

Social Norms

Social norms are a widely used concept in social cognitive sciences

However we dont know much about them – how they came forth, how are they enforced, why do the people comply, what purposes do they serve, etc..

“Social norms are standards of behaviour that are based on widely shared beliefs how individual group members ought to behave in a given situation”

“Demand for a social norm arises when individual actions have positive or negative influence on others”

Research into social norms

Most research in the field comes from the direction of game theory. Therefore it investigates them in the light of cooperation, altruism, punishment.

Research uses various games like:

- Prisoners dilemma,
- Public good game
- Ultimatum game
- Dictator game

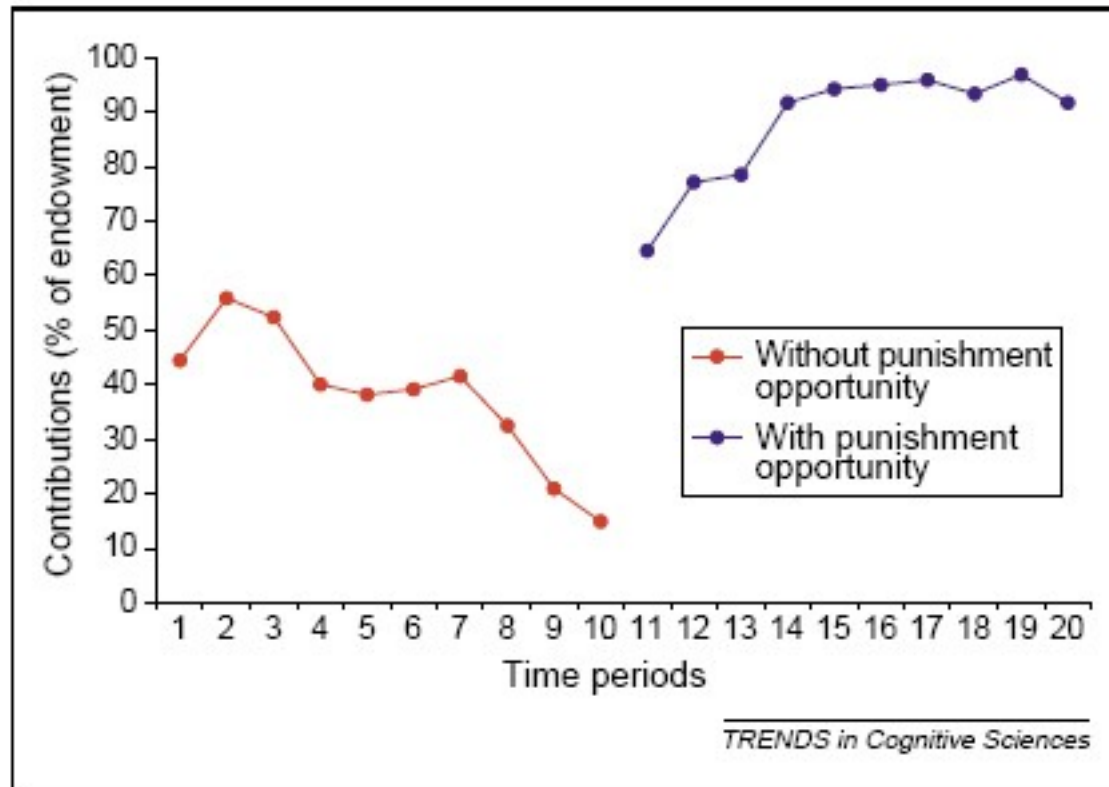
Norms are very interesting from this POV:

- the selfish agent,
- the rational agent

All of them should be defecting. But they are apparently not..

