Evolution Confers Morality

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IANAL

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IANAB

Descends with modification from

IANAΦ

[Paul Cézanne]

[Rembrandt van Rijn]
IANAB

But

Some of my best friends are biologists
I am coeditor of *Why Intelligent Design Fails*
I am coauthor of *Why Evolution Works (And Creationism Fails)*

So

*I am at least a fellow traveler*
Define morality same way as

Mass
Length
Time
Pornography
Francis Collins – Human Genome Project

Morality is uniquely human
Altruism is uniquely human \{ Debatable propositions \}

Inductive leap

Morality must have been conferred by God

Rejects arguments based on disparate ethical codes

Rejects sociobiological argument that morality could be evolved trait
Suppose that God said murder was moral

Would it be so? No

Moral code would take precedence over God

God would be a pipeline

We look elsewhere for the origin of morality
Collins refers to a Moral Law

So is there a moral law?

Analogous to

Law of gravity

Laws of logic or mathematics

If I am wrong, title of talk is

How *our sense of* morality evolved
Evidence that morality is somehow built in

Incest taboo

Brother and sister

Over 21, consenting adults, and all that

Agree to sleep together

Just once

To see what it is like

Take special precautions to avoid pregnancy

Will never tell anyone

Is that wrong?

Why?
Further evidence

Always wrong
Almost always
Sometimes
Never wrong

Authoritative
Benevolent
Critical God
Distant God
Atheist

Adultery
Gay marriage
Abortion
P.M. sex
Stem-cell research

Always wrong
Never wrong
Sometimes
Almost always
Always wrong

[Redrawn from America's Four Gods]
Order constant across all beliefs

Adultery < Gay marriage < Abortion < P.M. sex < Stem-cell research
Evidence that morality is related to selection

The trolley problem
Trolley problem

Five workmen on a trolley track
Out-of-control trolley
You can pull switch
Save five, but
Kill one

Should you pull the switch?

Must you pull the switch?
Revised trolley problem

There is no switch

There is a fat man portly gentleman

May you push him over to stop the trolley?

What if you were the portly gentleman?
There is no objective difference between the two cases

Typically 70-80 %

Yet more people throw the switch than deliberately throw the man off the bridge

Typically <30 % Why?

Possibly because killing is incidental in first case, deliberate in second
Objective research on the trolley problem

Your response may be influenced by selection

Roughly:
- Cousin: 77.4%
- Nephew: 51.8%
- Sibling: 47.4%
- Nephew: 34.3%

[Bleske-Rechek, et al.]
Age and relatedness of target

Up with age

Down with relatedness

Percent that flipped the switch on the lone target

Age of lone target on alternate track

0 Relatedness

0.125 Relatedness

0.25 Relatedness

0.5 Relatedness

2 Years Old  20 Years Old  45 Years Old  70 Years Old
“Romantic partners”

Do not have (gray)

Have (white)

<table>
<thead>
<tr>
<th>Target Sex</th>
<th>Non-Involved Participants</th>
<th>Involved Participants</th>
</tr>
</thead>
<tbody>
<tr>
<td>Unstated</td>
<td>77.3</td>
<td>72.6</td>
</tr>
<tr>
<td>Same-sex</td>
<td>80.3</td>
<td>77.1</td>
</tr>
<tr>
<td>Opposite-sex</td>
<td>73.7</td>
<td>74.5</td>
</tr>
<tr>
<td>Romantic Partner</td>
<td>50.0</td>
<td>24.8</td>
</tr>
</tbody>
</table>

[Bleske-Rechek, et al.]
So:

People's willingness to throw the switch decreases with

- Relatedness of lone individual (target)
- Involvement with target
- Age of target

“Ought” to be irrelevant
Note added in proof
(so to speak)

Criticism:

- Trolley problem is not real
- Just thought experiment
- Decisions never so stark

Response by audience member:

- Generals make precisely such decisions in war
  - Sacrifice soldiers for civilians
  - For other soldiers
Politics Democracy stops at the water's edge

Moral precepts often apply primarily to the *in-group*

Biblical Hebrews ordered to wipe out or enslave other peoples

Columbus kidnaps Indians, brings to Spain as slaves

Modern societies dismiss casualties of war as “collateral damage”

*Lends force to argument that morality somehow relates to selection*
How can altruism have evolved? [Strassman and Queller]

Slime mold (*Dictyostelium discoideum*)

Solitary amoebas

In times of stress, secrete chemical

Clump together in *fruiting body*, form spores

Most amoebas die in the process

Altruism, of a sort
But: Related amoebas in same clump fight to get into fruiting body

Solitary amoebas

Clump together

See here
for the figure.

