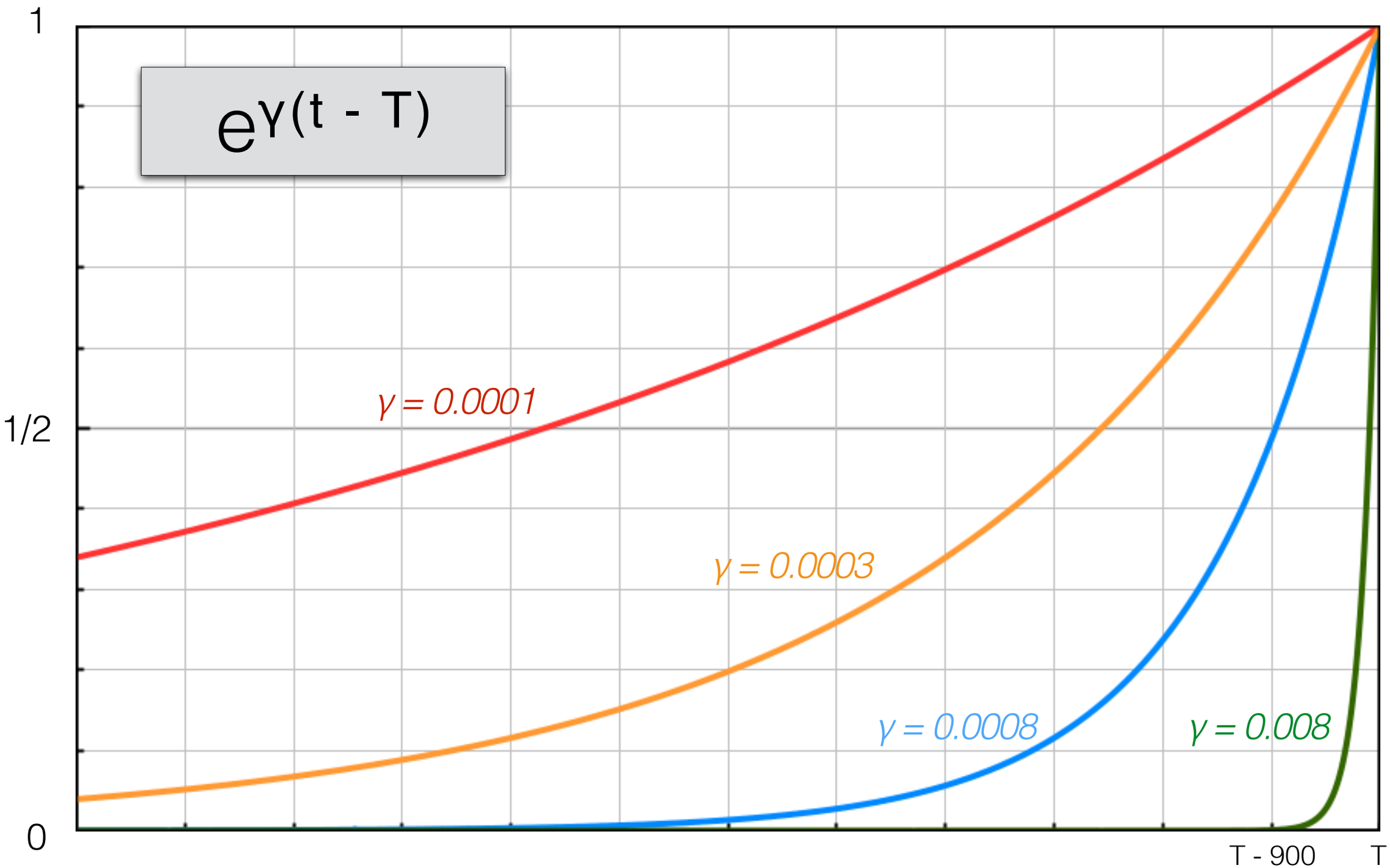
- Random numbers by Mersenne Twister

Time Factor

$$e^{\gamma(t - T)}$$

Time Factor



https://graphsketch.com