Cooperation, altruism, etc

Fischbacher and Fehr: Cooperation is based upon social norms
Cooperation is enforced: without punishment there's no cooperation:



3rd party punishment

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E. Fehr, U. Fischbacher / Evolution and Human Behavior 25 (2004) 63–87

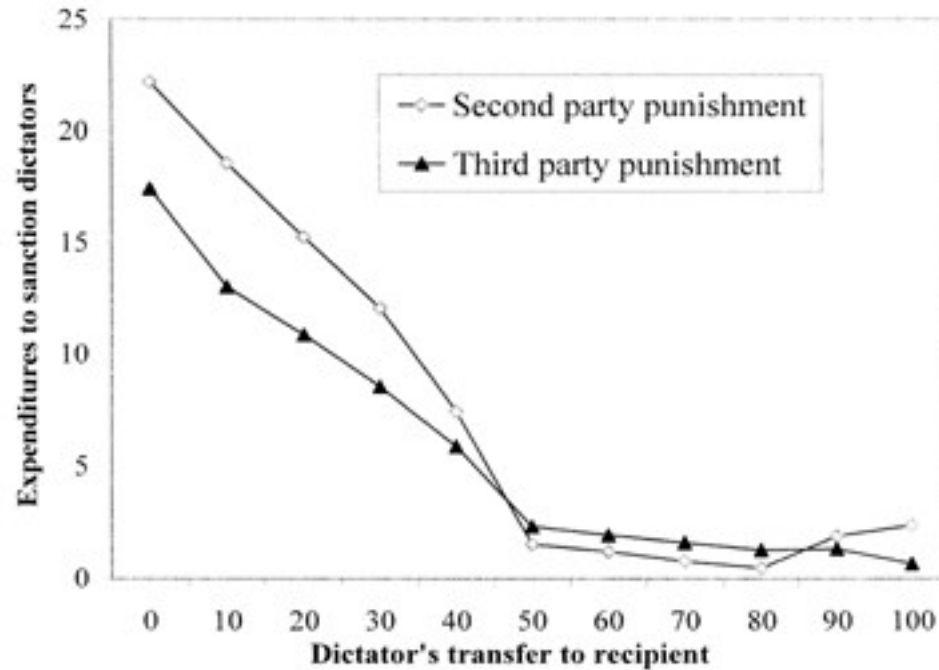


Fig. 5. Comparison of second- and third-party punishment in the dictator game.

“Large percentage of subjects are willing to enforce distribution and cooperation norms even though they incur costs and reap no economic benefit from their sanctions and even though they have not been directly harmed by the norm violation.”

“We also found that sanctions by second parties directly harmed were much stronger than third-party sanctions, indeed strong enough to make norm violations unprofitable, whereas the sanctions of a single third party were not.”

Norms enforcement universal

Research shows that punishment is a *human universal*.

“We used two behavioral experiments, the ultimatum and third party punishment games, among 1762 adults sampled from 15 diverse populations from five continents, representing the breadth of human production systems.”

“All populations demonstrate some willingness to administer costly punishment as unequal behavior increases”

Evolutionary perspective

It seems like altruism raises the fitness of the group, but it lowers the fitness of the individual.

Is that evolutionary possible ?

Various hypotheses:

- Group Selection (problems: population wide alleles, long generation time, etc)
- Trait Group Selection (40/60 coop/no coop between 5)
- Multilevel selection (Selection on group (as individual) and individual level)
- Gene-culture coevolution (a lockup of innate abilities responding to culture during ontogeny, selection pressure towards their enhancement)

Neuroscientific perspective

Nearly 70% happiness induction studies reported activation in the basal ganglia reward circuitry.

“Caudate nucleus is strongly activated in the contrast between a real punishment condition and a symbolic punishment condition”

“Two neuroimaging studies report activation in the ventral striatum when subjects experience mutual cooperation with a human partner compared with mutual cooperation with a computer partner.”

“Across subjects, those who made more costly donations also had more activity in the striatum.”

“These results further support the reward interpretation of social preferences..”

(Functional Neuroanatomy of Emotion: A Meta-Analysis of Emotion Activation Studies in PET and fMRI, 2002)

Social neuroeconomics: the neural circuitry of social preferences, Ernst Fehr and Colin F. Camerer

Emotions & norms

What is the relation of emotions and social norms ?

