

www.culturalcognition.net

Cultural Cognition and Risk Communication

Dan M. Kahan
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Donald Braman
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National Science Foundation, Awards SES-0621840 & -0242106

The Oscar M. Ruebhausen Fund Yale Law School

Center for Applied Social Research, Univ. Oklahoma

Cultural Cognition and Risk Communication

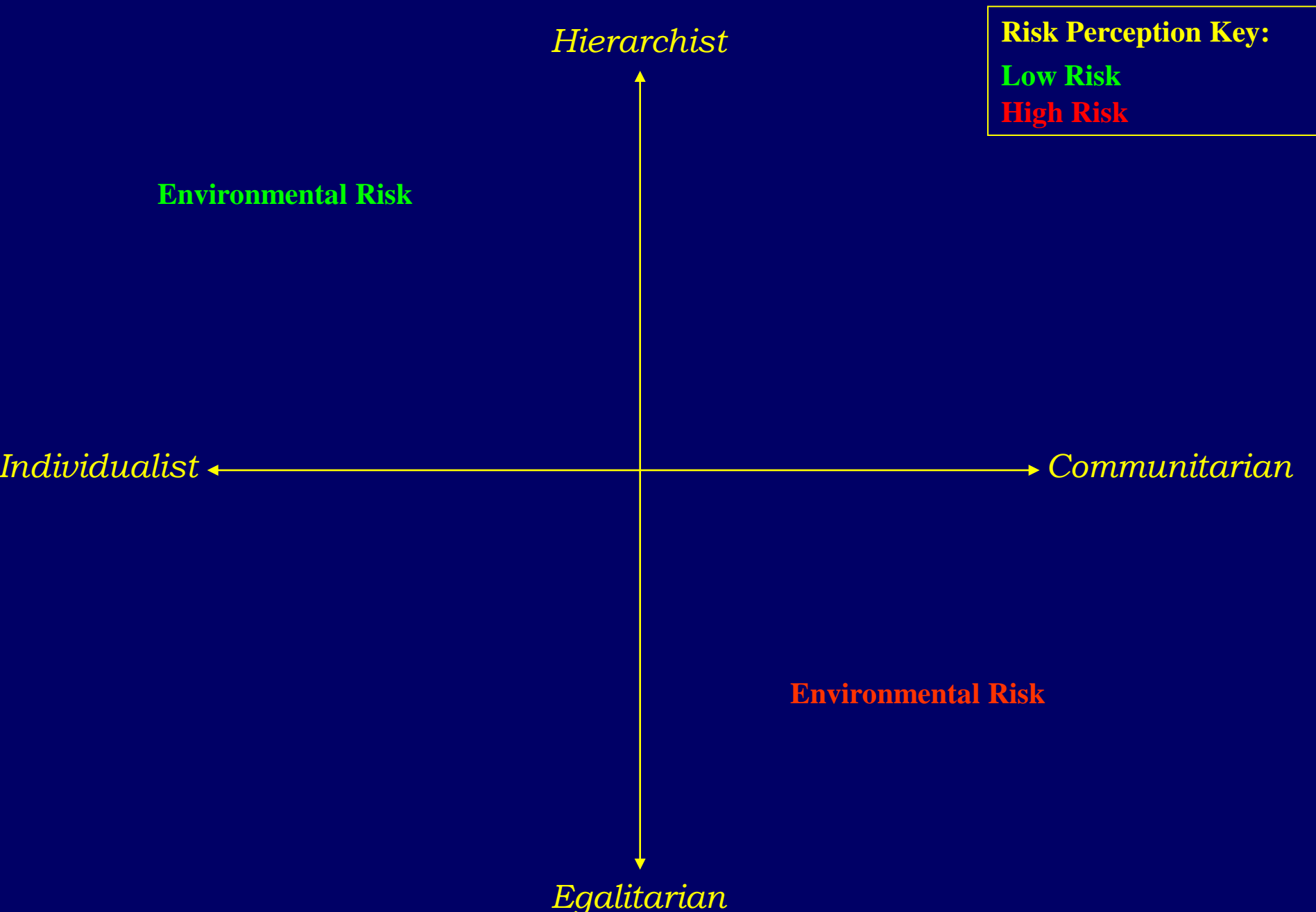
1. Cultural Cognition: Theory and Evidence

2. Cultural Cognition of Scientific Expertise

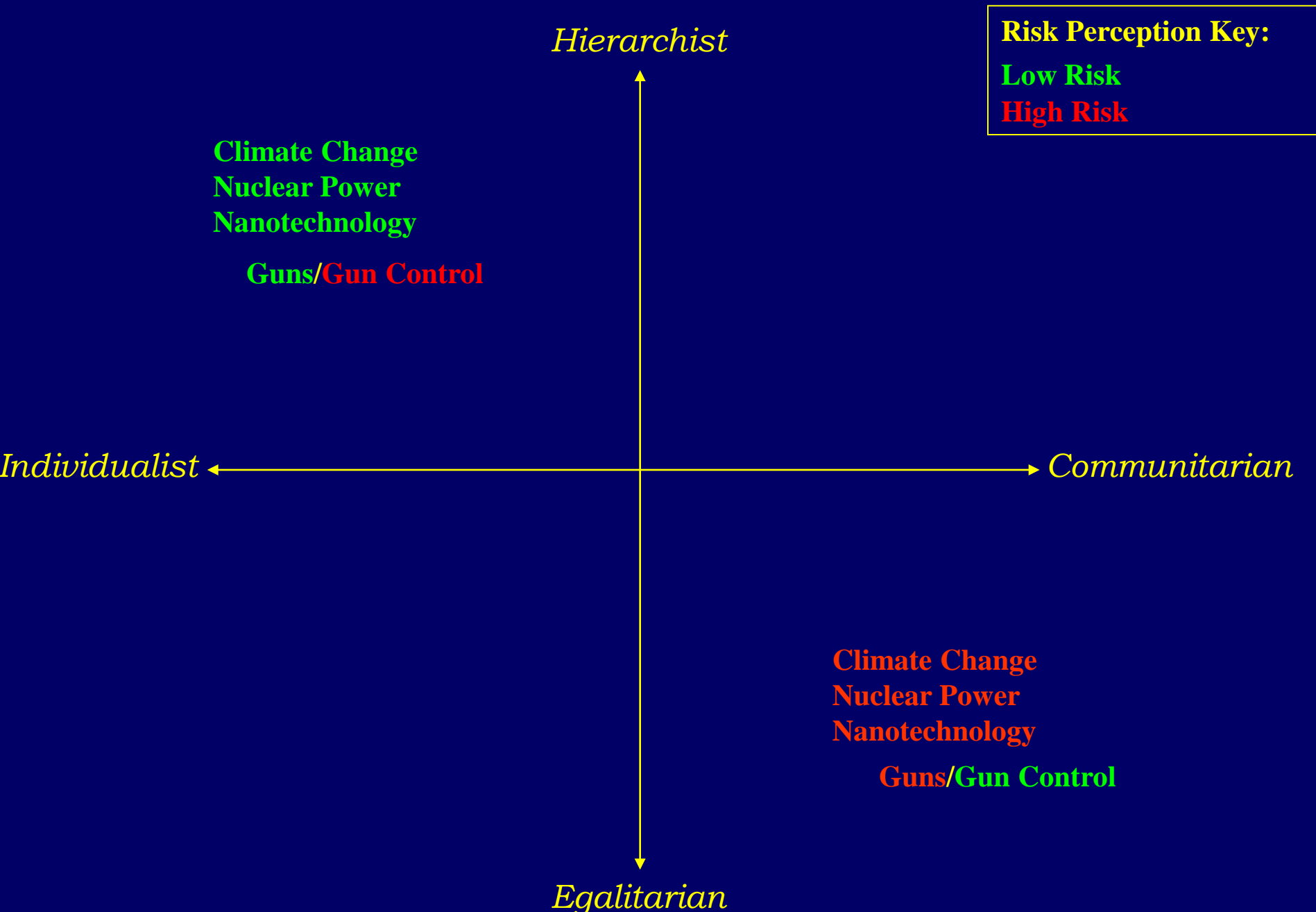
3. Cultural Identity Affirmation

4. Cultural Credibility

Mary Douglas's "Group-Grid" Worldview Scheme



Mary Douglas's "Group-Grid" Worldview Scheme



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The Cultural Cognition of Scientific Consensus

Dan M. Kahan
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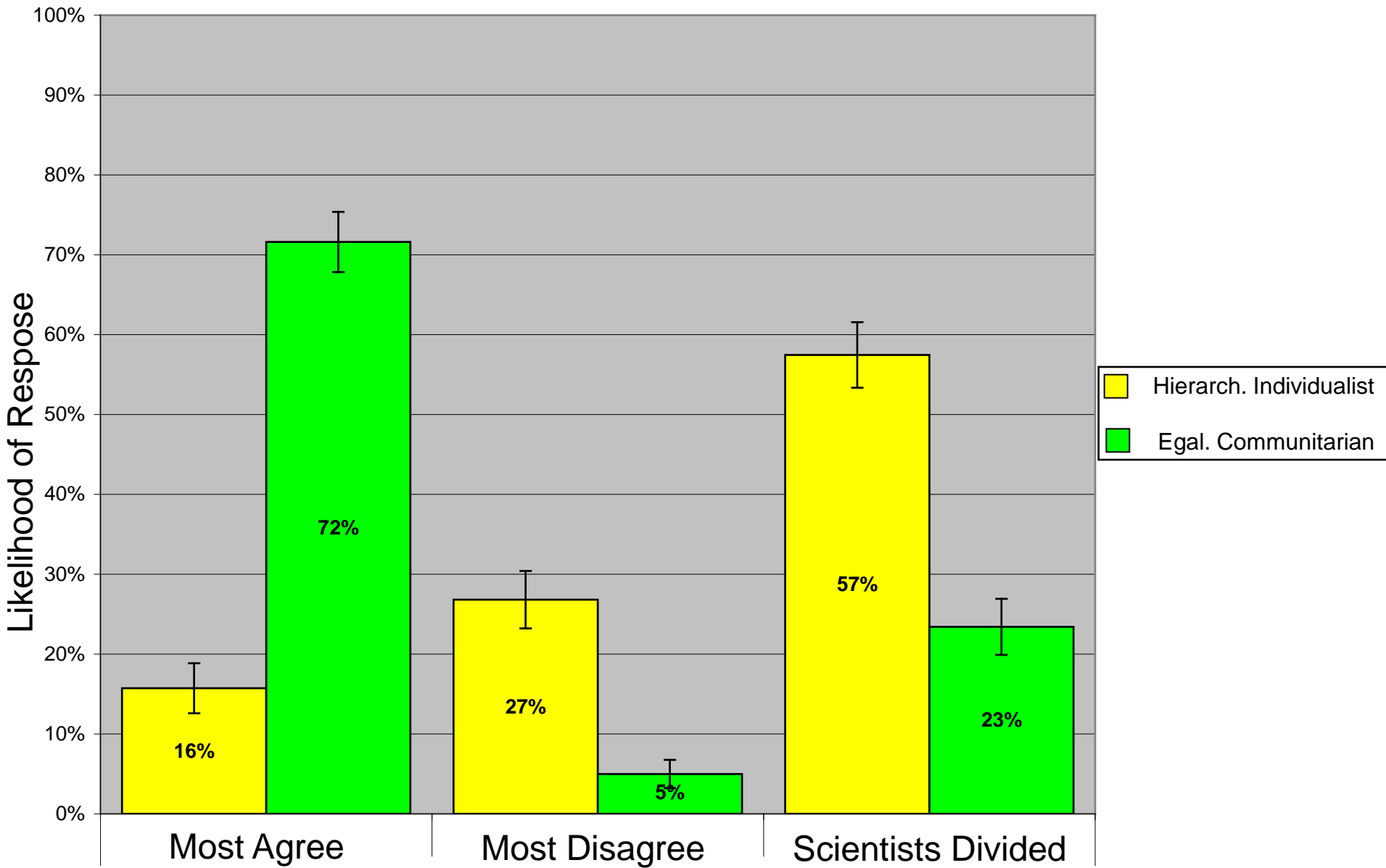
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“Human activity is causing global warming.”

