The game of co-creativity

coalition formation during collaborative idea generation

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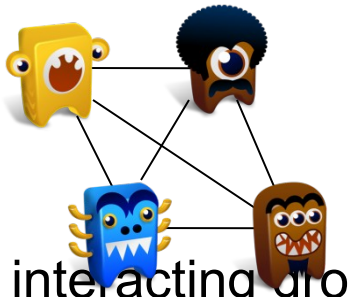
Overview

- Problems in co-creativity
- Some essential game theory

Group work: woohoo! or not?

	Quality	Quantity
 interacting group	+/-	--
 nominal group	-	++

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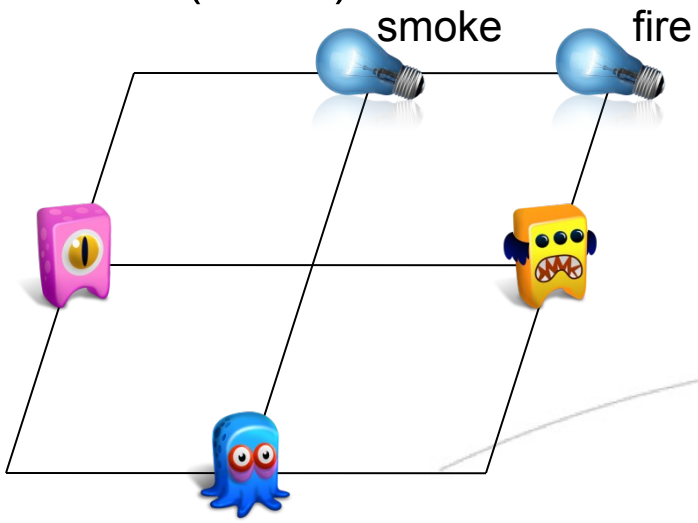
Problems

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

What if we could produce **more** and **better** ideas?

Simulate being creative

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



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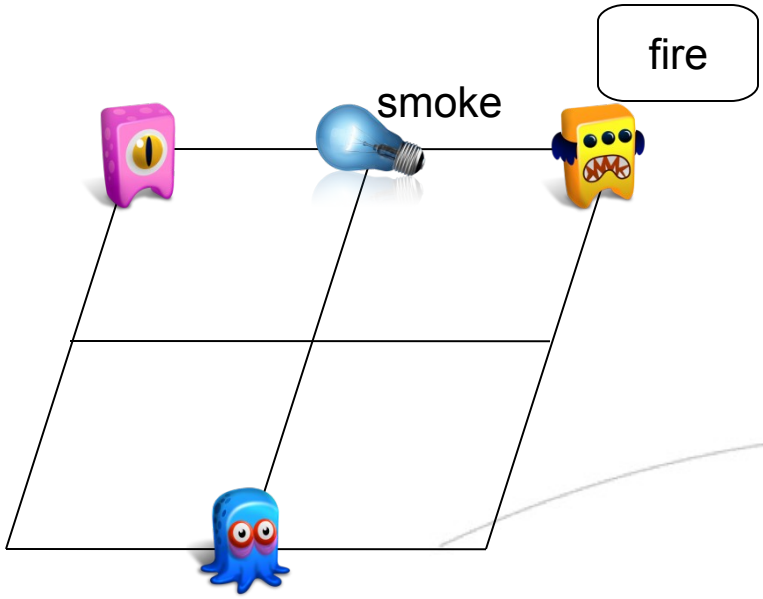
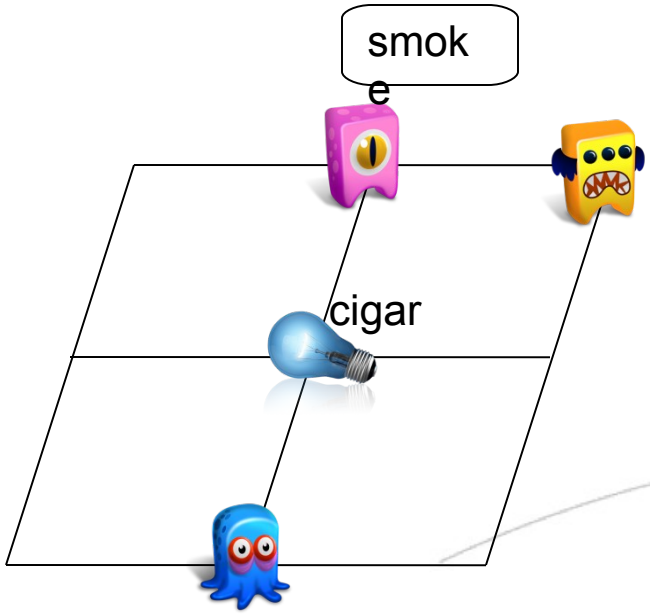
Simulate being creative



Simulate being creative



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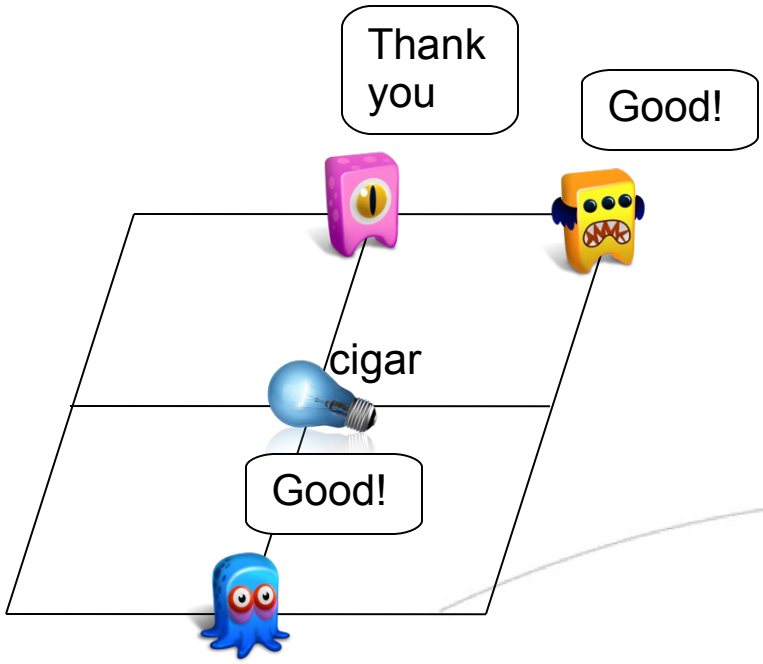
Simulate being creative

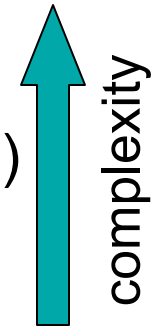


But…

- 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)



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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
  1. Compute the coalition's payoff
  2. 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?