

Altruism, Religion and Irrationality  
*Emergence of Cultural Cooperation Dominating Innate  
Altruism Under Intermittent Evolutionary Pressure*

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Simple *per se*, yet complicated, multifaceted phenomenon

- Various types
  - Genuine altruism as will to help others at real own cost
  - Warm-glow: More than *do* good, want to *feel* good
  - Reciprocal cooperation: I give *for* you return
- At least 2-3 competing or complementing explanations
  - Group selection
  - Kin selection
  - (Reciprocal: life's a multi-shot game)

## We model Altruistic Cooperation

- Group selection
- Personal cost to altruistic individual
- Increasing group's overall fitness

Altruism – simple *per se*, yet complicated, multifaceted phenomenon

- Imprint
  - Innate, Genetic
  - Cultural

Reality: fuzzy. Marcus (2004): Innateness *prewired* rather than *hardwired*.

## We consider two Altruism Imprints

- (i) Innate, Genetic
- (ii) Cultural, enforced by faith

## "Religion" in this study

Any belief in divinity that that promises justice/reward/punishment beyond death, for which there is not much hard evidence that it really exists.

It is not central for the study whether all famous religions fall into this category – to avoid confusion please mind that it could theoretically be that *some* today's religion has got it right..

# Religion and (w/ group) Altruism – (Im)perfect couple

- Religion formidable in **bringing people together** as a group – for worship, ... , war
- Among central aspects of religions **helping poor**
- **US**: outlier in west in terms of religion – and of **donations, mainly to religious causes**
- Historically, religions regularly used as means not only to inclusion of group members but also of **exclusion** ('pagans', crusades..)

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## Evolutionarily

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## We model Faith

- Increasing cooperation within group, but
- Some evolutionary cost to individuals and their groups.

# Religion and deprivation: an extraordinary correlation

- Marx: idea of religion as opium to compensate for material deprivation
- Critical voices: religion not extinct when people get rich
- Empirically:
  - On one hand mixed: getting rich doesn't always reduce religiosity
    - simple indexes of 'richness' miss important factors. High **GDP not always mean basic material and social needs met** for bulk of people
  - Paul (2009), focus on material and social **functionality** of countries
    - extremely high neg. corr. between social material progress and faith: 0.7
    - US case (very rich, influencing GDP based statistics with high religiousness), revealing: disfunc welfare state with very large penetration of material and social problems in the society. Strong outlier also in religiousness.
  - Norris & Inglehart (2004)
    - Beyond GDP many indicators for social well-being/direness (mortality rates, life expectancy, AIDS, water access, ...) all very significant: **worse off⇒more faith**



# Self-Serving bias (self-righteousness)

Very well documented, common psychological trait

- Overestimation of own skills
- Increased perceptibility for arguments supporting own position
- Premature discreditation of discomforting information
- ...
- Short: pride; confidence; makes us treat preferably info that comforts our position

Omnipresent

- most people judge themselves as being above-average in xyz
- voters tend to vote for policies that promise to better their positions. Not out of egoism – narrowly selfishly ones wouldn't vote. People tend to believe in the virtues of the policies that promise to favour them.
- inhabitants of bank-secrecy countries think bank secrecy morally worthy; others think shameful..
- ...

# Self-Serving bias

## Evolutionary role

- Individual benefits of convincing others of one's skills and righteousness

## But

- Evolutionary need to overestimate *oneself* own skills less deep (Leary 2004; Haidt 2012); extra costs:
  - *Individually*: Thinking I can jump 3 m makes me fall down cliff
  - Maybe much more importantly – less obvious – implied *social* cost: Partisans' attrition wars because everyone believes so strongly in his stance

=> Good liar/bluffer should be better off than self-deceiver

# Self-serving bias and religion

Evidence for or against religion doesn't change when *one's own* material or social condition changes.

Observation: perceptions do change. Strong covariation between individual and social developments and believes.

Plausibly, Marx and many right – to some degree: Comfort seeking may be an explanatory for some people's faith. Simplest covariations: better off beyond GDP = less within traditional belief system.

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## We model Self-serving bias

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=> based on these assumptions, we find religiosity increasing in dire times as comfort beyond the current harsh life is sought for.

Material deprivation and turmoil highest in times with high extra group pressure (or harsh environmental conditions).

# Group Selection ?! I/III

Some criticize as insufficient. However:

- Main condition, *many, small* sized groups over *long time* foraging, seems clearly given, e.g. Richerson (2003):  
Late Pleistocene: tens of thousands of generations and more than quarter of million foraging bands; groups with even initially rare occurrences of good cooperators expected longer-run success.
- Evidence against often limited. Full account beyond this work but quick glance on arguments suggests no perfect evidence
  - e.g. Richerson et al. argue in history typically part of the women survived attacks
    - But, assuming even most women to be captured rather than killed, would **reduce 'selectivity' of process by less than factor 2**. Assuming extant children to be partly killed maybe even by even much smaller factor.  
! Contrast !: Uncertainty about processes rather orders of magnitude than factor 1.5 or 2...(authors themselves cite numerous tribal war zones with potentially substantial losses for defeated)

# Group Selection ?! II/III

Some criticise as insufficient. However:

- O'Connor (2006): kin selection better explanator for cooperation e.g. in insects, but not necessarily as good for humans where cooperation often across non-closest-kin; various other key arguments brought forward against group selection not necessarily apply to *human* (cultural) cooperation
- We find such cultural cooperation may dominate innate altruism. The Richerson et al. survival argument becomes largely irrelevant as even with subordinated survivors, cultural traits largely overridden.