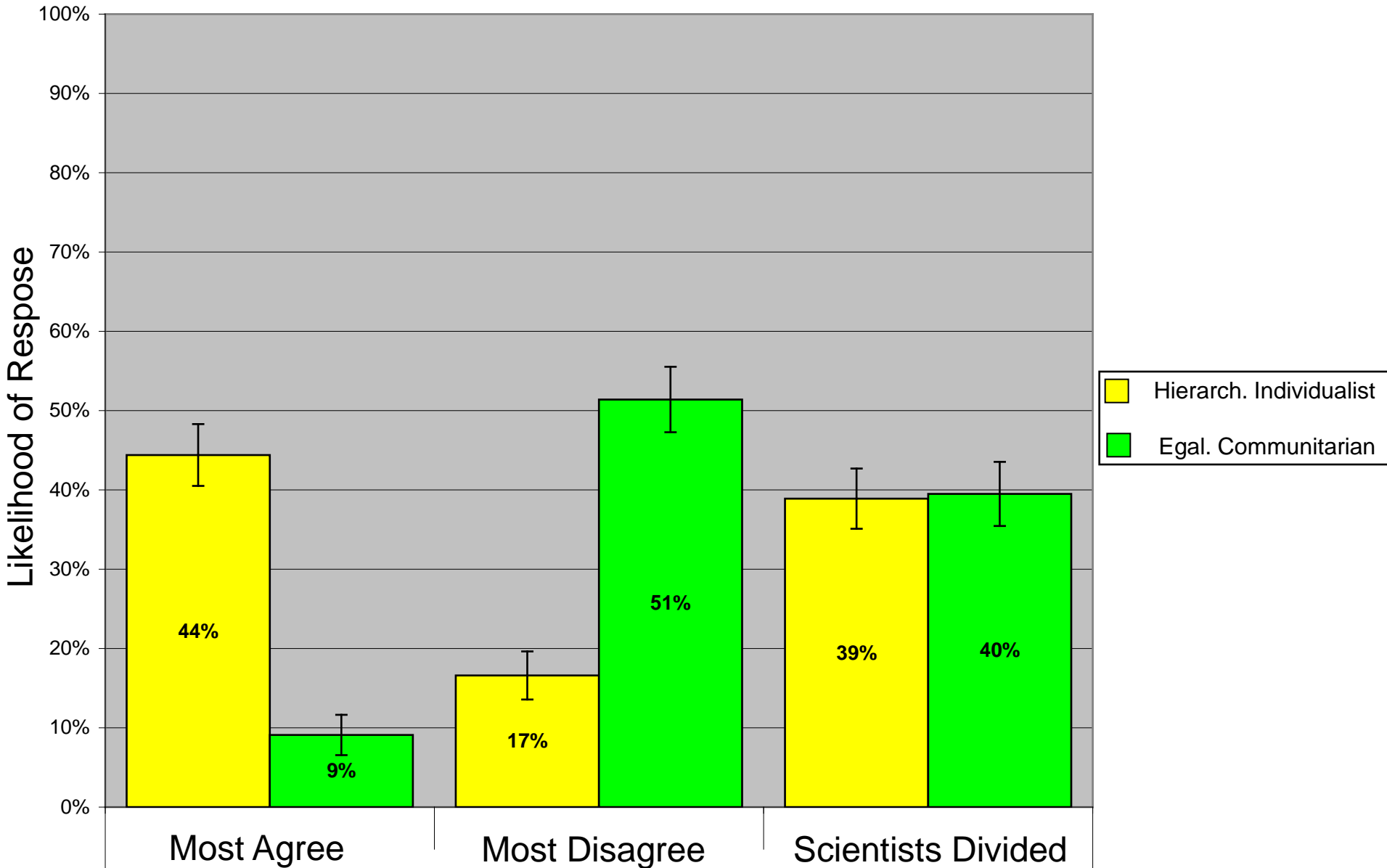
What do most expert scientists think?



N = 1,500. Derived from multinomial logistic regression. Confidence intervals reflect .95 level of confidence.

“Permitting adults without criminal records or histories of mental illness to carry concealed handguns in public decreases violent crime.”

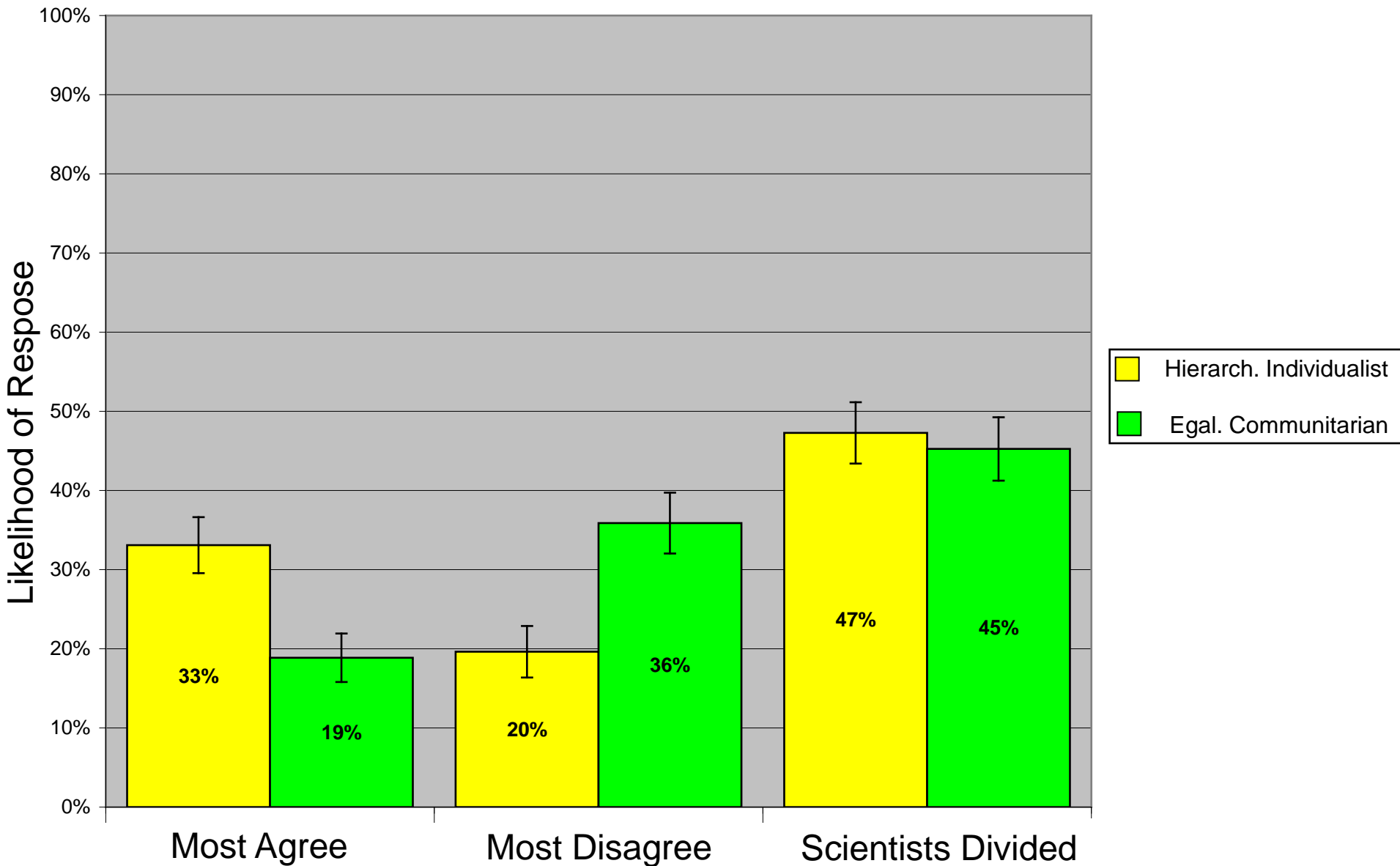
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“Radioactive wastes from nuclear power can be safely disposed of in deep underground storage facilities.”

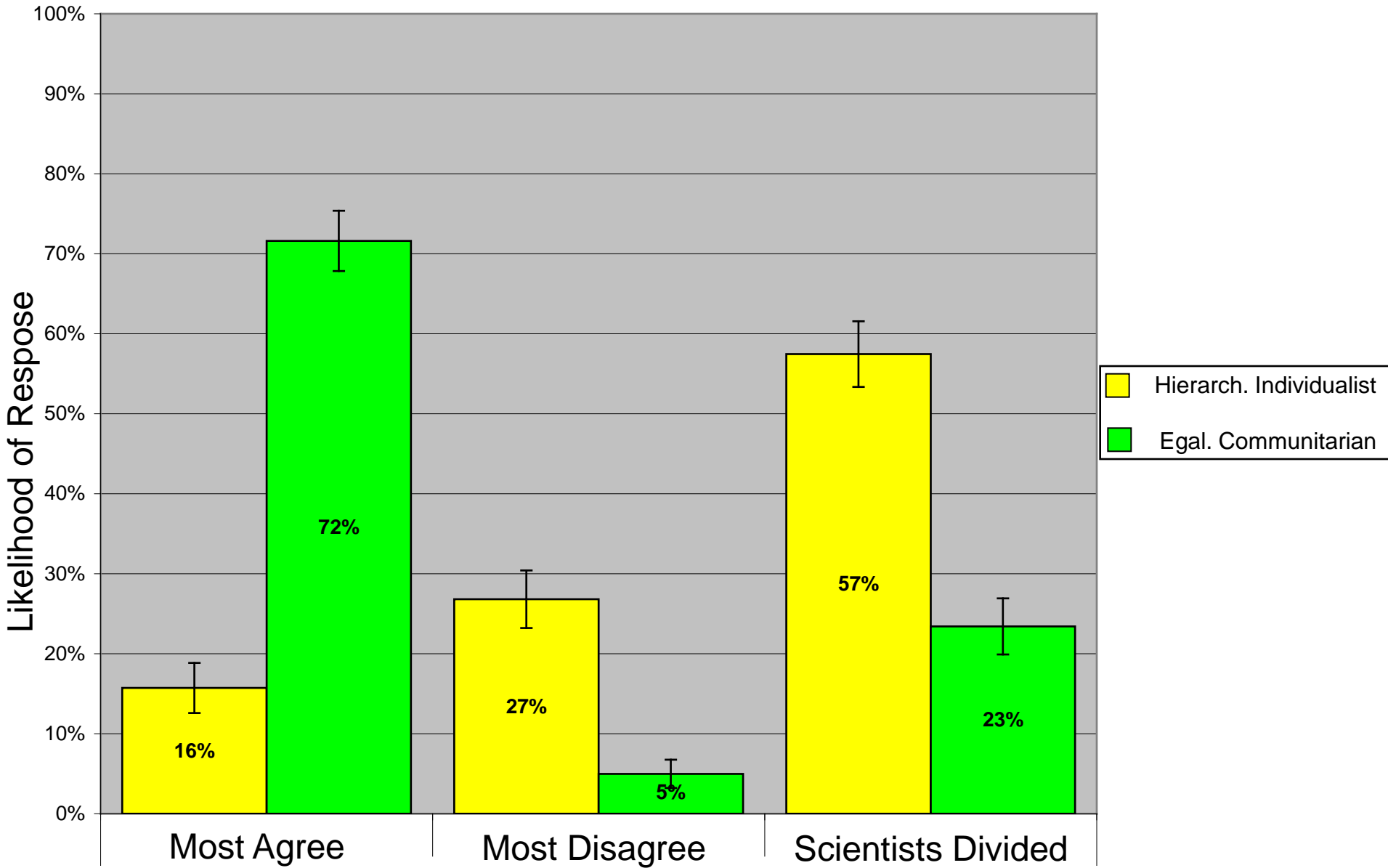
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Is this a knowledgeable and credible expert on ... ?