```
std::min(1.0, a + n(n+1)/2 * d)
```

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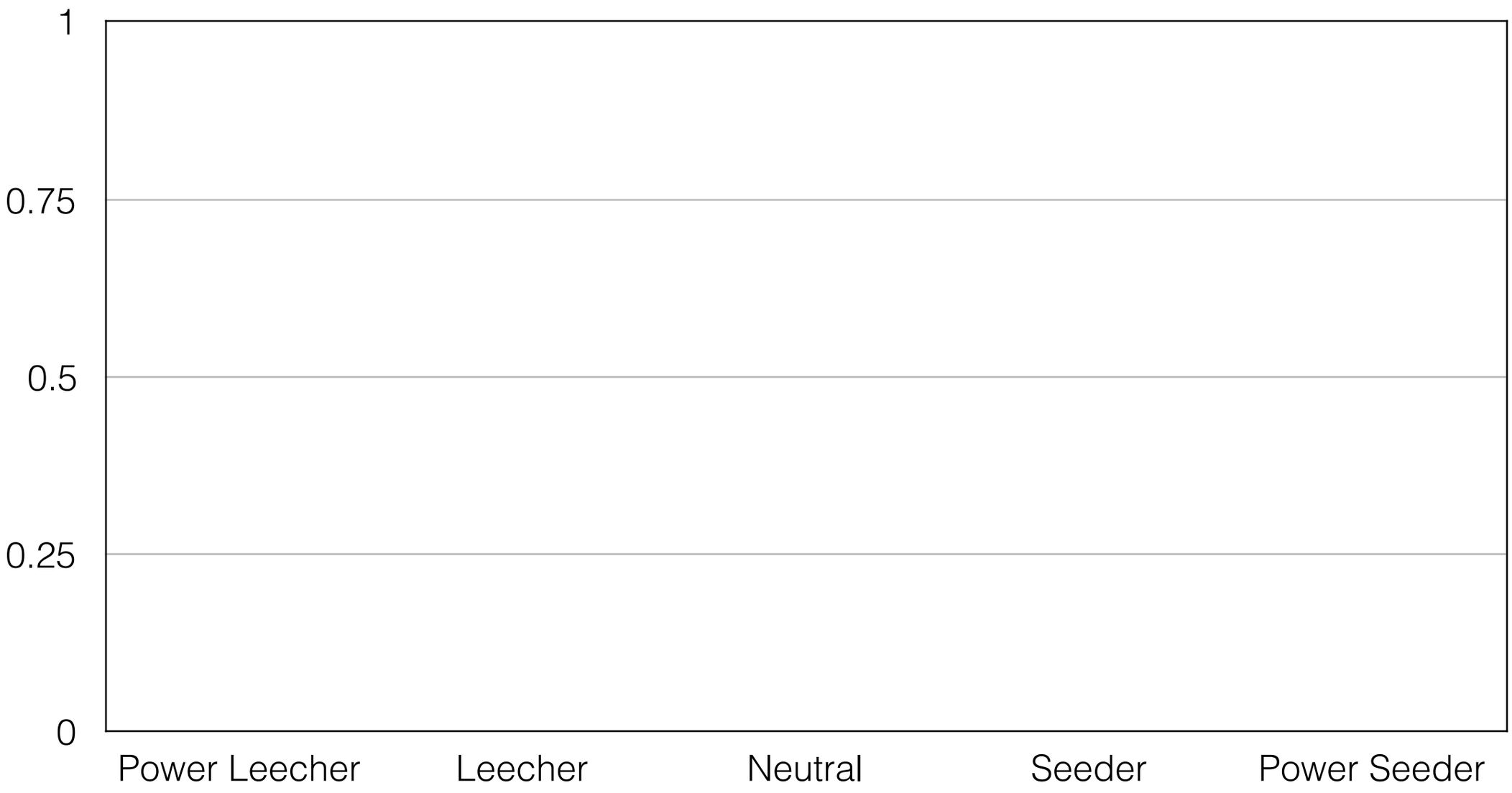

