



# EcoTypes: Creative Tensions in Environmental Ideas

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[ds.lclark.edu/ecotypes](https://ds.lclark.edu/ecotypes)



# Let's Talk About Our Differences I: Session

- “Engaging Many Shades of Green in Challenging Times”
  - ...challenging times: [Need we say more?]
  - ...many shades of green: Can we recognize different ways to care?
  - Engagement
    - Not just “civic engagement” ...certainly not Reagan-era “constructive engagement”
    - Etymology suggests three resonant notions
      - Connection: One always engages *with* someone
      - Commitment: Engagement as in betrothal
      - Communication: Engagement as in give and take

# Let's Talk About Our Differences II: EcoTypes

- Who likes binaries? No thoughtful person does
  - E.g., Gallup: [Environmental protection vs. economic growth, 1987-2017](#) (??)
- But solutions to binaries are not always compelling, or possible
  - Common ground: "Can't we all just get along?"
  - Divorce: "Pick your side and do it/fight for it"
- Sometimes the creative tension of binaries offers productive dialogue
  - [Niels Bohr](#): "The opposite of a profound truth is another profound truth"
  - But only with true engagement (connection/commitment/communication)
  - EcoTypes axes/poles may suggest this opportunity

# EcoTypes vs. Other Typologies

- Typically, one shade of green (see EcoTypes > [Environmental Typologies](#))
  - New Ecological Paradigm: 5 characteristics (e.g., anti-anthropocentrism)
  - Enviro Attitudes Inventory: 12 factors, but all reduce to “generalized enviro attitudes”
- EcoTypes Initiative ([ds.lclark.edu/ecotypes](https://ds.lclark.edu/ecotypes))
  - Describe a *wide range of environmental ideas* among our students
  - *Open up the conversation* on environmental ideas among our students
  - Provide a learning and data resource for ESS students/instructors

# EcoTypes Axis Summary

| Axis                | Poles                          | Key Question  |
|---------------------|--------------------------------|---|
| <b>Change</b>       | Incremental vs. Radical        | Can we achieve desired environmental changes step by step, or are bigger changes needed?            |
| <b>Domain</b>       | Material vs. Ideal             | Should we focus more on environmentally relevant behavior and practices, or values and ideas?       |
| <b>Ethics</b>       | Anthropocentric vs. Biocentric | Should nature be valued for how it serves humans alone, or for its own sake as well?                |
| <b>Future</b>       | Hopeful vs. Apocalyptic        | Can we reasonably look forward to a positive ecological future, or is crisis unavoidable?           |
| <b>Nature</b>       | Pure vs. Hybrid                | Is the nonhuman realm typified by its own order and harmony, or is it now interwoven with humanity? |
| <b>Scale</b>        | Individual vs. Institutional   | Can our personal practices make an ecological difference, or is collective action needed?           |
| <b>Science</b>      | Orthodox vs. Heterodox         | Should we trust the ecological findings of mainstream science vs. other factual claims?             |
| <b>Society</b>      | Consensus vs. Conflict         | Should environmental action prioritize broad agreement or focus on fundamental power differences?   |
| <b>Spirituality</b> | Sacred vs. Secular             | Is nature sacred, or does this distract us from rational environmental action?                      |
| <b>Technology</b>   | Technophilic vs. Technophobic  | Is technology a part of the solution or the problem in addressing environmental issues?             |
| <b>Time</b>         | Conservative vs. Progressive   | Should we go back to a more harmonious ecological period in time, or is it best to move forward?    |

# EcoTypes Initiative Phase I (Jan-May 2017)

## 1. Take EcoTypes survey

- [Online form](#) (~ 30 minutes)
- Content
  - Eleven [EcoTypes axes](#) (eight items each)
  - [Grid-group cultural theory & Schwartz values](#) items
  - [Demographic](#) items