1. An important function of social norms is the regulation of emotions – Social constructivism
2. Role of embarrassment in sustaining social norms (also shame, guilt) – emotions as negative internal sanctions (compare to 3pp)
3. Former slide: sanctions driven by expected reward.
(see also: The Neural Basis of Altruistic Punishment, Science, 2004)
4. But: *We, therefore,* conclude that imaging data on their own are insufficient to determine whether emotions are activated before moral computations, during moral computations or antecedent to moral computations.
(The role of emotion in moral psychology, Trends in Cognitive Sciences, 2008)

Affective agents & social norms

Modelling the role of emotions in the (?) of social norms.

1.

A Framework for the Simulation of Agents with Emotions (2001)
- OCC model of emotions, Iterated Prisoners Dilema on a grid

2.

Introducing Emotions into the Computational Study of Social Norms: A First Evaluation (2001)
- Appraisal model of emotions, simple eat/move/attack agents on a torus.

A Framework for the Simulation of Agents with Emotions

- Iterated Prisoners Dilemma

- Former experiments show that cooperation “does arise” under certain conditions (cca 32% of players cooperate)

- What is the effect of emotions ?

A Framework for the Simulation of Agents with Emotions

Emotional model is OCC:

Emotions are reactions to: events, agents, objects

(Image)

Emotions exhibited: joy, distress, pity, anger

Rules like:

- Rules for joy:

IF $D(p, e, t) > 0$

THEN set $P_j(p, e, t) = f_j(D(p, e, t), G, L)$

f_j returns $(T_j(p, t) + \epsilon)$ IF player has collected at least y points OR at least x neighbours are joyful