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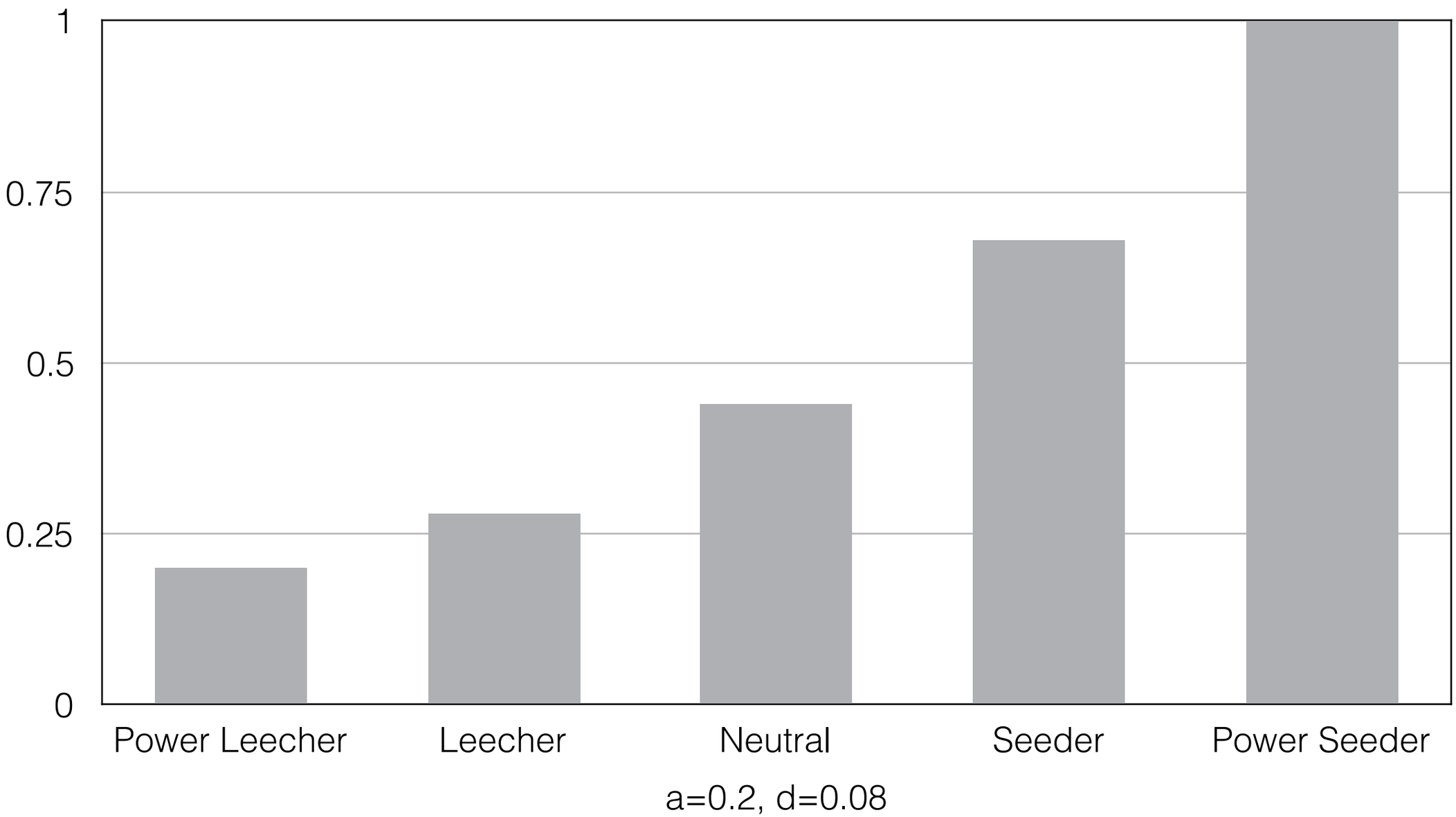