## 2. Compare results with others

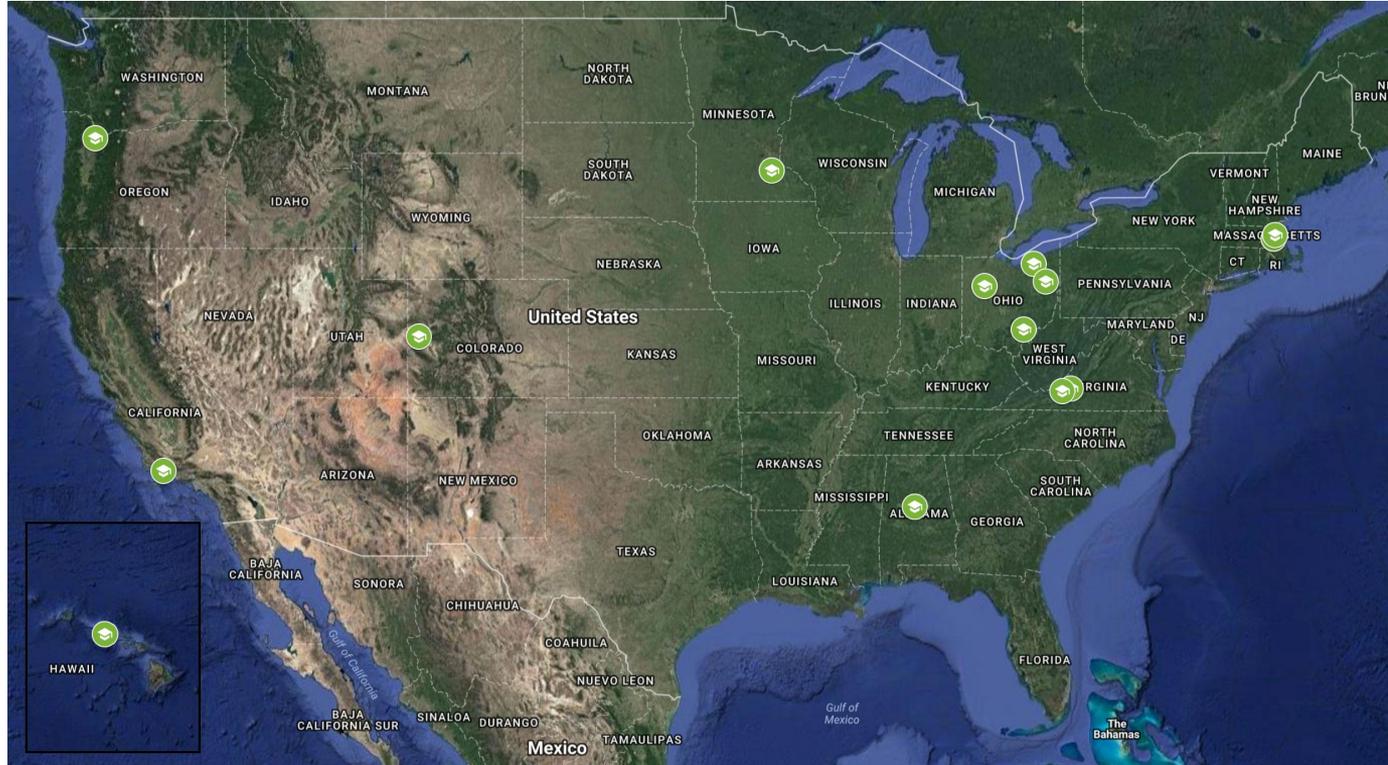
- Personalized [email report](#)
- Online dynamic charts

## 3. Learn more via [online resources](#)

# Participants

- Collaborators: 14 participating U.S. institutions
  - Variety of higher education types
- Students from selected courses
  - N (unique undergraduates) = 436 for this analysis
  - Removed non-undergrads, repeat completions
- Non-representative, but highly suggestive
  - Patterns among EcoTypes axes (& polarity score), grid-group/Schwartz values scales
  - Patterns by demographic
    - Age, gender, race/ethnicity, socioeconomic class, community size, political views
    - Class level, major, institution type
    - Environmental concern, knowledge, involvement