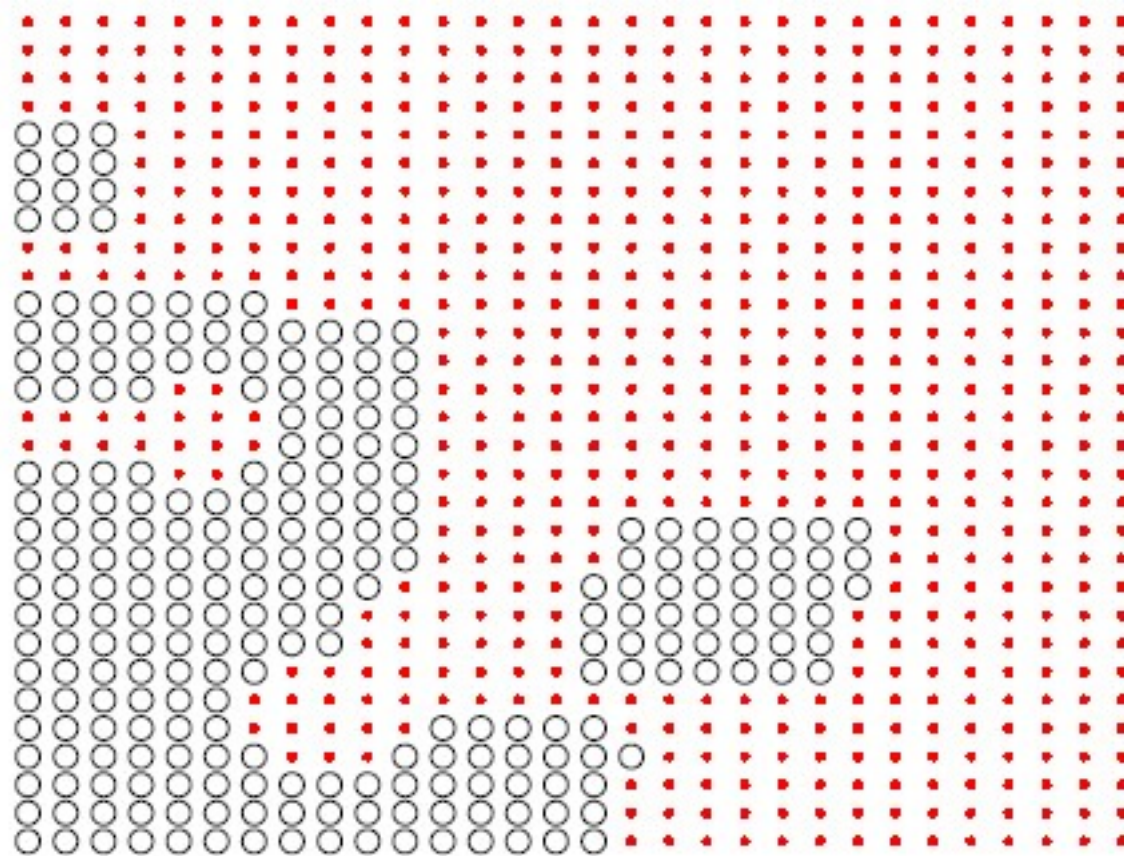
IF $P_j(p, e, t) > T_j(p, t)$

THEN set $I_j(p, e, t) = P_j(p, e, t) - T_j(p, t)$

ELSE set $I_j(p, e, t) = 0$

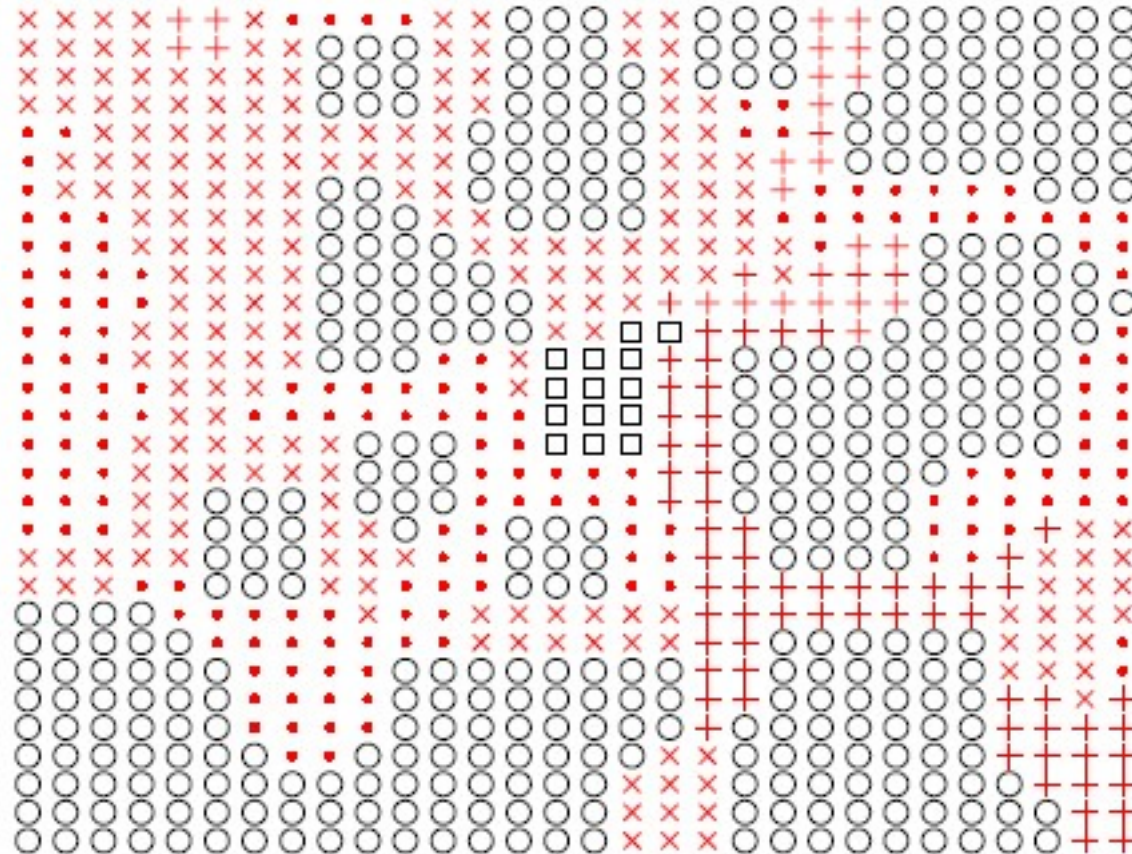
A Framework for the Simulation of Agents with Emotions

Control experiment



A Framework for the Simulation of Agents with Emotions

OCC augmented agents result:



A Framework for the Simulation of Agents with Emotions

Our experiments show that the ratio of cooperators increases due to agents considering those four kinds of emotions. (32% compared to 47%)

Discussion: how relevant are such models of emotions?