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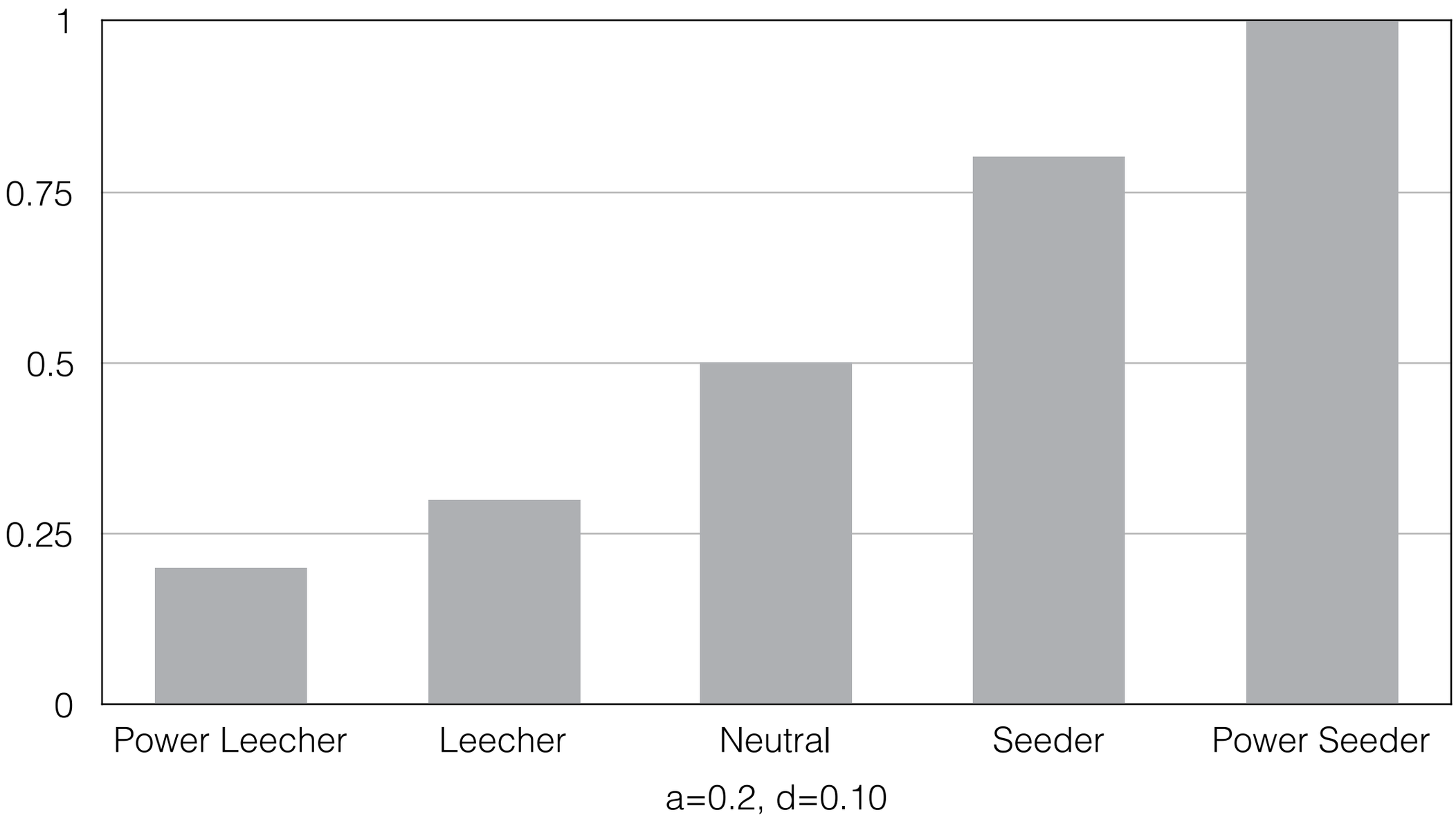