Robert Linden

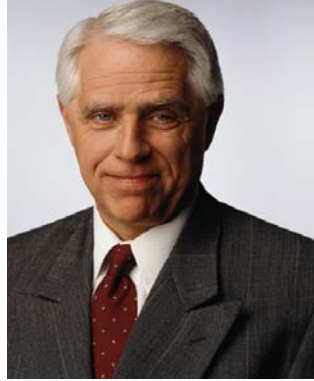
Position: Professor of Meteorology, Massachusetts Institute of Technology

Education: Ph.D., Harvard University

Memberships:

- American Meteorological Society
- National Academy of Sciences

Global Warming



Oliver Roberts

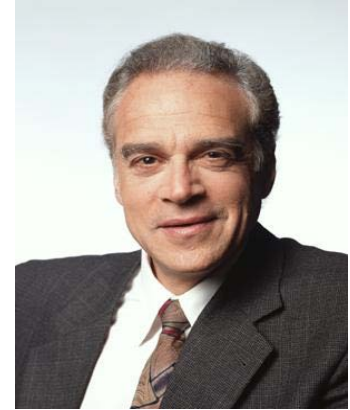
Position: Professor of Nuclear Engineering, University of California, Berkeley

Education: Ph.D., Princeton University

Memberships:

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- National Academy of Sciences

Nuclear Power



James Williams

Position: Professor of Criminology, Stanford University

Education: Ph.D., Yale University

Memberships:

- American Society of Criminologists
- National Academy of Sciences

Gun Control

Climate Change

High Risk

“It is now beyond reasonable scientific dispute that human activity is causing ‘global warming’ and other dangerous forms of climate change. Over the past century, atmospheric concentration of carbon dioxide (CO₂)—called a “greenhouse gas” because of its contribution to trapping heat—has increased to historically unprecedented levels. Scientific authorities at all major universities agree that the source of this increase is human industrial activity. They agree too that higher CO₂ levels are responsible for steady rises in air and ocean temperatures over that period, particularly in the last decade. This change is resulting in a host of negative consequences: the melting of polar ice caps and resulting increases in sea levels and risks of catastrophic flooding; intense and long-term droughts in many parts of the world; and a rising incidence of destructive cyclones and hurricanes in others.”



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Low Risk

“Judged by conventional scientific standards, it is premature to conclude that human CO₂ emissions—so-called ‘greenhouse gasses’—cause global warming. For example, global temperatures have not risen since 1998, despite significant increases in CO₂ during that period. In addition, rather than shrinking everywhere, glaciers are actually growing in some parts of the world, and the amount of ice surrounding Antarctica is at the highest level since measurements began 30 years ago... Scientists who predict global warming despite these facts are relying entirely on computer models. Those models extrapolate from observed atmospheric conditions existing in the past. The idea that those same models will accurately predict temperature in a world with a very different conditions—including one with substantially increased CO₂ in the atmosphere—is based on unproven assumptions, not scientific evidence...”



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Geologic Isolation of Nuclear Wastes

Low Risk

“Radioactive wastes from nuclear power plants can be disposed of without danger to the public or the environment through deep geologic isolation. In this method, radioactive wastes are stored deep underground in bedrock, and isolated from the biosphere for many thousands of years. Natural bedrock isolation has safely contained the radioactive products generated by spontaneous nuclear fission reactions in Oklo, Africa, for some 2 billion years. Man-made geologic isolation facilities reinforce this level of protection through the use of sealed containers made of materials known to resist corrosion and decay. This design philosophy, known as ‘defense in depth,’ makes long-term disposal safe, effective, and economically feasible.”



Oliver Roberts

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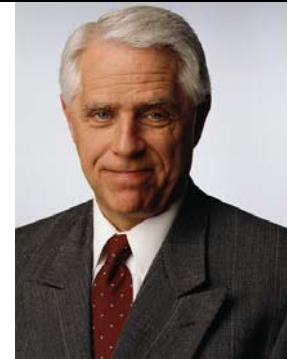
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High Risk

“Using deep geologic isolation to dispose of radioactive wastes from nuclear power plants would put human health and the environment at risk. The concept seems simple: contain the wastes in underground bedrock isolated from humans and the biosphere. The problem in practice is that there is no way to assure that the geologic conditions relied upon to contain the wastes won’t change over time. Nor is there any way to assure the human materials used to transport wastes to the site, or to contain them inside of the isolation facilities, won’t break down, releasing radioactivity into the environment. . . . These are the sorts of lessons one learns from the complex problems that have plagued safety engineering for the space shuttle, but here the costs of failure are simply too high.



Oliver Roberts

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Concealed Carry Laws

High Risk
(Increase crime)

“So-called ‘concealed carry’ laws *increase violent crime*. The claim that allowing people to carry concealed handguns reduces crime is not only contrary to common-sense, but also unsupported by the evidence. . . . Looking at data from 1977 to 2005, the 22 states that prohibited carrying handguns in public went from having the *highest* rates of rape and property offenses to having the *lowest* rates of those crimes. . . .To put an economic price tag on the issue, I estimate that the cost of “concealed carry laws” is around \$500 million a year in the U.S.”



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Low Risk
(Decrease Crime)

“Overall, ‘concealed carry’ laws *decrease violent crime*. The reason is simple: potential criminals are less likely to engage in violent assaults or robberies if they think their victims, or others in a position to give aid to those persons, might be carrying weapons. . . . Based on data from 1977 to 2005, I estimate that states without such laws, as a group, would have avoided 1,570 murders; 4,177 rapes; and 60,000 aggravated assaults per year if they had they made it legal for law-abiding citizens to carry concealed handguns. Economically speaking, the annual gain to the U.S. from *allowing* concealed handguns is at least \$6.214 billion.”



James Williams

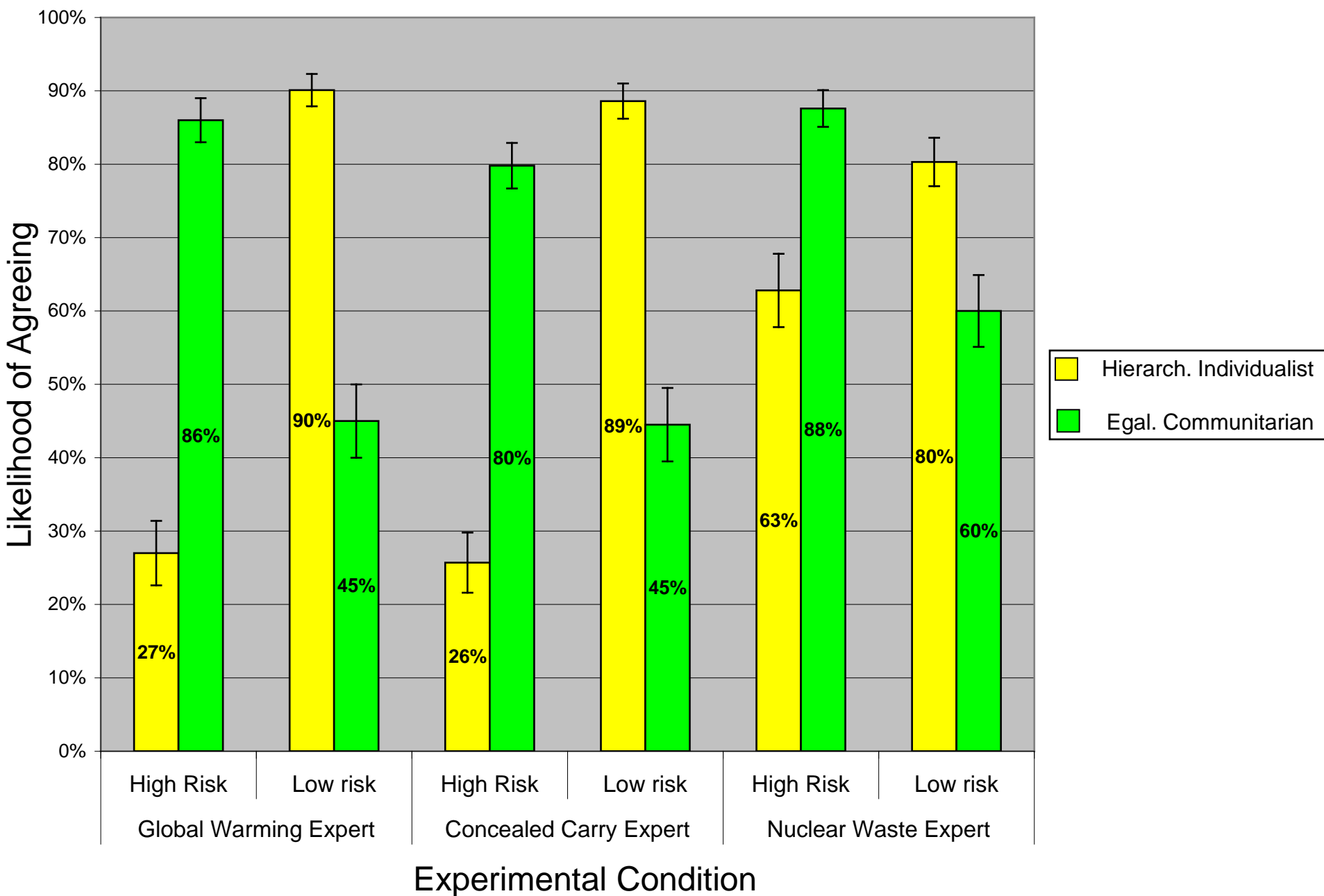
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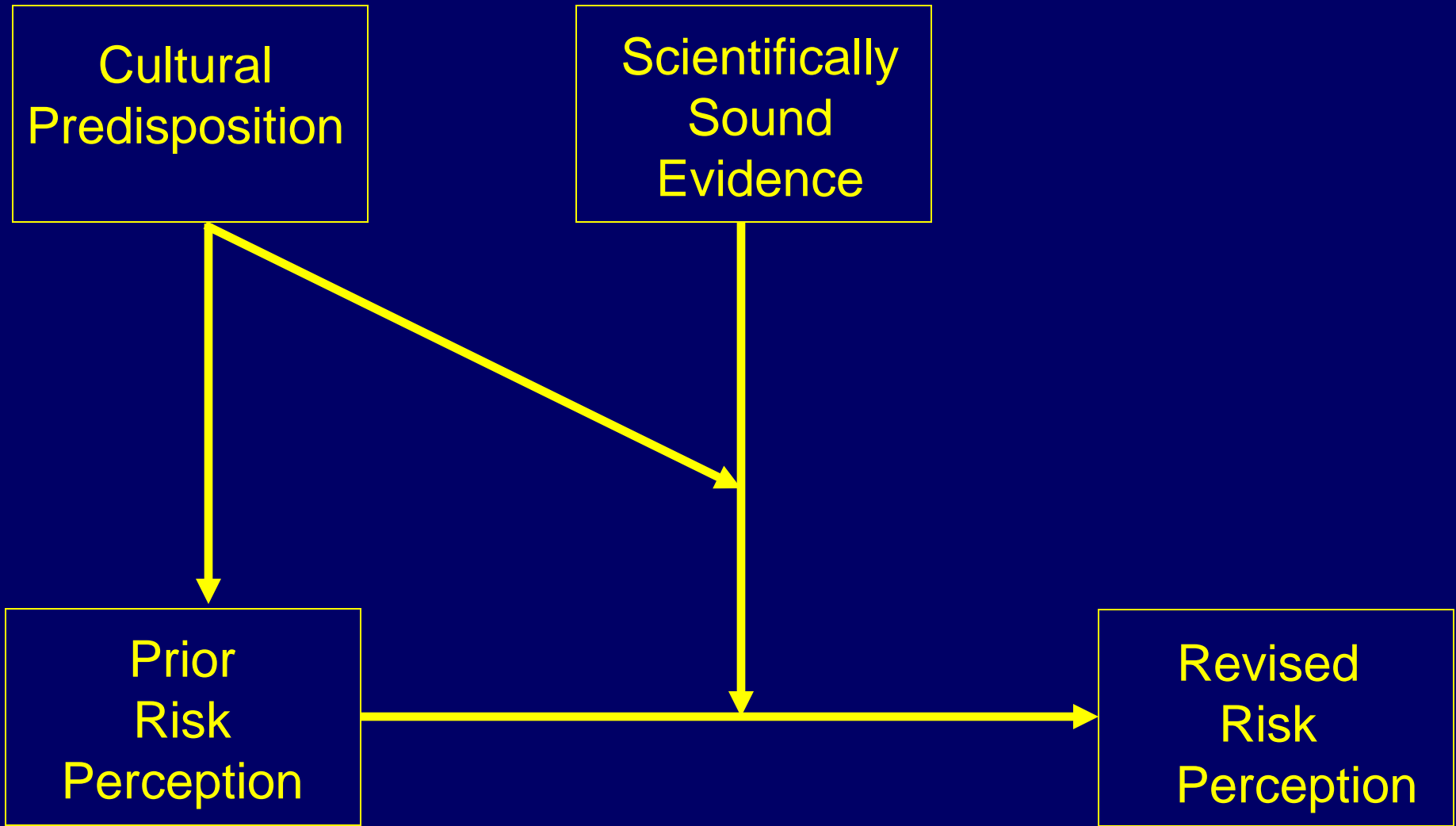
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"I believe the author is a trustworthy and knowledgeable expert"