What would be the result with strategic players (eg. Tit for tat)

What does this research actually say ?

Introducing Emotions into the Computational Study of Social Norms: A First Evaluation

Based on appraisal model of emotions
(image)

Norms as control of aggression among a population of agents.

History:

Agents in a matrix. Have strength from food. Lose strength by acting.

Percept: Smell, See

Act: Move, Eat, Attack

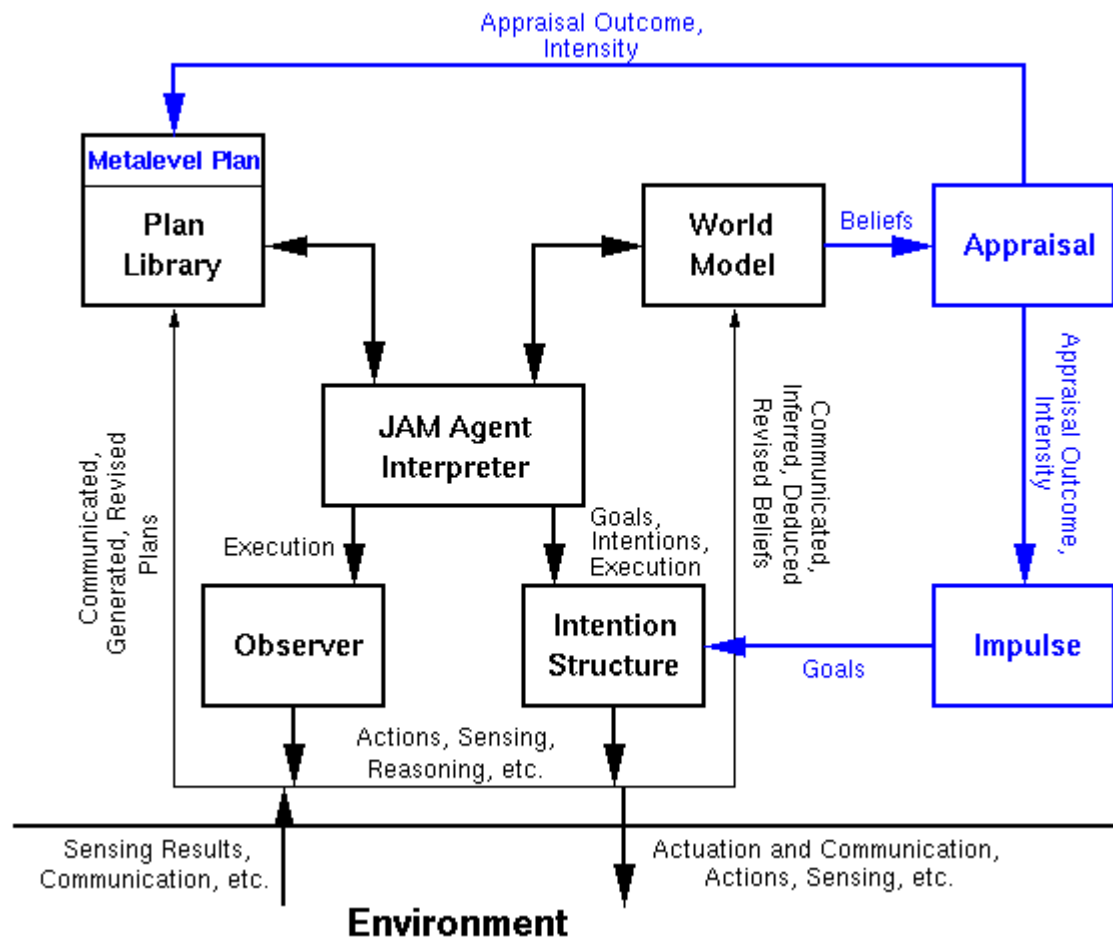
Strategies:

1. Blind aggression
2. Strategic aggression
3. Normative aggression

Results: Normative aggression promotes a higher strength average, lowers the agent deviation and aggression rate.