Blue cells cheat ...

Form slug

… and win!
Conclusion: Amoebas (at least) are altruistic only toward those who share their genes.

They cheat on those who do not share their genes.

Aside: Researchers also found gene “for” altruism.
Kin selection

You are a gene's way of making another gene

More beneficial to your genes if you sacrifice on behalf of close relative than on behalf of stranger

Mother bird risks self for chicks

Haldane would sacrifice self for 2 brothers, 8 cousins

I say 3 brothers, 9 cousins

Altruism toward relatives thus at least partly genetic
Group selection (controversial)

Humans more likely to sacrifice for children than nephews

For nephews than close associates (*in-group*)

For close associates than outsiders (*out-group*)

For outsiders than foreigners

Suggests role for genetics in altruism (if not morality in general)
How can altruism be selected for?

One group may outcompete another if altruists sacrifice selves.

But don’t altruists then die out?

Maybe not …
Computer simulation [Choi and Bowles]

Computer “organisms” with 2 genes with 2 alleles each

Cooperated with each other

Within-group: cooperators and shirkers

Outside-group: parochials and traders

Did not trade with outside group

Traded with outside group

In each group
Altruism survives!

Most-successful groups: parochial cooperators or trading shirkers

Least-successful groups: included cooperating traders (altruists):

Cooperated with both in-group and out-group

*Suggests that altruism can survive if not prosper*
Computer and other games

Prisoner's dilemma:

2 prisoners:

Cooperate with police or
with confederate?

Mistrust forces
prisoners to betray
each other

Repeated prisoner's dilemma (simulation):

Program that gives *Tit for Tat* succeeds best
Ultimatum game
(Laboratory experiments on humans)

I have 10, $1 bills
Must share with you any way I like

But
If you reject my offer, we get nothing

I offer you $1 – how many will accept?

The most rational thing is to accept:

Why did you not accept?

Monkeys and apes sometimes refuse fair division

And you know it
Repeated games

Suggest that cooperation mixed with punishment is best strategy

Cooperators can survive
Therefore they can evolve
Frans de Waal

Observed thousands of examples of *reciprocal altruism* among captive chimpanzees

You feed me; I’ll feed you
You groom me; I’ll groom you

What de Waal calls *reciprocal altruism*
De Waal's argument

Cooperation + memory $\rightarrow$ *reciprocal* altruism
Reciprocal altruism + sympathy $\rightarrow$ *true* altruism

De Waal thinks primates, possibly elephants & whales understand needs of conspecifics.

*Thinks human morality may have evolved from similar origins*
Michael Shermer

Calls cooperative behavior in (nonhuman) animals premoral behavior.

Thinks morality requires understanding of right and wrong.

But

De Waal gives anecdotes where apes seem to punish one another for “wrong” actions.
Some animals have moral understanding

- Primates
- Social carnivores (wolves, coyotes, hyenas)
- Cetaceans
- Certain rodents

All herd animals
Clusters of behaviors

Cooperation
  - Altruism
  - Reciprocity
  - Trust

Sympathy/empathy
  - Sympathy
  - Compassion
  - Grief

Justice
  - Sharing
  - Equity
  - Fairness

At least rudiments of morality in nonhuman animals
Back to Francis Collins

Morality could not have evolved unaided

Compare with

Eye is so complex it could not have evolved unaided

Collins’s argument is

God-of-the-gaps argument

Argument from incredulity

Form of intelligent-design creationism

[See the Sidney Harris cartoon, “Then a Miracle Occurs,” here http://www.sciencecartoonsplus.com/pages/gallery.php]
Conclusion: Did human morality evolve?

Yep!

Imperfectly as always, but it evolved
Shameless self-promotion by author

Why Evolution Works (and Creationism Fails)
Matt Young and Paul K. Strode

Why Intelligent Design Fails
A Scientific Critique of the New Creationism
Edited by Matt Young and Taner Edis

No Sense of Obligation
Science and Religion in an Impersonal Universe
By Matt Young
References.