N = 1,500. Derived from ordered logistic regression. Confidence intervals reflect .95 level of confidence.



Cultural Cognition and Risk Communication

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By Jeffrey Cohen
November 15, 2006

The American Academy of Environmental Scientists, a panel consisting of leading U.S. experts, today recommended revitalization of the nation's nuclear power industry as a response to global warming.

"Fossil fuels such as coal, natural gas, and oil are the leading cause of global warming," explained Dr. Jonathan Brastil, head of the Academy. "To reduce reliance on such fuels, we strongly recommend broad scale commercial development of nuclear power, including the repeal of government regulations from the 1970s and 1980s that now discourage private investment in the nuclear industry." Brastil said.

Highlights of AAES Report

- Scientific evidence furnishes *irrefutable proof of global warming*. Some of the most obvious effects are visible in the Arctic, where rising temperatures and melting ice have dramatically changed the region's unique landscapes and wildlife.
- Global warming is *caused by* carbon dioxide and other heat-trapping gases that are emitted primarily by the burning of *fossil fuels*. These gases remain in our atmosphere for decades or even centuries.
- If it continues, global warming could have *catastrophic environmental and economic consequences*. Among the results will be extreme heat and drought, rising sea levels, and higher-intensity tropical storms. Such conditions will endanger coastal property and resources, diminish the habitability of major cities, and curtail the productivity of our farms, forests, and fisheries.
- Fossil fuels such as coal, natural gas, and oil are the leading cause of global warming. To reduce reliance on such fuels, we strongly recommend the *broad scale commercial development of nuclear power*, which does not emit any heat-trapping gasses. We urge *repeal of government regulations that discourage investment* in this form of energy.

The group's recommendation was made in a report that examined the extent and causes of global warming and the likely consequences that would occur if global warming were not reversed.

Scientific Panel Recommends Anti-Pollution Solution to Global Warming

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November 15, 2006

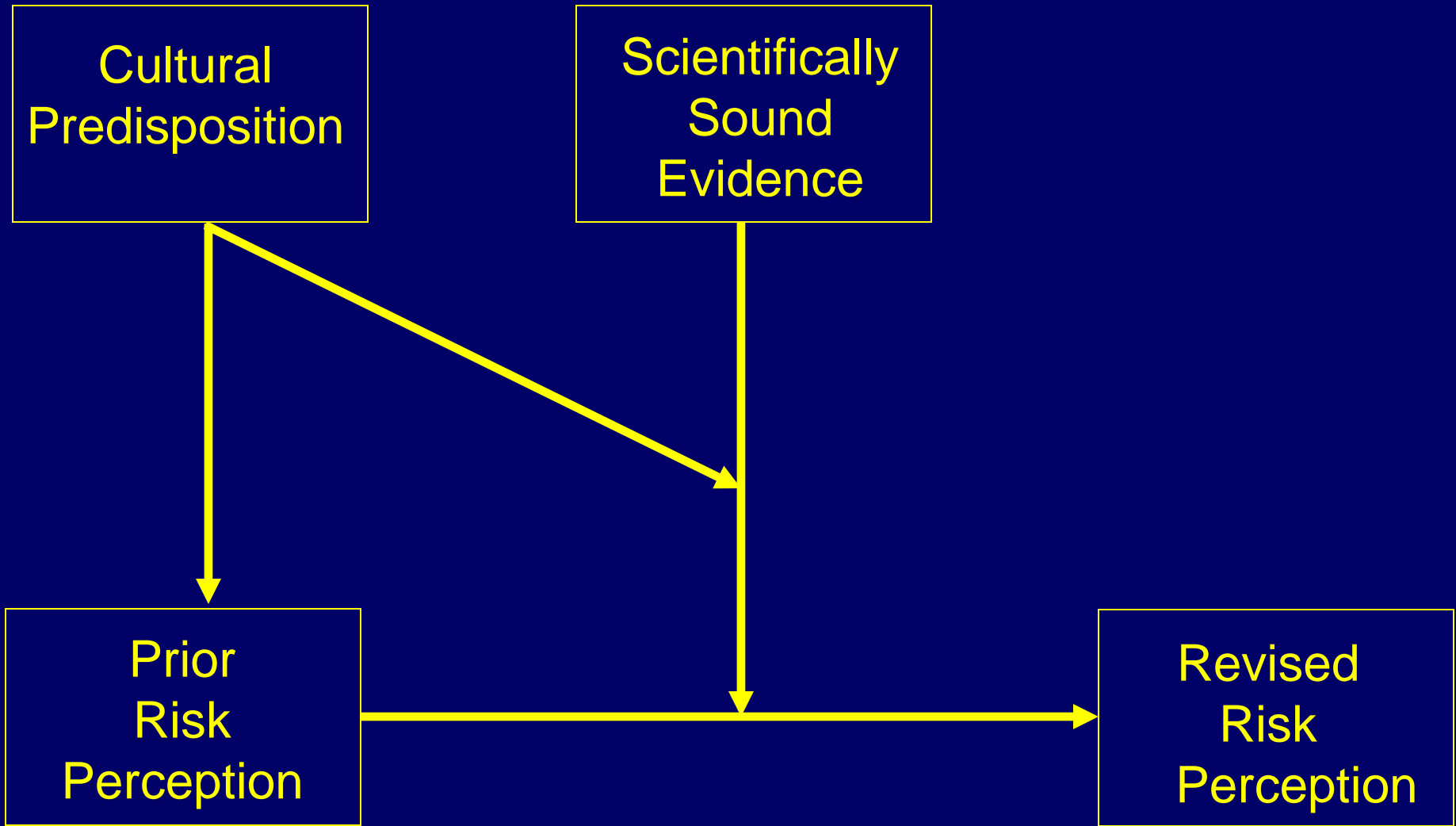
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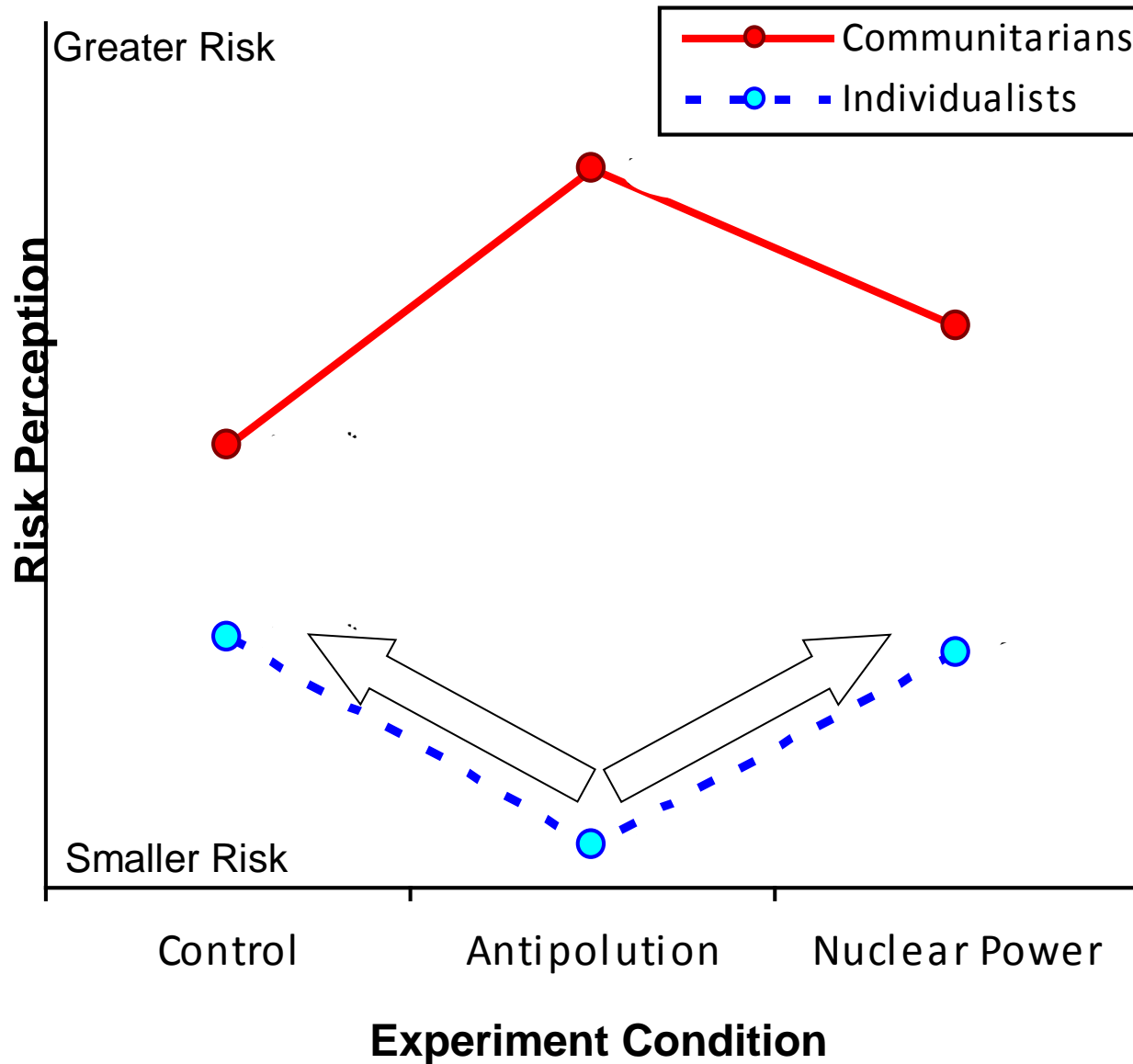
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N = 750. 6-pt likert Gwrisk scale. Differences in differences in conditions significant at $p < .05$