Introducing Emotions into the Computational Study of Social Norms: A First Evaluation

The decision mechanism was very simple.
In this model, it was exchanged for a complex JAM-based architecture.



Introducing Emotions into the Computational Study of Social Norms: A First Evaluation

Only appraisal of concern relevance is modelled.

Two concerns:

1. Optimal Feeding
2. Norm Compliance

Optimal feeding: agentStrength vs. feedSetpoint make feedConcernStrength
Norm Compliance: normConcernStrength

Sense, appraise, post impulse, post goal, regulate, act.

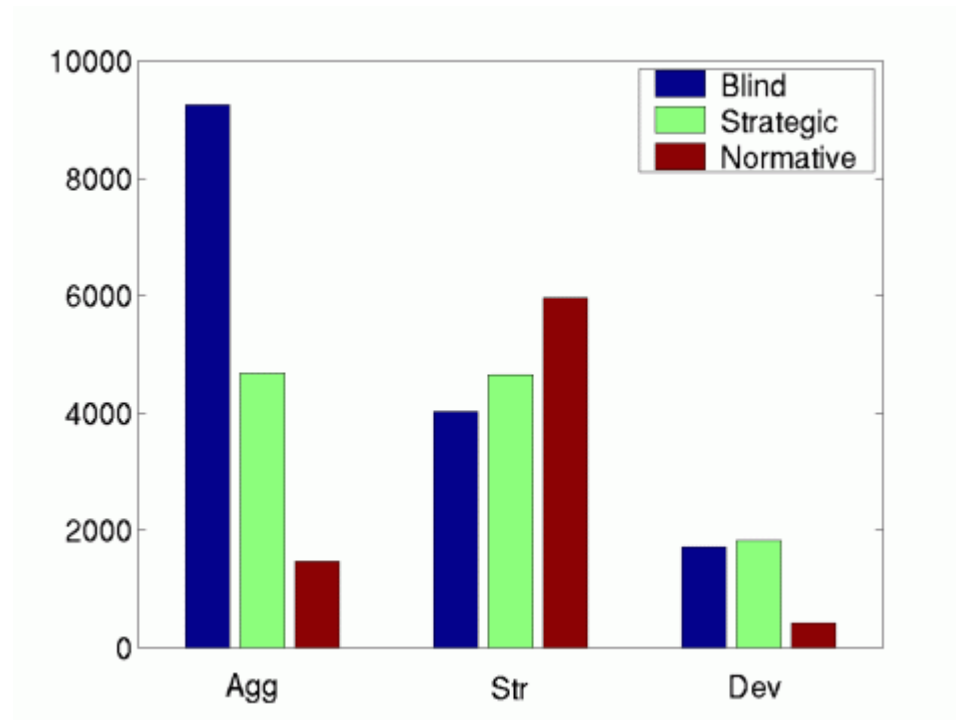
If feedConcernStrength > normConcernStrength (very hungry) attack.

When no goal, do random.

Otherwise move or eat.

Introducing Emotions into the Computational Study of Social Norms: A First Evaluation

Control results:



Introducing Emotions into the Computational Study of Social Norms: A First Evaluation

TABASCO Results – the aggression rate, deviation, average strength depend on normComplianceStrength regulating the aggression of agents and (as shown before) promoting equality, prosperity and peace ;)

(Show pictures)

Evil question: if we model this with agents which are aggressive depending on their color do we show that some colors promote prosperity ?

Conclusion

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