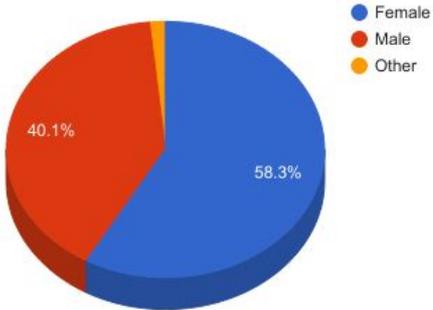
# Participating Institutions



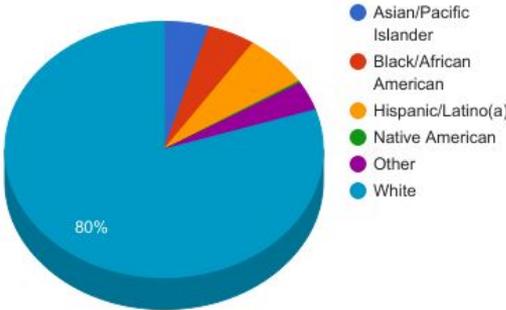
- Boston College
- Carleton College
- Cleveland State University
- Colorado Mesa University
- Hawaii Pacific University
- Lewis & Clark College
- Ohio Northern University
- Ohio University
- Roanoke College
- Santa Barbara City College
- Tufts University
- University of Montevallo
- University of Mount Union
- Virginia Tech

