The game of co-creativity

coalition formation during collaborative idea generation

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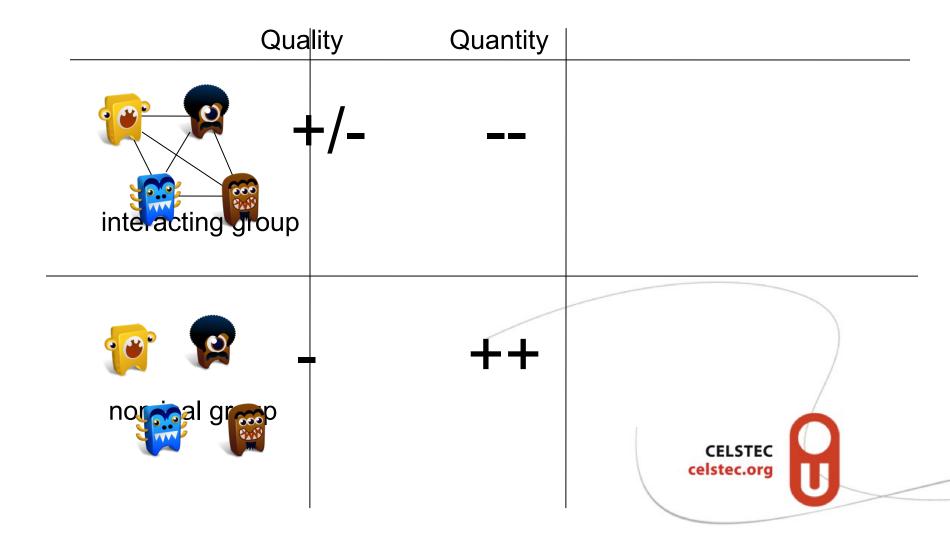


Overview

- · Problems in co-creativity
- Some essential game theory



Group work: woohoo! or not?



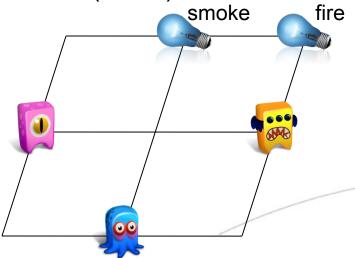
Problems

- Hierarchy
- Lack of accountability
- Production blocking
- Social loafing
- · Illusion of group productivity
- · Etc. etc.

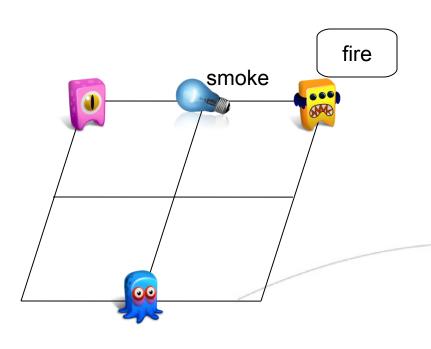
What if we could produce more and better ideas?



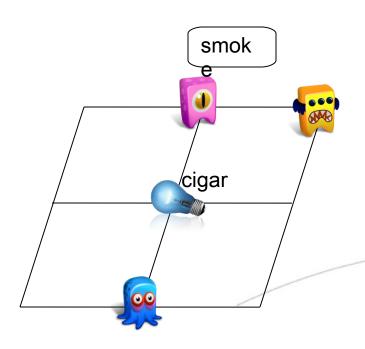
- · Collective Intelligence (1+1=3!)
- Theory of least effort (Finke)



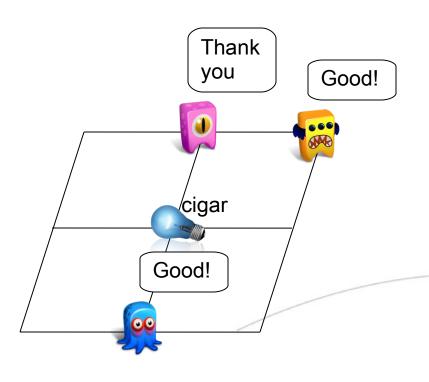














But...

- maybe people just don't choose the right ideas!
- Coalition formation -> suboptimal set of accepted ideas
- Example: promotor & PhD student
- Research question: do Game theoretic concepts hold in co-creativity?
- · Now: GT!



Game theory

- Mainly 3 types of approaches:
 - Extensive form (Chess)
 - Normal form / strategic form (Prisoner's dilemma)
 - Coalitional form (no strategies)





Coalitional games

- = Cooperative games
- Many-Person TU games
 - two-person coalitions: {Ø}, {1}, {2}, {1,2}
- · Shapley value
 - N-person coalitions
- · Nucleolus



Many-person TU games

- TU? Transferrable Utility!
 - Example:
 - I get paid 2 Euros for my individual action
 - You get paid 3 Euros for your individual action
 - Combined payoff is 7 Euros
 - imputations
 - Ex. $v\{1,2\} = 7$
 - Thus $v\{1,2\} = \{2,5\}$ or $v\{1,2\} = \{4,3\}$
- Thus, cooperating pays off!
- · But this is just for two-person coalitions...



Shapley value

- By Lloyd Shapley (1953)
- Value of N-person coalitions
- Measures power in voting systems
 - Majority rules game
 - Unanimity game
 - Dictator game (idea evaluation?)



Nucleolus

- By Schmeidler 1969
- Extension of Shapley value
- Minimize the maximum dissatisfaction -> optimal distribution of the payoff
 - Compute the coalition's payoff
 - Look at how this satisfies the participants
 - 3. Divide payoff such that everyone agrees



Idea evaluation

- Apply Shapley value and Nucleolus
- Nucleolus may help negotiating which ideas to accept



My question

· What are factors that influence coalition formation?



Factors I came up with...

- · Hierarchy
- · Costs
- Career perspectives
- · (Social pressure)
- Personality traits
- Just a bad day!



Questions?