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Culturally Identifiable Experts

Hierarchist



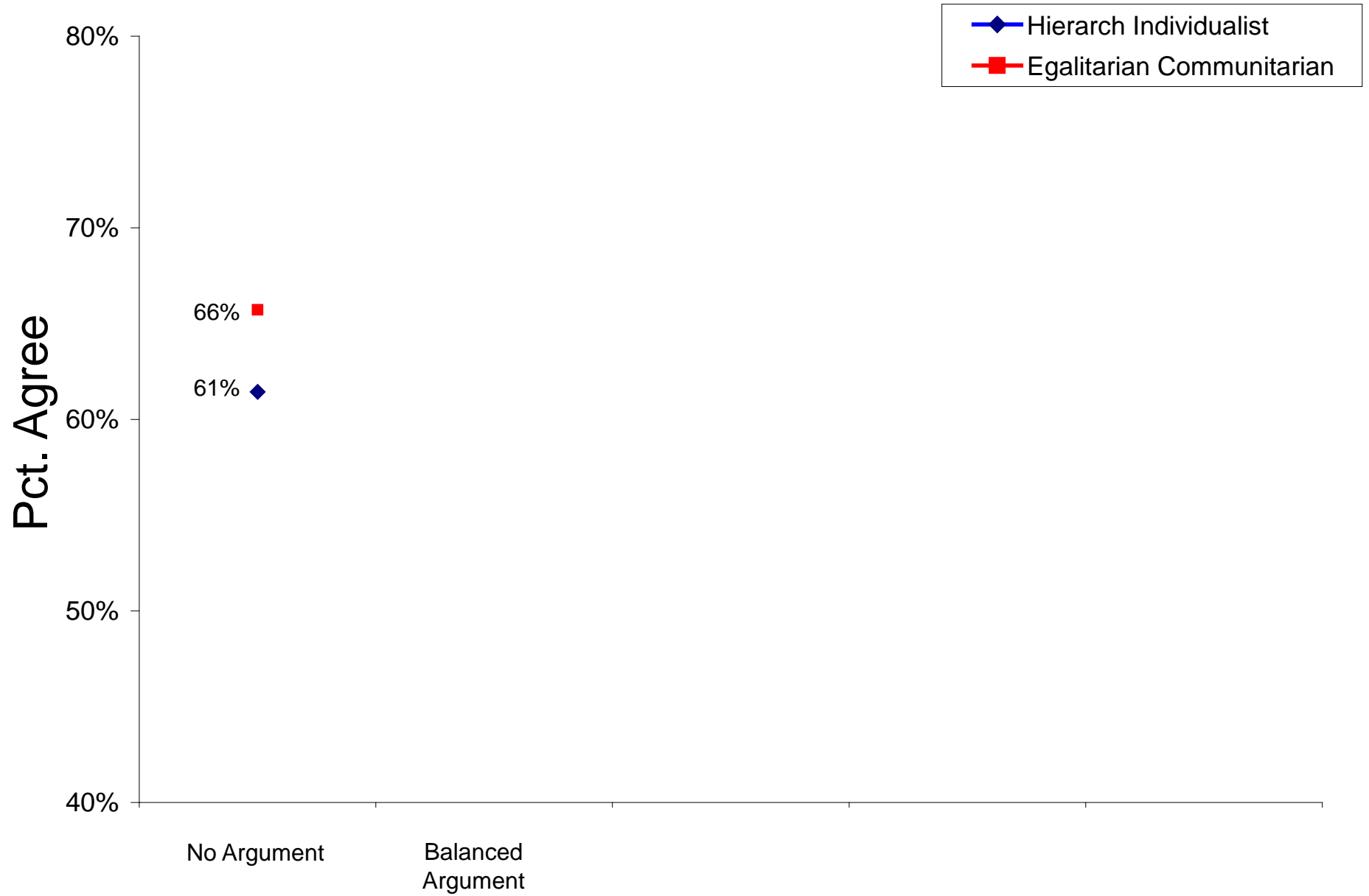
Individualist

Communitarian

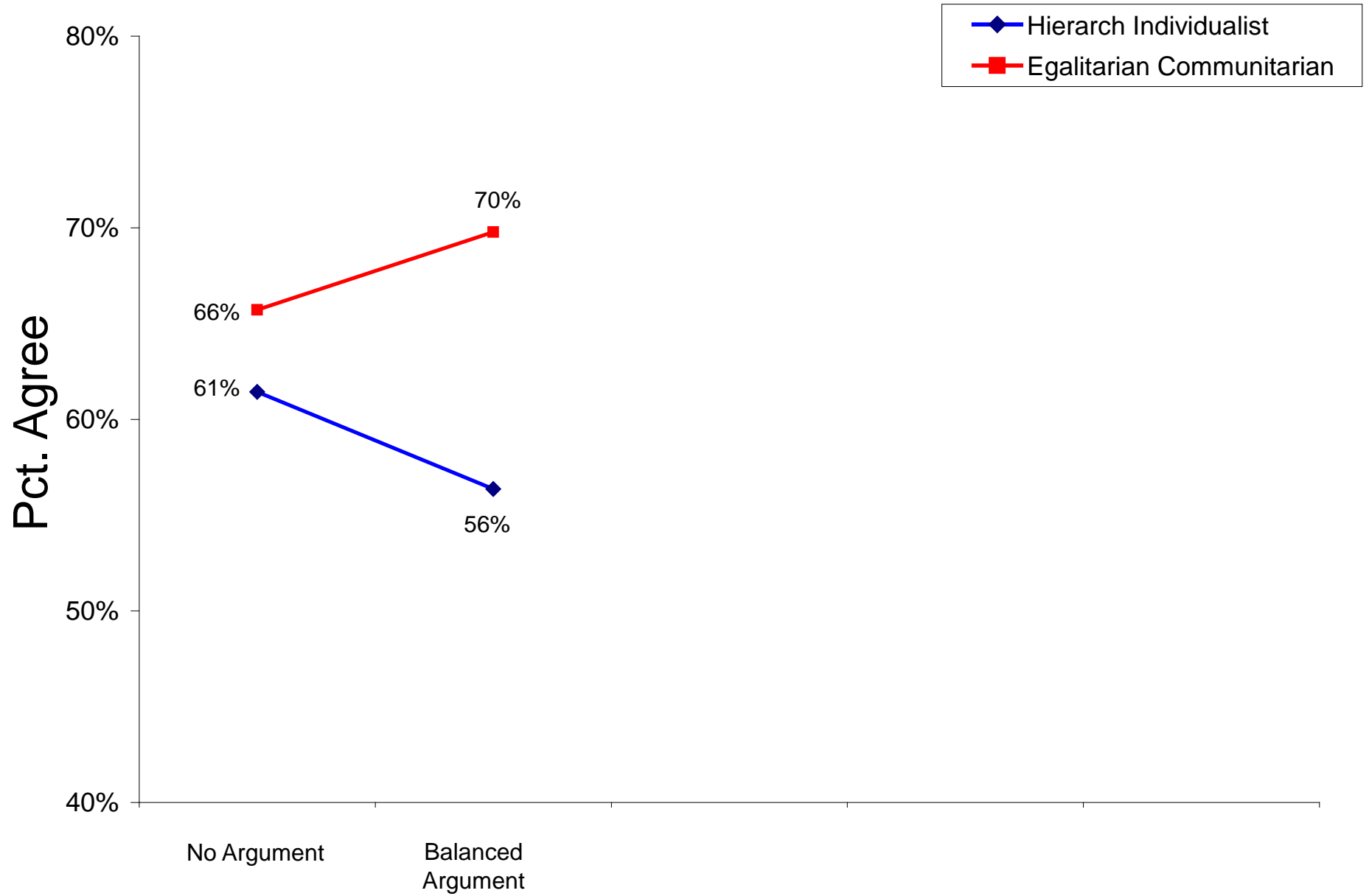


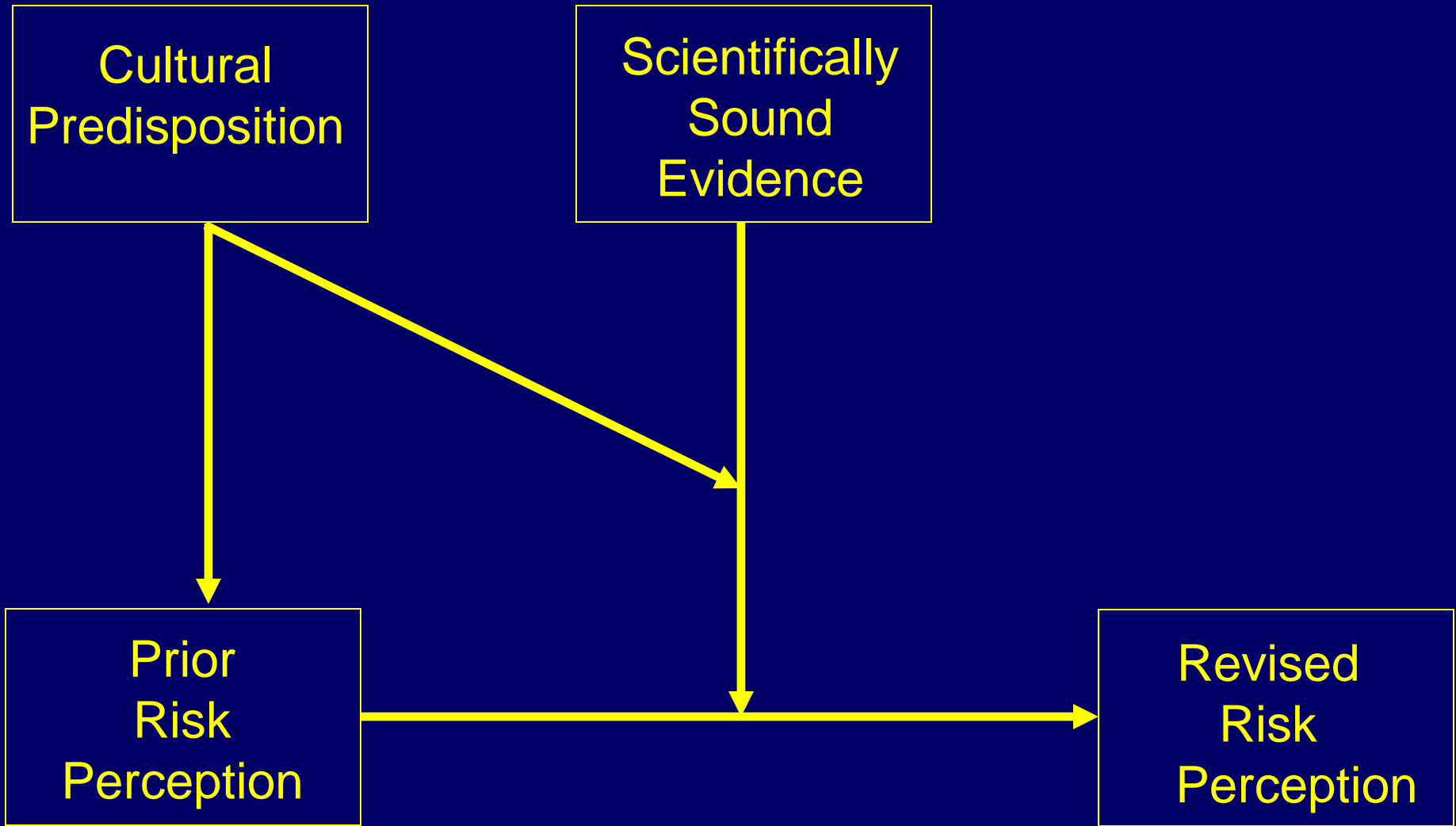
Egalitarian

“The HPV vaccine is safe for use among young girls...”