# Participant Demographics (Selected)

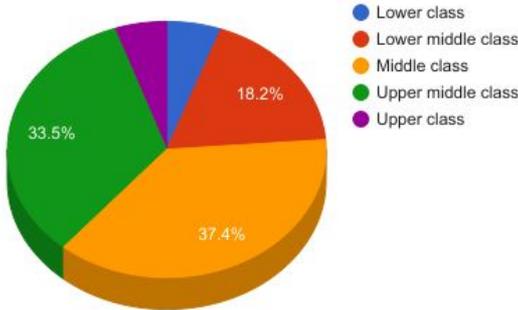
**Respondent Gender**



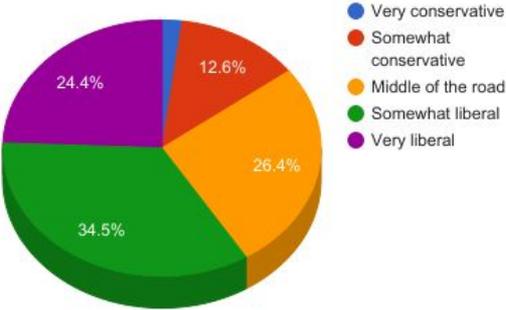
**Student Race/Ethnicity**



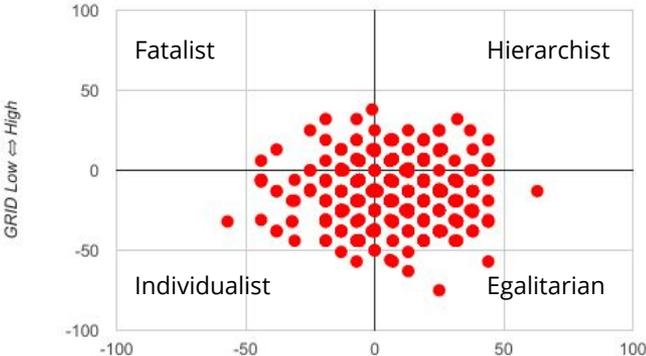
**Student Socioeconomic Class**



**Student Political Inclination**



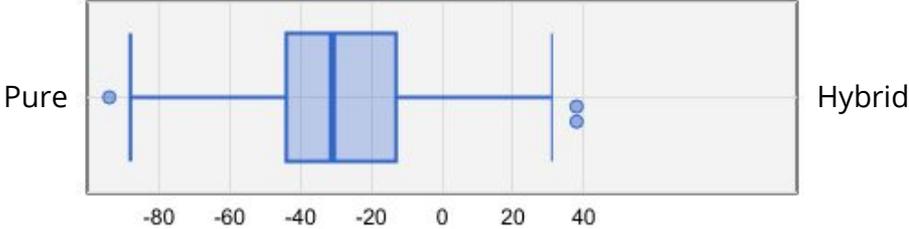
**Respondent Grid-Group Location**



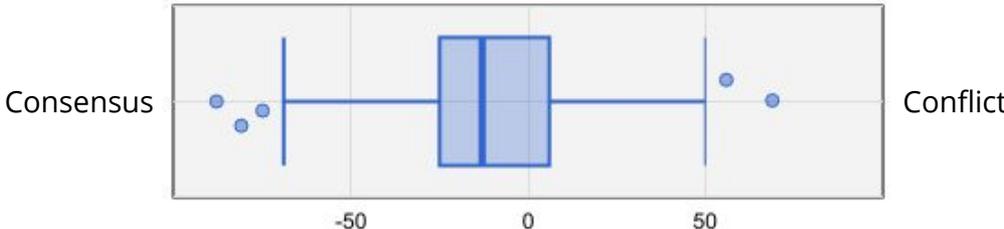
# Descriptive Results I: Reality

Mean results of eight EcoTypes items for each axis

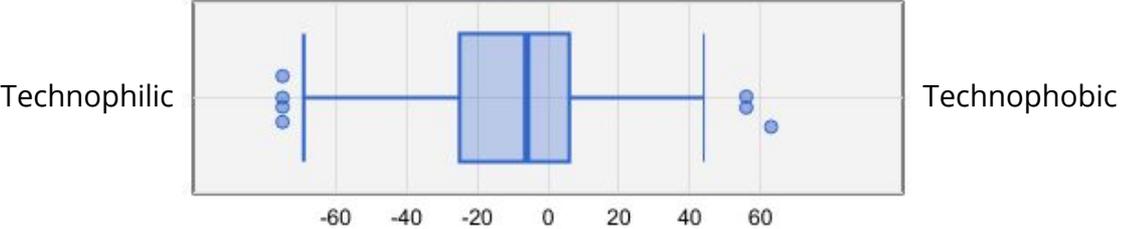
**Nature**



**Society**

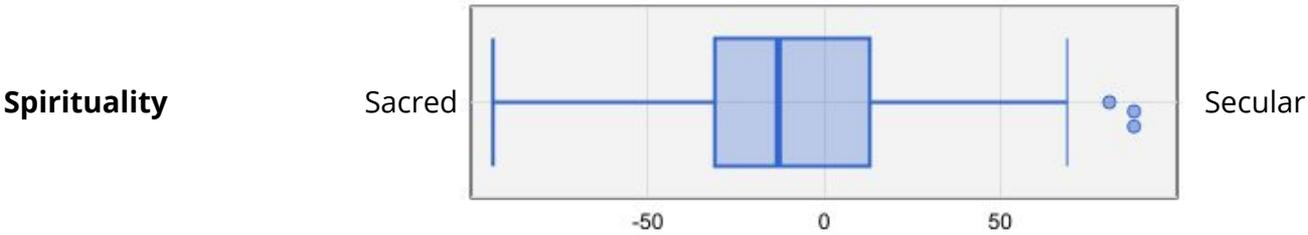
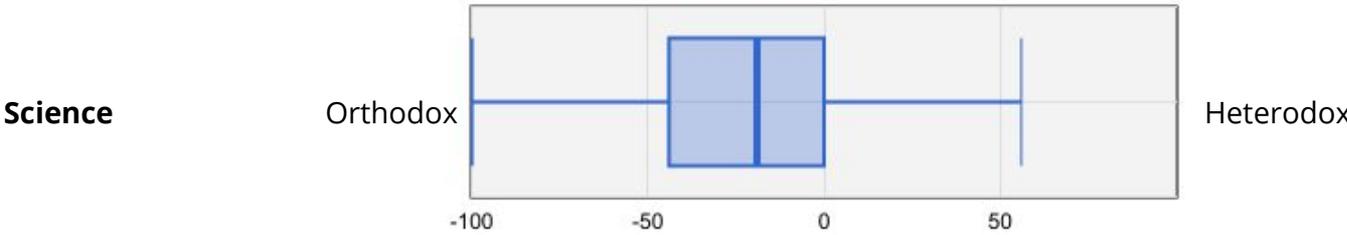
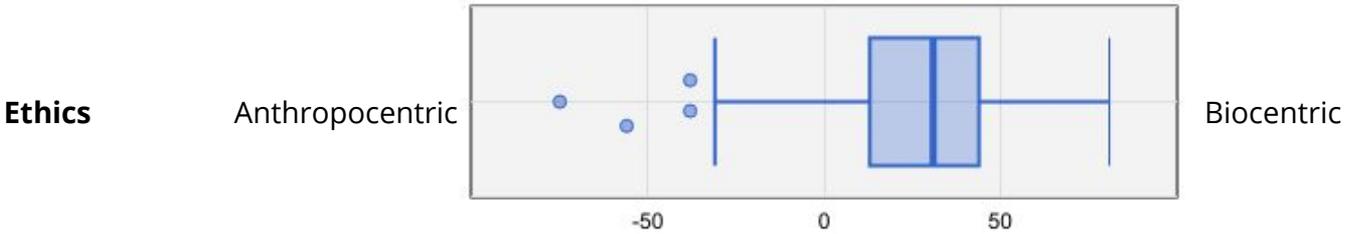