Psychology of science: confusion *is vs should* ?

- Haidt (2012): Edward Wilson, applying *theory of* natural selection to humans, broadly judged *racist* simply because the public and many scientists falsely deducted that Wilson's natural selection implied that the strongest *should* survive, so that sociobiology had largely been discredited even among scientists for a long time. Kin selection more 'benign' alternative in this respect – itself doesn't mean more likely.

Haidt (2012) also considers the main arguments brought forward against group selection and explains that contrary to most other species, the specific evolution of human lives in the past may well have been such that group selection was a main driver for the development of human altruism, as an exception compared to evolutionary drivers of most other species. He explains how the main arguments brought forward by opponents, notably Williams (1966) and Dawkins (1976), do not directly extend from other species to humans, and he portrays a whole set of reasons why group selection seems to have been key in our case.



# Dynamic Evolutionary Model I/II

Dynamic stochastic numerical model with intra-group model for individual reproductive success and inter-group conflicts.

Setting e.g.  $20 \times 20 \times 20$

- 20 individuals per group
- $20 \times 20$  groups in square matrix

Individual reproductive success

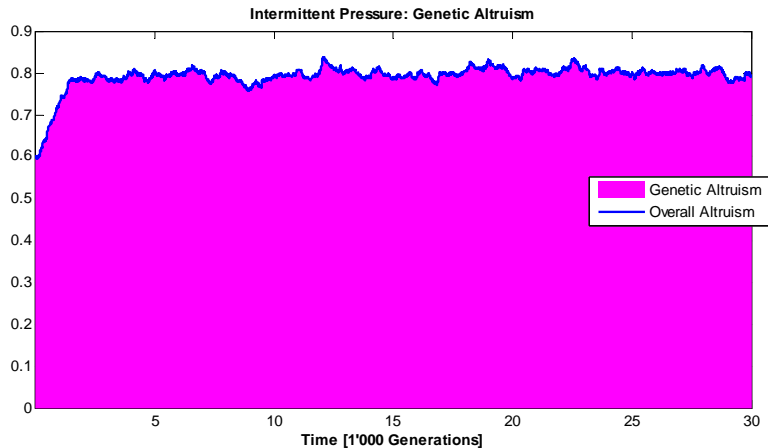
- stochastic offspring
- genetic mutations: gradual changes of innate altruism, and of self-serving bias
- adaptation of faith to personal bias level and conflict level
- mean [relative to group] based on individual cost for altruistic aid, self-serving bias, and cult

## Intra-group pressure

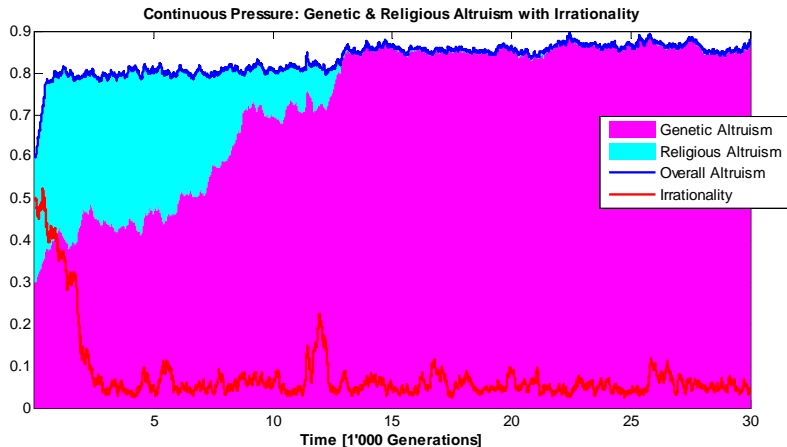
- conflict with some of neighbors either constantly or occasionally
- stochastic outcome:  $x$  wins over adjacent group  $y$  with probability increasing in  $x$ 's altruism level relative to  $y$ 's, but decreases in level of cost from cult and self-serving bias.
- winners genes spread at cost of defeated groups. Replacement to any degree  $(0, 1]$

## RESULTS

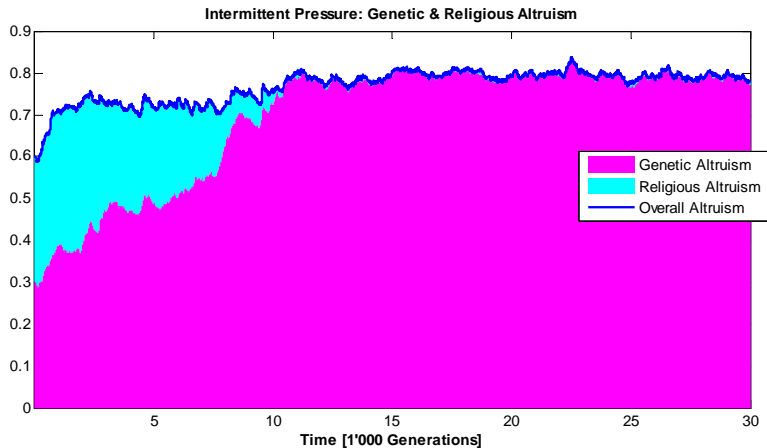
# Purely Genetic Altruism: continu. or interm. pressure