“The HPV vaccine is safe for use among young girls...”





Culturally Identifiable Experts

Hierarchist



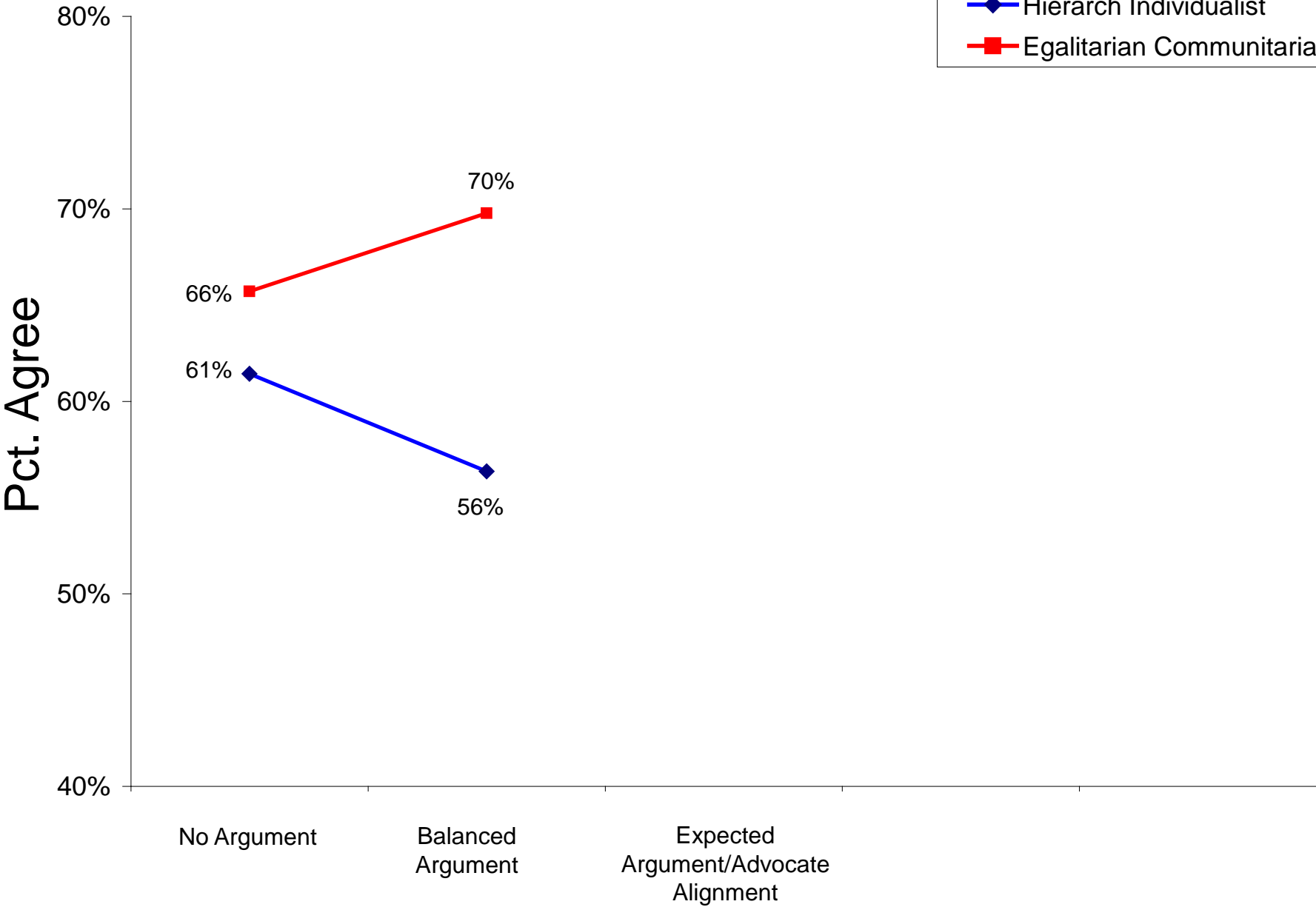
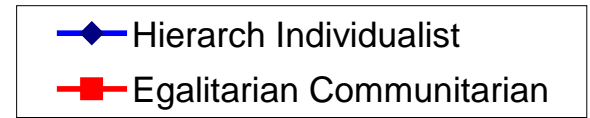
Individualist ←