**Technology**



# Descriptive Results II: Motivation

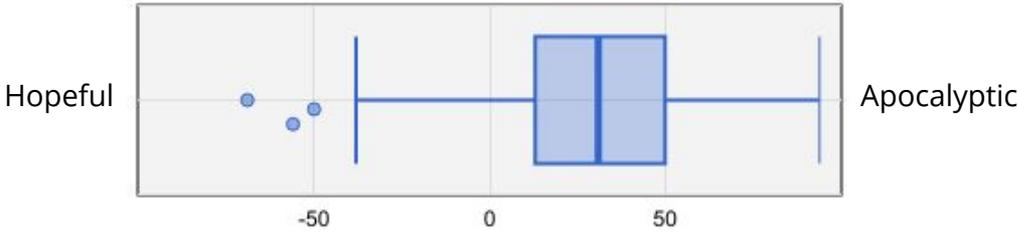
Mean results of eight EcoTypes items for each axis



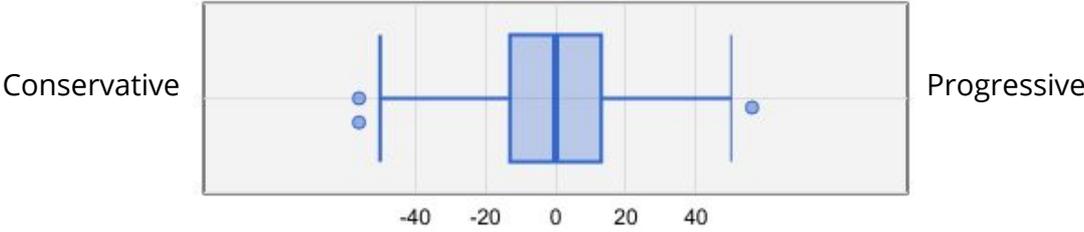
# Descriptive Results III: Trends

Mean results of eight EcoTypes items for each axis

**Future**

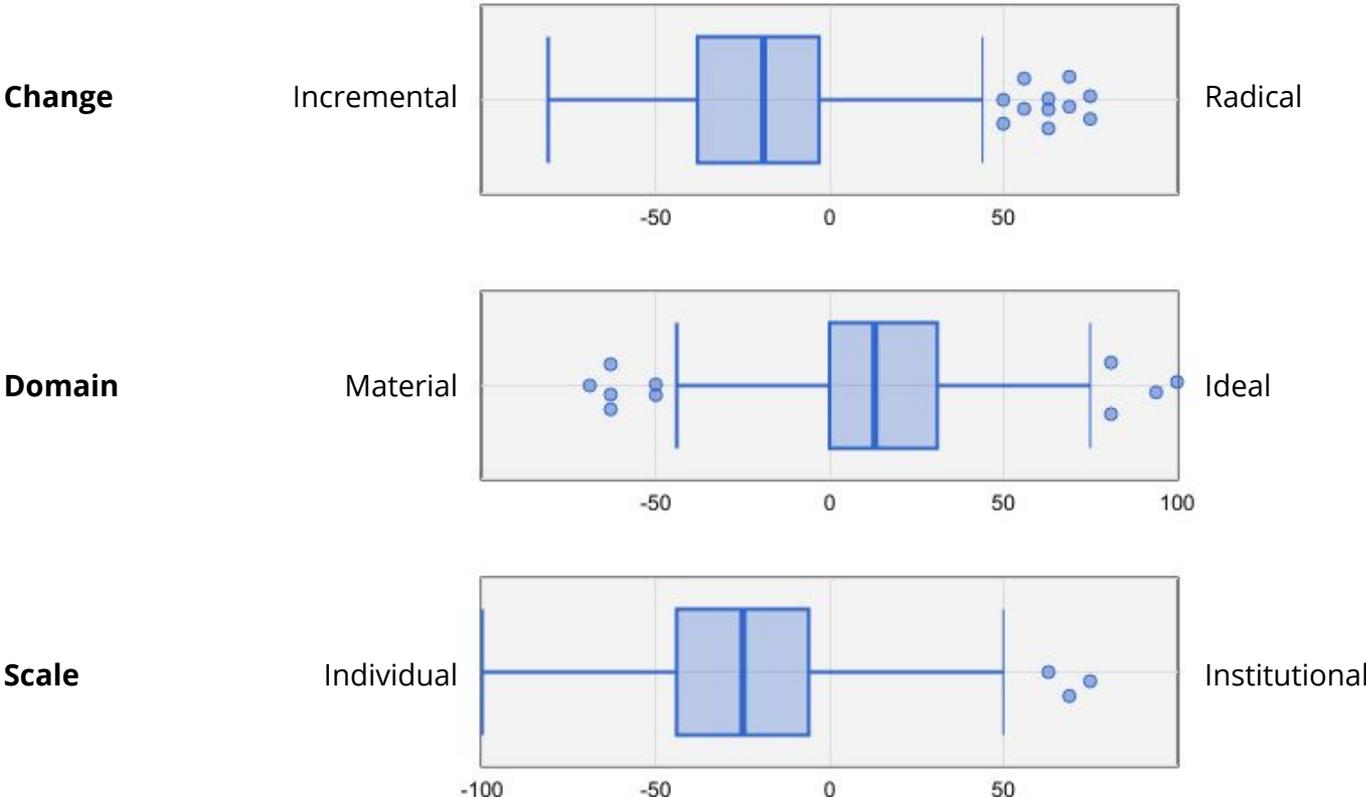


**Time**



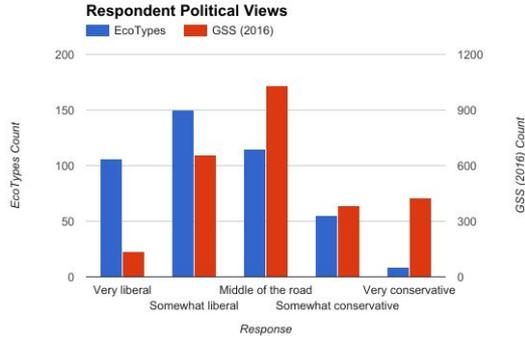
# Descriptive Results IV: Action

Mean results of eight EcoTypes items for each axis

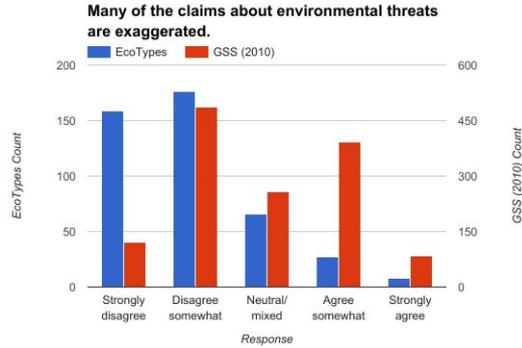


# Descriptive Results: U.S. Comparison

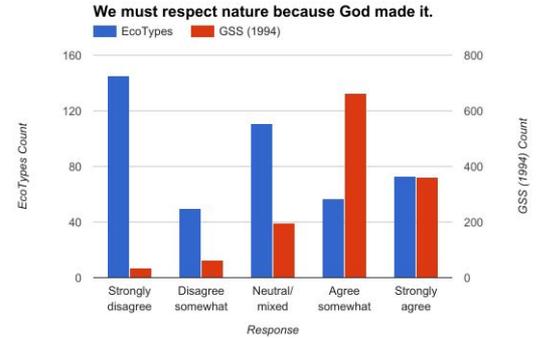
Results from EcoTypes vs. U.S. General Social Survey



Demographics



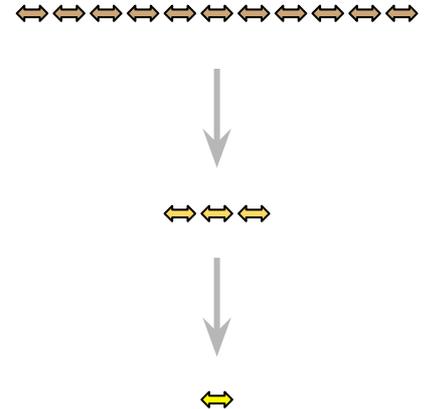
Future



Spirituality

# EcoTypes Axes to EcoTypes Factors

- Factor analysis: Data reduction technique
  - Correlated variables V1, V2, V3 → Weighted composite factor F1
  - Factors are axes of differentiation; factors are NOT clusters
  - Factor analysis suggests *our most important differences*
- Step one: EcoTypes axes as factors
  - Axis variables V1, V2, V3, etc. → Weighted axis factors F1, etc. (11)
  - Most highly weighted items helped clarify each factor
- Step two: EcoTypes “factor factors”
  - EcoTypes axis factors F1, F2, F3, etc. → Factor factors FF1, etc. (3)
  - Optimized factor factors via Varimax (orthogonal) rotation
- Step three (qualitative): Factor factor factor?
  - Cosmos & hearth (1)