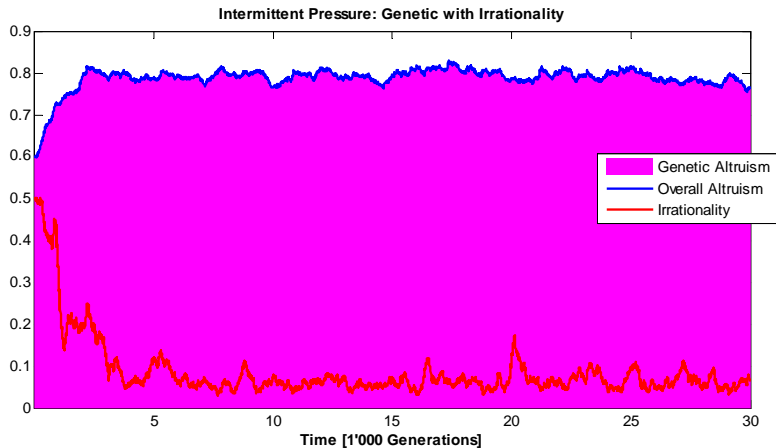
# Continuous Pressure: Religion and Irrationality



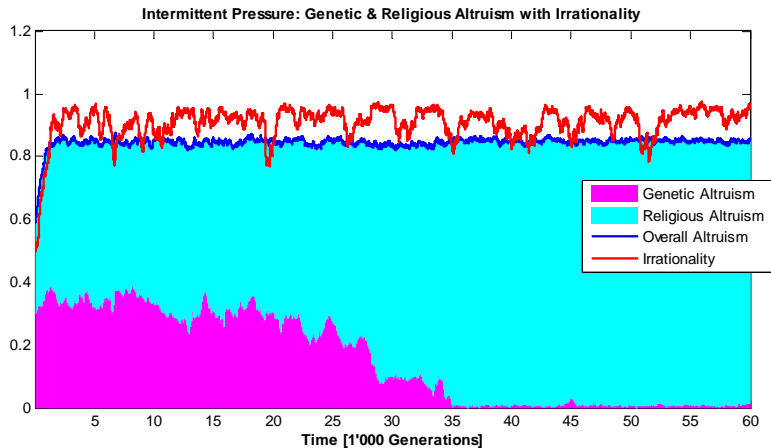
# Intermittant Pressure: Costly Religion w/o Irrationality



# Intermittant Pressure: Costly Irrationality w/o Religion



# Intermittant Pressure: Religion and Irrationality





# Results & Interpretation

## Dominance:

- Under continuous pressure, innate altruism dominates
- Intermittant pressure:
  - Costly bias alone regressive
  - Faith with (costly) cult alone regressif; innate altruism dominant
  - Bias & Faith together dominant; innate altruism crowded out

## Level:

- Despite extra costs of both traits: Overall potential for (implicit) altruism higher when bias and cultural altruism can replace innate altruism

## Interpretation:

- Reason: Self-serving bias and religion reduce relative cost of 'pressure-weighted' altruism.

# Conclusions

- ① Innate (more inert) vs cultural (more malleable) altruism modelled
- ② Innate altruism could be more efficient as it could avoid costs associated to upholding cultural heritage
- ③ Two costly traits together (bias and faith) can dominate a more efficient trait (innate altruism) in complex environments
- ④ Simulations in simplified environments may miss out in explaining complex traits that are on first sight not directly linked to the specific features of complex reality
- ⑤ So, time and space heterogeneity can be key to understanding complex traits

- Analytical **closed-form** solutions for model?
- **Group selection** really central? Many indices suggest yes after all, but ..
- **Humans and 'Altruism'??** How much have I donated to world's poor last year – how much to the poor among my countrymen? Few times few \$ ?! Rather warm glow?! What's this in evolutionary terms??
- **Causation or correlation** between material and social success? Analysis beyond GDP strongly suggests dire times = more faith, but Paul (2009) also suggests causation could be reverse.
- Beyond question about theoretical validity – **empirical evidences** for mechanism difficult to get

- So far received results naturally for various functional configurations. But two difficulties:
  - finding realistic **parameterisations** of the various functional mappings (difficulty extraordinary)
  - **miniaturization**: given 'real' parameters, adapt such that simulating limited # of groups and generations approx. representative
- Group **conflict reducing (rather than extincting)** genetic proliferation of dominated group
- When self-serving bias given, tandem with religion persists: **theoretically even without decimation** of dominated groups, as cultural layer may be imposed by winning groups
- Heterogenous **natural environmental pressure** rather than from competing groups

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# Thanks

Thanks for your attention.

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