→ *Communitarian*

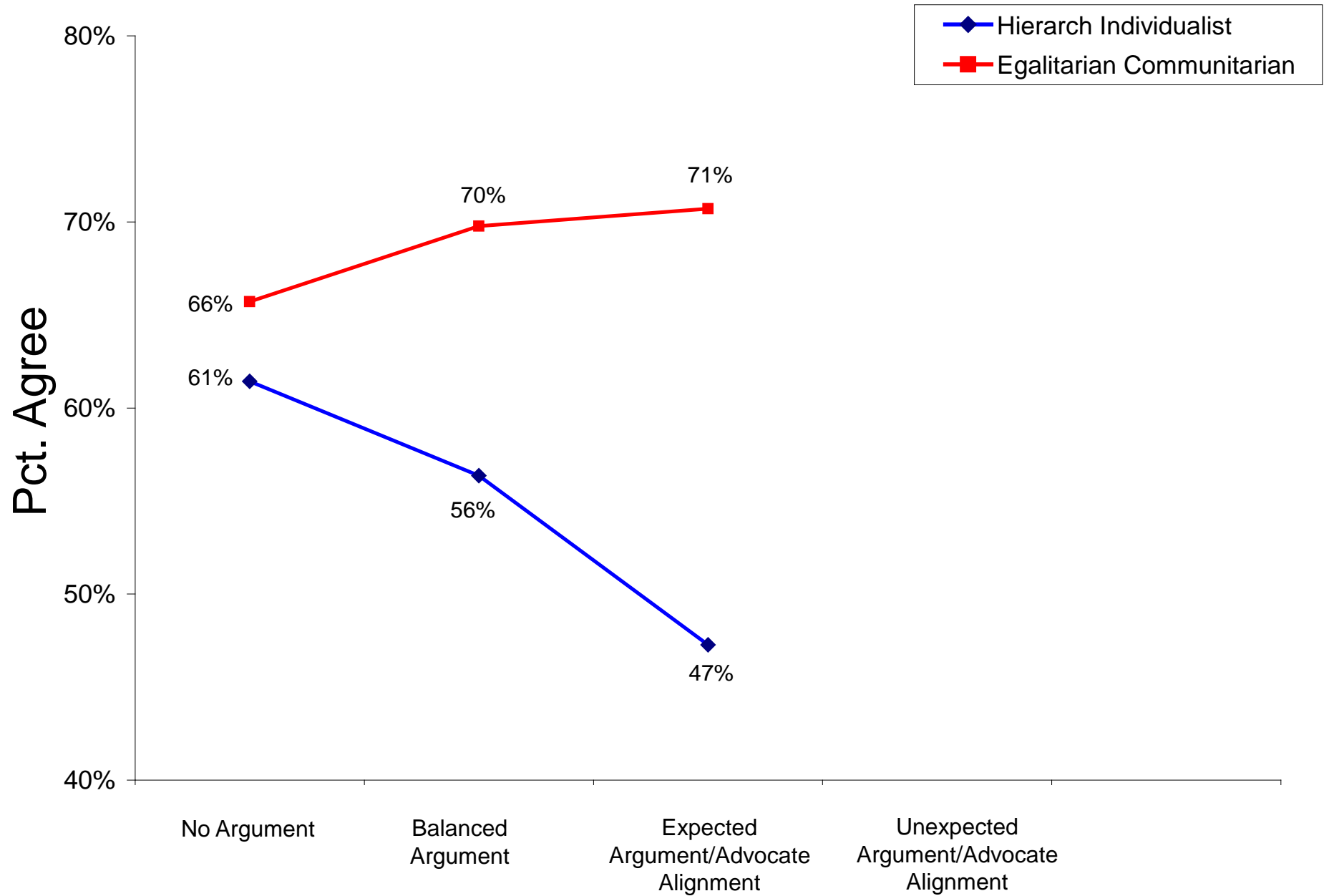


Egalitarian

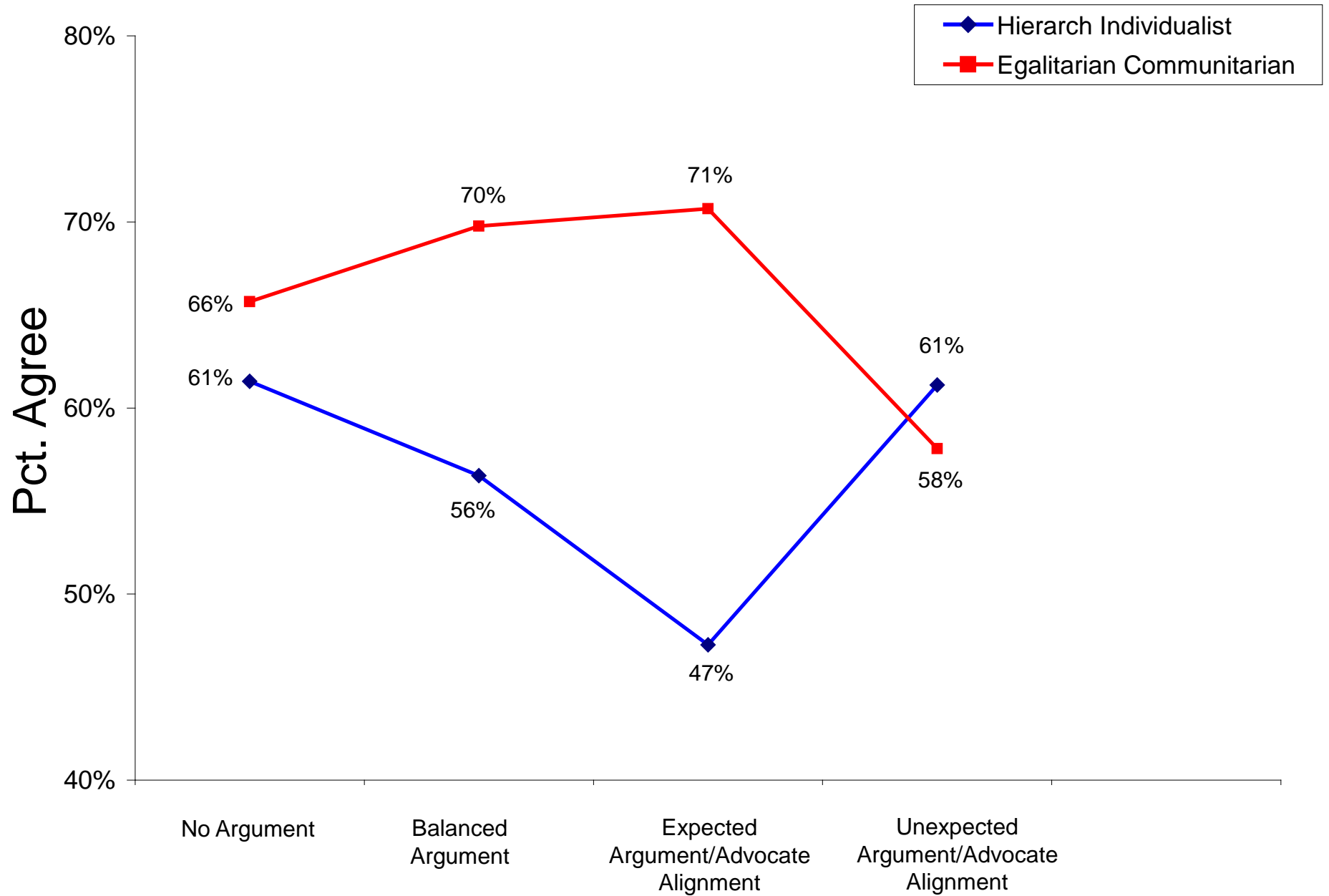
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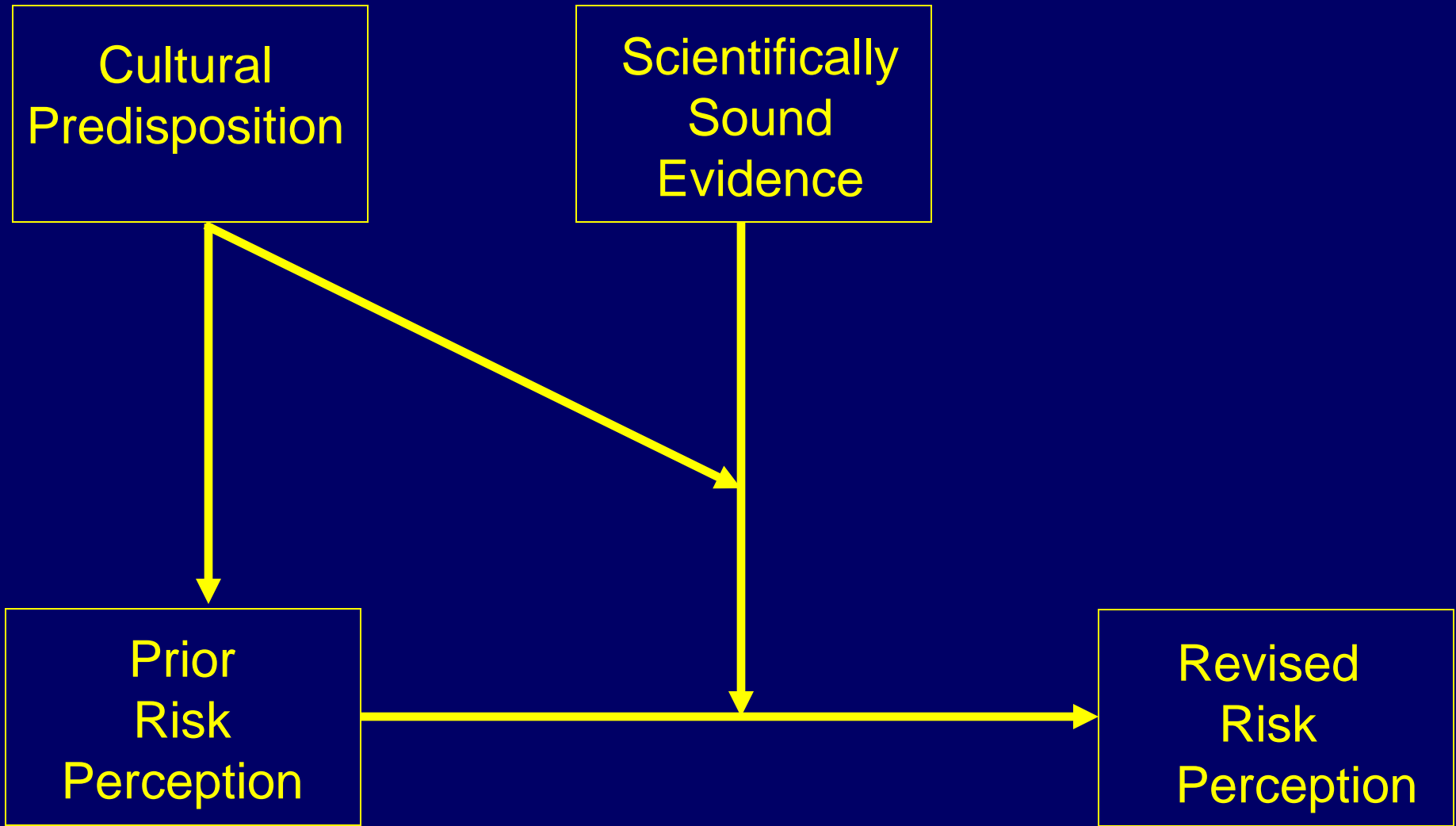


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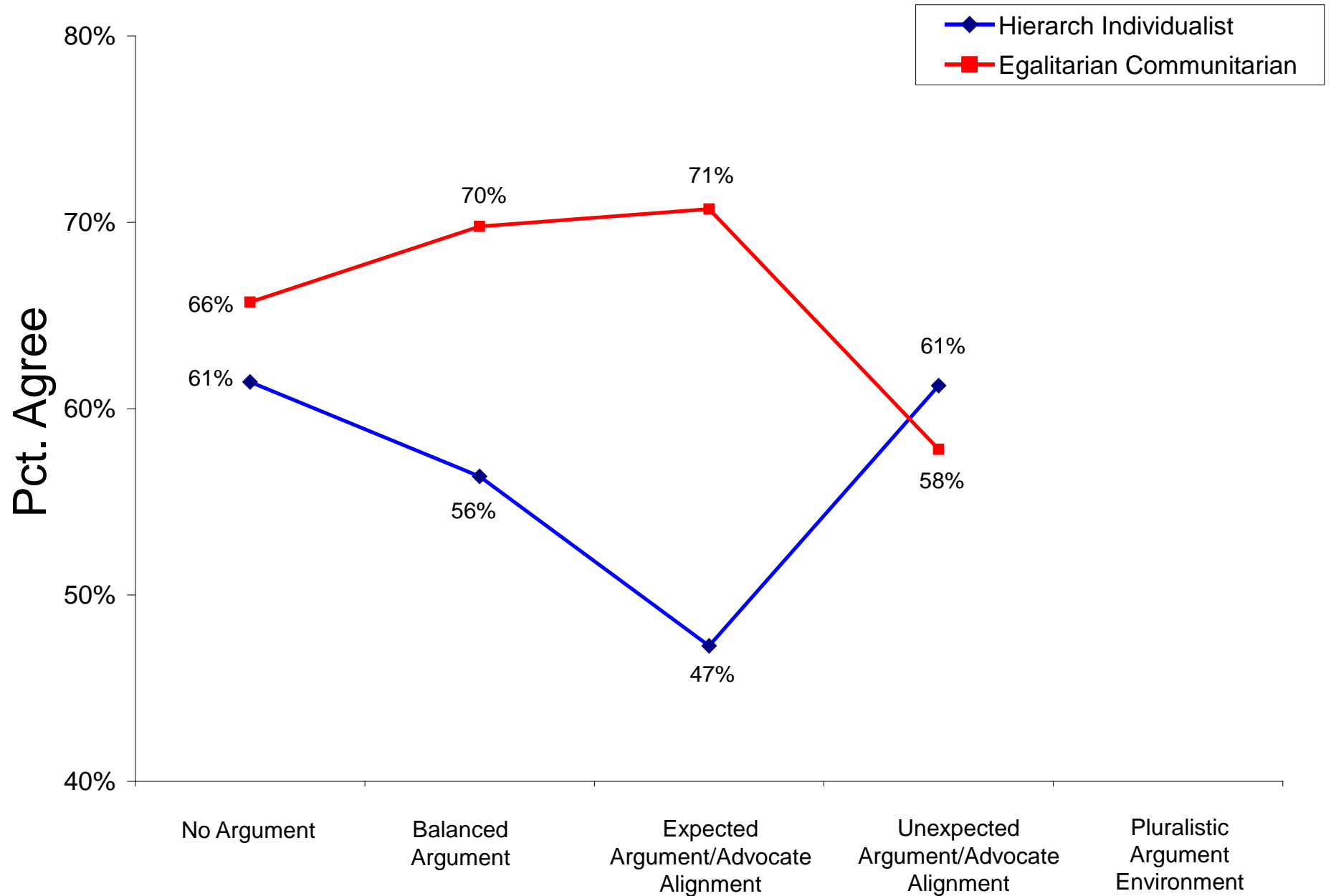


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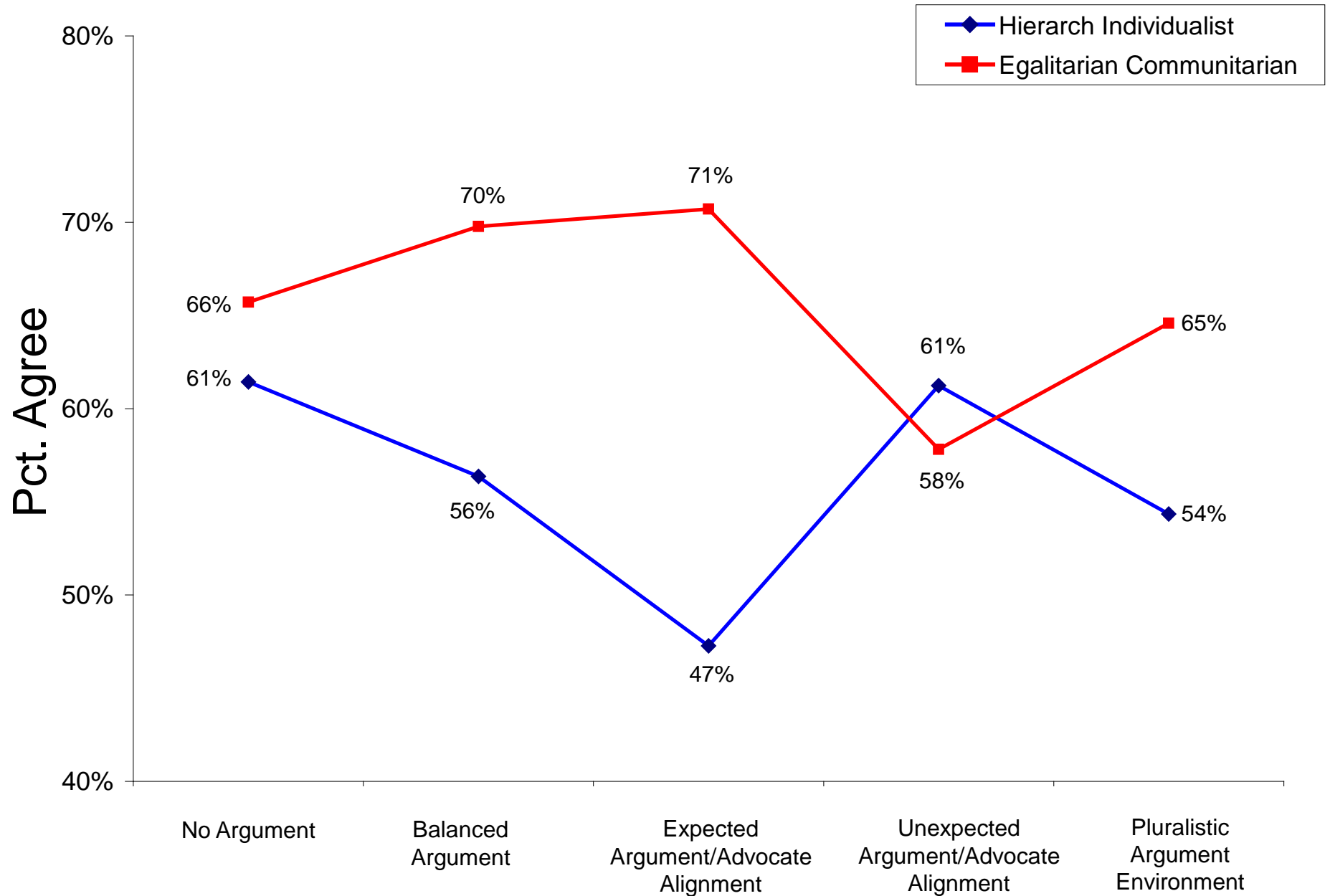