# Resultant EcoTypes Axis Factors

Resultant items with (\*) reflect deviation from original

| Axis                | Assumed Poles                  | Resultant (-) vs. (+)            | Resultant Axis Factor Description (+ pole)                        |
|---------------------|--------------------------------|----------------------------------|---|
| <b>Change</b>       | Incremental vs. Radical        | Incremental vs. Radical          | Support for radical vs. incremental change                        |
| <b>Domain</b>       | Material vs. Ideal             | Less vs. More Ideal*             | Emphasis on values and ideas as fundamental                       |
| <b>Ethics</b>       | Anthropocentric vs. Biocentric | Anthropocentric vs. Biocentric   | Support for biocentric ethics beyond human needs                  |
| <b>Future</b>       | Hopeful vs. Apocalyptic        | Hopeful vs. Apocalyptic          | Apocalyptic sense of impending future crisis                      |
| <b>Nature</b>       | Pure vs. Hybrid                | Pure vs. Hybrid                  | Embrace of human manipulation of (hybrid) nature                  |
| <b>Scale</b>        | Individual vs. Institutional   | Individual vs. Institutional     | Support for institutional vs. individual scale of action          |
| <b>Science</b>      | Orthodox vs. Heterodox         | More vs. Less Trust in Science*  | Distrust in mainstream/orthodox institutional science             |
| <b>Society</b>      | Consensus vs. Conflict         | Less vs. More Emph. on Power*    | Recognition of power differences as ecologically important        |
| <b>Spirituality</b> | Sacred vs. Secular             | Sacred vs. Secular               | Nonsacredness in nature & secular approach [- God language items] |
| <b>Technology</b>   | Technophilic vs. Technophobic  | Technophilic vs. Technophobic    | Distrust in technology as environmental solution                  |
| <b>Time</b>         | Conservative vs. Progressive   | Less vs. More Trust in Progress* | Trust in future human ingenuity and progress, within limits       |

# EcoTypes Factor Factors

| Factor Factor                                     | FF1: Ecospirituality   | FF2: Antimodernity  | FF3: Big Change  |
|---|--|---|--|
| Variance Explained                                | 28.6%  | 17.6%   | 15.5%  |
| Main Axis Factors<br>(Ordered by<br>Significance) | <ul style="list-style-type: none"><li>-Ethics: Biocentrism</li><li>-Domain: Idealism</li><li>-Spirituality: Sacred Nature</li><li>-Future: Apocalyptic</li><li>-Nature: Pure</li></ul> | <ul style="list-style-type: none"><li>-Science: Distrust in science</li><li>-Time: Distrust in progress</li><li>-Technology: Phobic</li></ul> | <ul style="list-style-type: none"><li>-Change: Radical</li><li>-Scale: Institutional</li><li>-Society: Power conflicts</li></ul> |

-Reminder 1: These are axes of differentiation, named by their (+) pole above. Each represents an important *difference* among respondents. Factors are not clusters.