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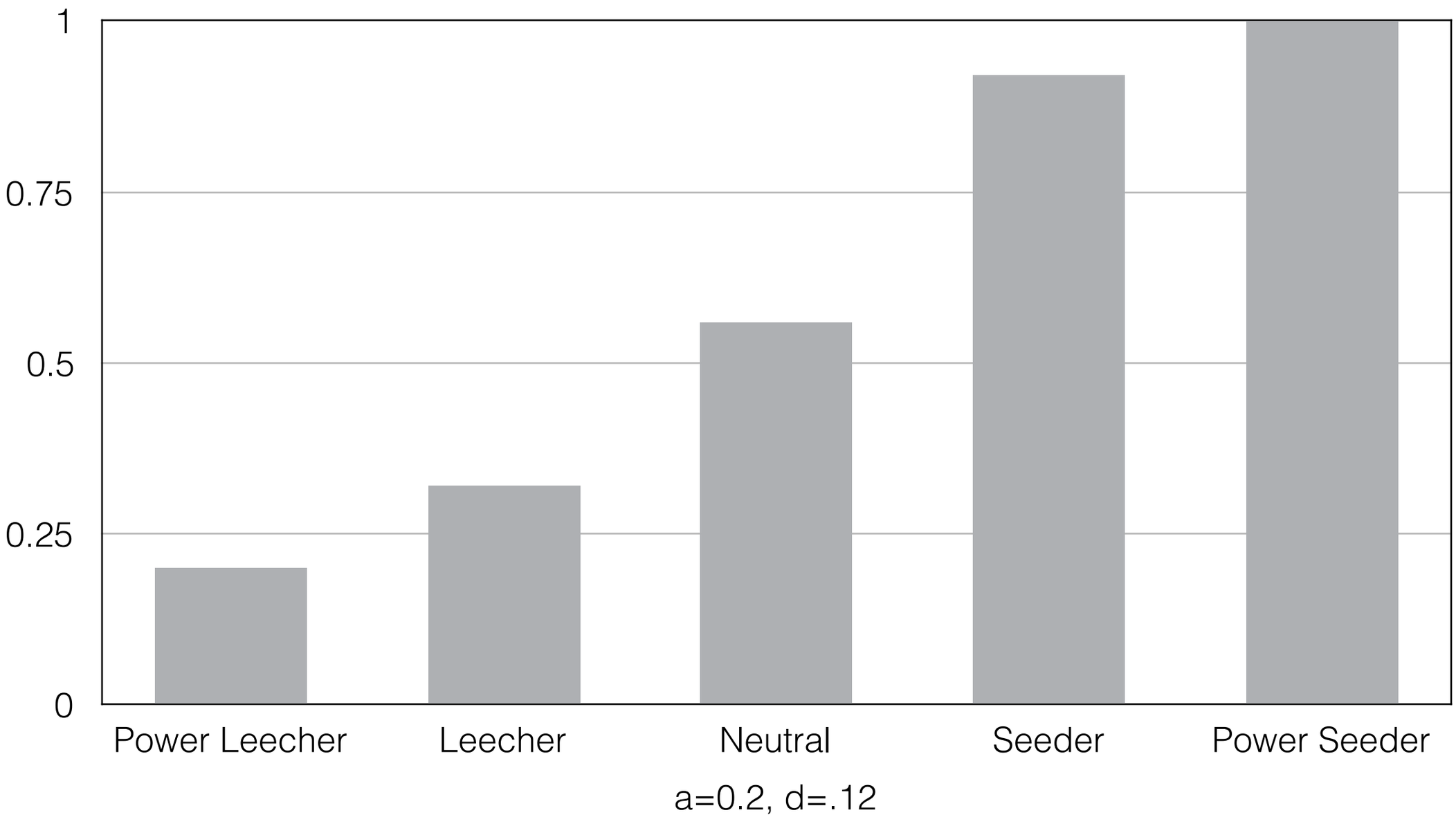