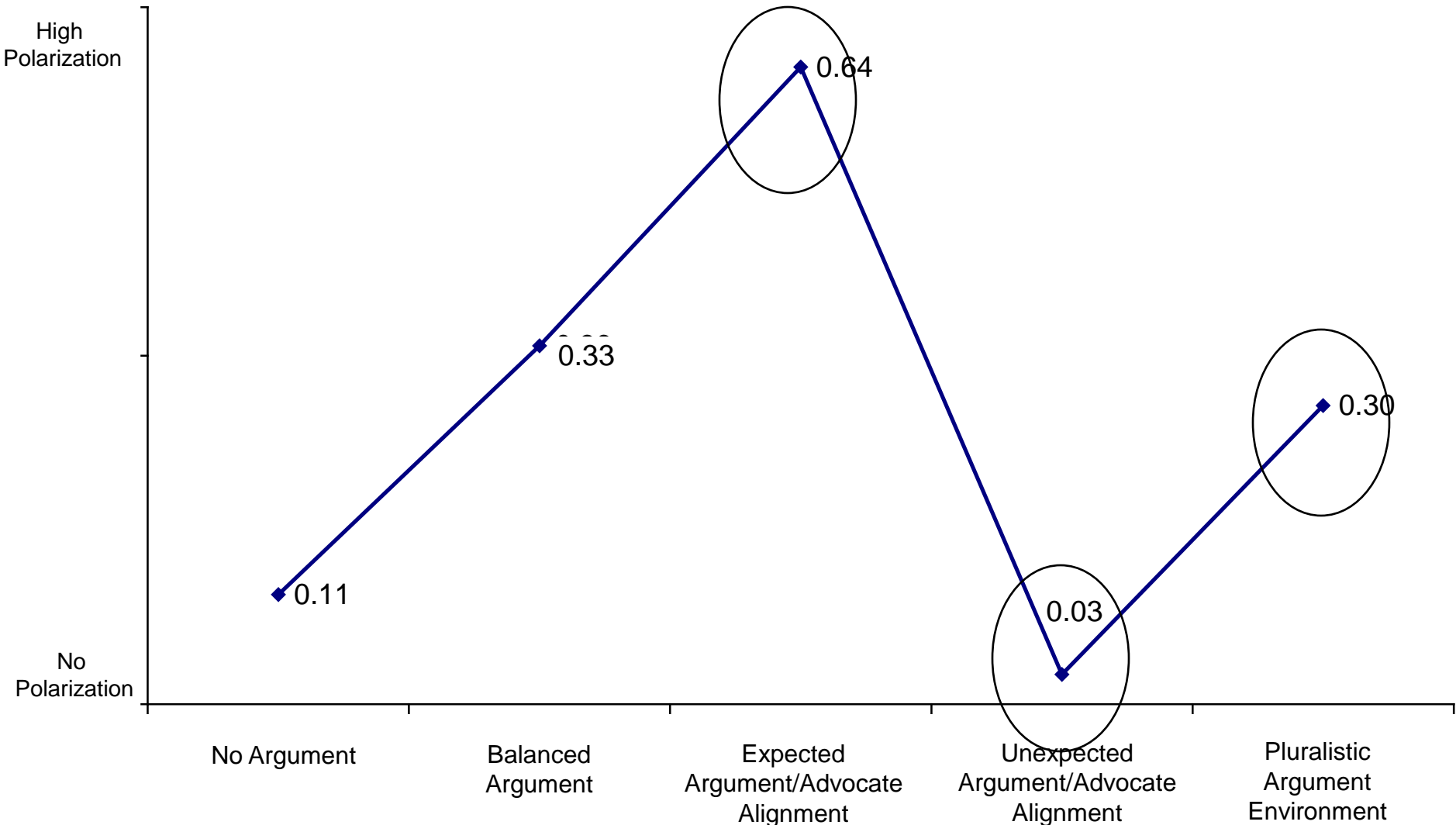
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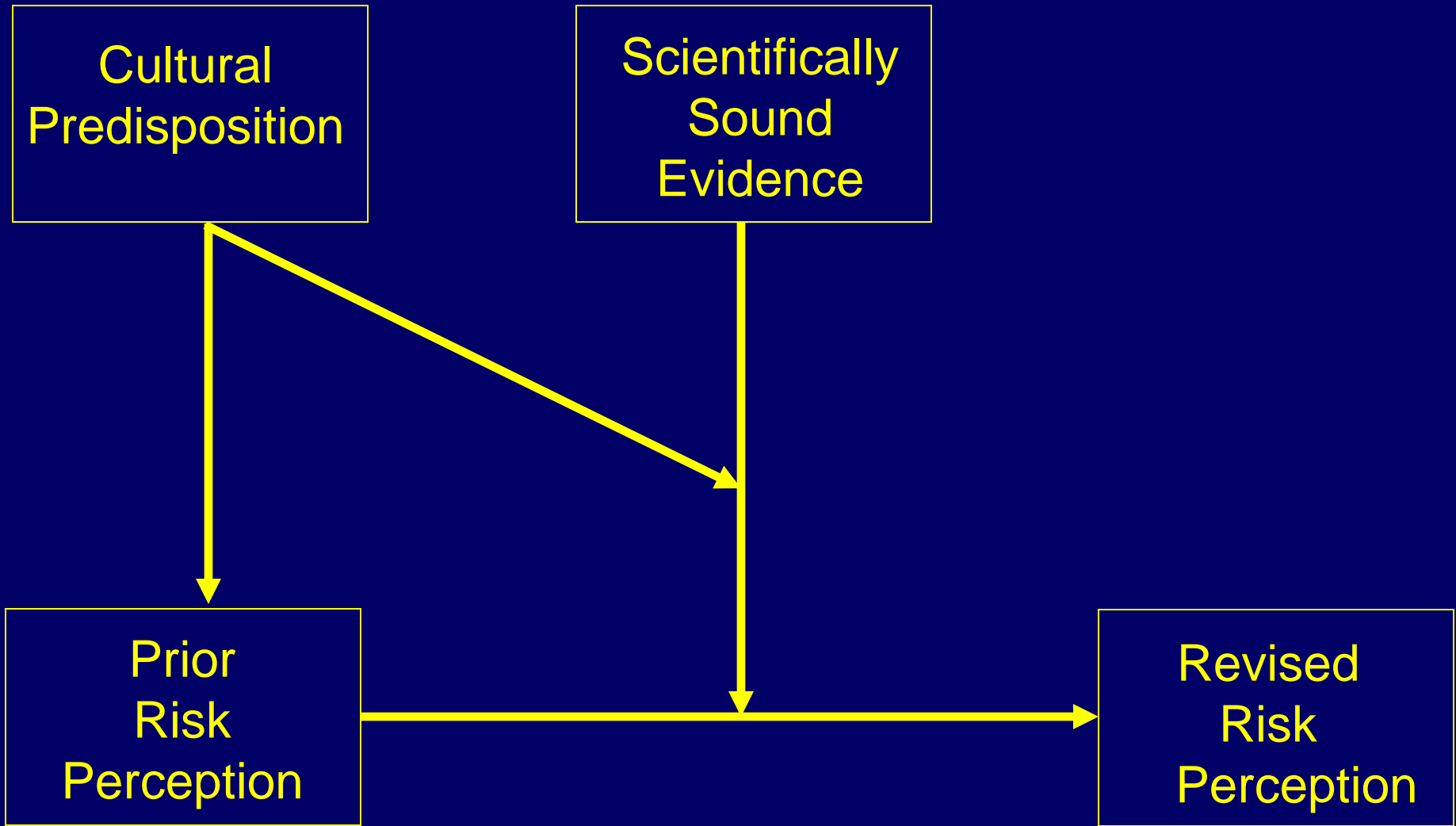
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Polarization of Egalitarian Communitarians & Hierarchical Individualists, Across Conditions



N = 1,500. 6 pt VACRISK composite scale. Differences between all conditions except (1) "Balanced Argument" and "Pluralistic Argument Environment," and (2) "No Argument" and "Unexpected Argument/Alignment" are significant at $p < .05$



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“

“Our time has come....”

Hierarchist



Individualist



Communitarian



Egalitarian



Individualism-Solidarism, Alpha = .88

| | |
|----------|---|
| IENJOY | People who are successful in business have a right to enjoy their wealth as they see fit. |
| IFIX | If the government spent less time trying to fix everyone's problems, we'd all be a lot better off. |
| IGOVWAST | Government regulations are almost always a waste of everyone's time and money. |
| IINTRFER | The government interferes far too much in our everyday lives. |
| IMKT | Free markets--not government programs--are the best way to supply people with the things they need. |
| INEEDS | Too many people today expect society to do things for them that they should be doing for themselves. |
| INEEDY | It's a mistake to ask society to help every person in need. |
| IPRIVACY | The government should stop telling people how to live their lives. |
| IProfit | Private profit is the main motive for hard work. |
| IPROTECT | It's not the government's business to try to protect people from themselves. |
| IRESPON | Society works best when it lets individuals take responsibility for their own lives without telling them what to do. |
| ITRIES | Our government tries to do too many things for too many people. We should just let people take care of themselves. |
| SHARM | Sometimes government needs to make laws that keep people from hurting themselves. |
| SLIMCHOI | Government should put limits on the choices individuals can make so they don't get in the way of what's good for society. |
| SNEEDS | It's society's responsibility to make sure everyone's basic needs are met. |
| SPROTECT | The government should do more to advance society's goals, even if that means limiting the freedom and choices of individuals. |
| SRELY | People should be able to rely on the government for help when they need it. |

Hierarchy-Egalitarianism, Alpha = .89

| | |
|-----------|---|
| HCHEATS | It seems like the criminals and welfare cheats get all the breaks, while the average citizen picks up the tab. |
| HEQUAL | We have gone too far in pushing equal rights in this country. |
| HFEMININ | Society as a whole has become too soft and feminine. |
| HREVDIS1 | Nowadays it seems like there is just as much discrimination against whites as there is against blacks. |
| HREVDIS2 | It seems like blacks, women, homosexuals and other groups don't want equal rights, they want special rights just for them. |
| HTRADFAMA | A lot of problems in our society today come from the decline in the traditional family, where the man works and the woman stays home. |
| HWMNRTS | The women's rights movement has gone too far. |
| EDISCRIM | Discrimination against minorities is still a very serious problem in our society. |
| EDIVERS | It's old-fashioned and wrong to think that one culture's set of values is better than any other culture's way of seeing the world. |
| EGAYMAR | A gay or lesbian couple should have just as much right to marry as any other couple. |
| ERADEQ | We need to dramatically reduce inequalities between the rich and the poor, whites and people of color, and men and women. |
| EROUGH | Parents should encourage young boys to be more sensitive and less "rough and tough." |
| EWEALTH | Our society would be better off if the distribution of wealth was more equal. |
| EXSEXIST | We live in a sexist society that is fundamentally set up to discriminate against women. |