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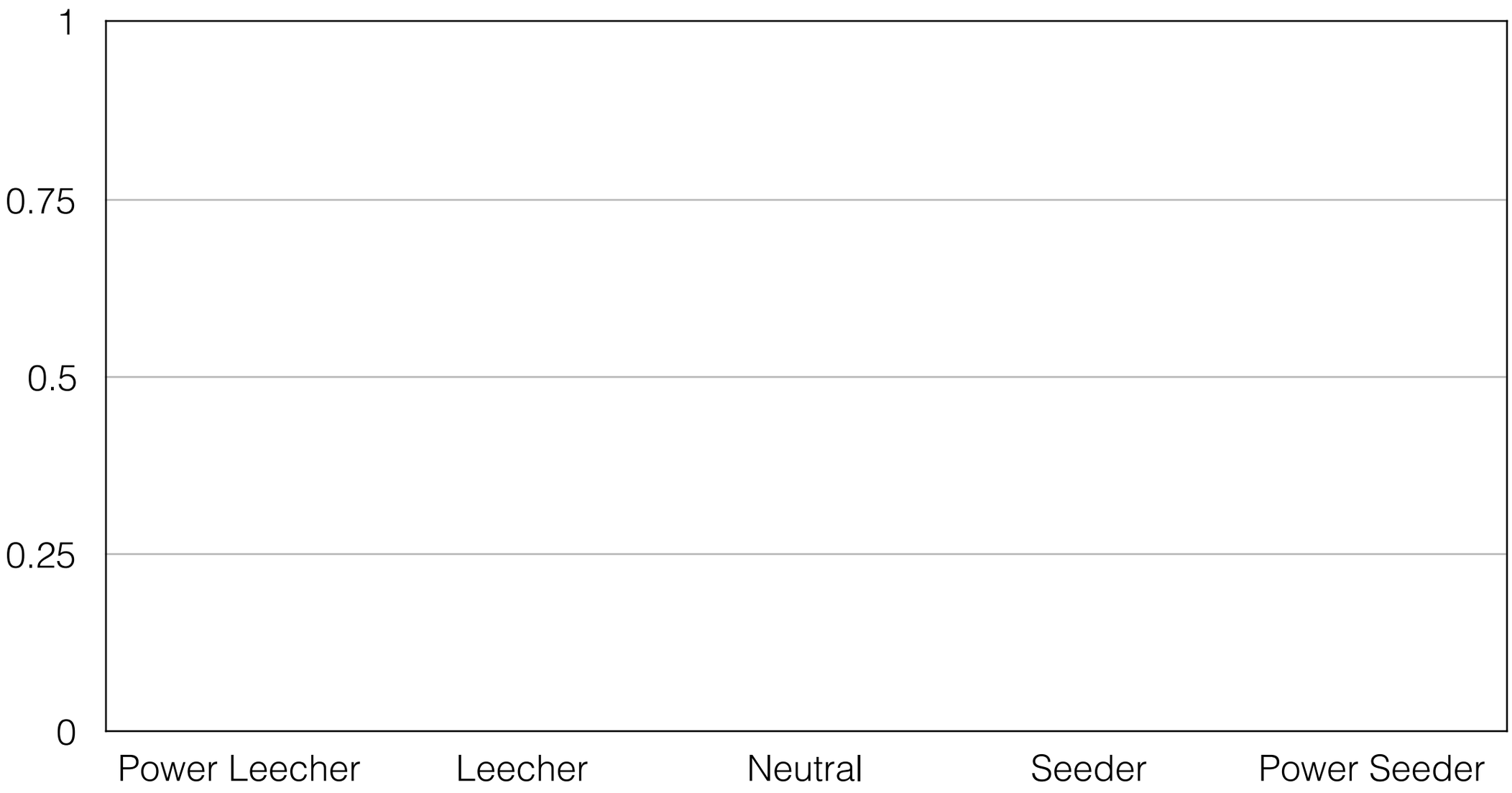

FoodThought

Seamless money allocation manager

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~~Seamless money allocation manager~~

Seamless allocated money assistant

https://github.com/skgbanga/FoodThought