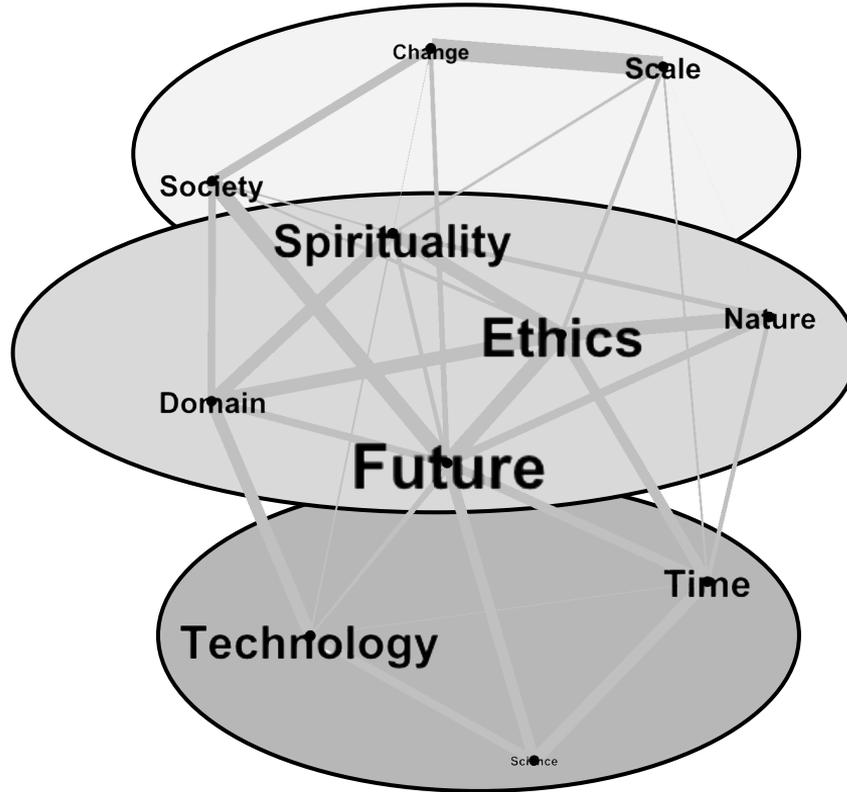
-Reminder 2: These factors are orthogonal to (independent of) each other; any particular response to one has no (statistical) bearing on the response to others.

# EcoTypes Factor Factor Correlation Network

FF3: Big Change

FF1: Ecospirituality

FF2: Antimodernity



- Included all  $|R| \geq 0.2$
- Node size: # connections
- Node proximity  $\sim |R|$
- Edge weight  $\sim |R|$
- Algorithm: Force Atlas 2

# Factor Factors & Demographics

| Factor Factor   | FF1: Ecospirituality  | FF2: Antimodernity   | FF3: Big Change  |
|---|---|--|--|
| <b>Main Axis Factors<br/>(Ordered by<br/>Significance)</b>        | <ul style="list-style-type: none"><li>-Ethics: Biocentrism</li><li>-Domain: Idealism</li><li>-Spirituality: Sacred Nature</li><li>-Future: Apocalyptic</li><li>-Nature: Pure</li></ul>  | <ul style="list-style-type: none"><li>-Science: Distrust in science</li><li>-Time: Distrust in progress</li><li>-Technology: Phobic</li></ul>  | <ul style="list-style-type: none"><li>-Change: Radical</li><li>-Scale: Institutional</li><li>-Society: Power conflicts</li></ul>   |
| <b>Associated<br/>Demographics<br/>(ANOVA +<br/>Correlations)</b> | <ul style="list-style-type: none"><li>-Female vs. male</li><li>-More politically liberal</li><li>-Grid-group: Egalitarian</li><li>-Schwartz: Self-transcendent</li><li>-More ecologically concerned</li><li>-More ecologically informed</li><li>-More ecologically involved</li><li>-Polarized ET responses</li></ul> | <ul style="list-style-type: none"><li>-</li><li>-Less politically liberal</li><li>-Grid-group: Fatalist</li><li>-</li><li>-Less ecologically concerned</li><li>-Less ecologically informed</li><li>-</li><li>-Unpolarized ET responses</li></ul> | <ul style="list-style-type: none"><li>-</li><li>-Highly politically liberal</li><li>-</li><li>-</li><li>-More ecologically concerned</li><li>-</li><li>-</li><li>-</li></ul> |

# Factor Factors: Three Points of Creative Tension

1. Ecospirituality: What sort of human-environment relations?
  - Biocentrism, idealism, pure/sacred nature, apocalyptic future vs....??
2. Antimodernity: What sort of approach to time?
  - Distrust in science, progress, technology vs....??
3. Big Change: What sort of approach to action?
  - Radical change, institutional scale, power society vs....??

*To move forward, we would need to work together to define our terms of disagreement.*

# Factor Factor Factor?: Cosmos and Hearth\*

In *The Wind in the Willows*, Mole has just returned to his cozy home underground....How good it is to be back! Yet he would not want to abandon the splendid places above ground....“The upper world was too strong, it called to him still, even down there, and he knew he must return to the larger stage” (p. 1).

“Cosmopolitan hearth” is a contradiction in terms and this fact, perhaps, defines our dilemma—a human dilemma that has always existed but that becomes more evident as we move from traditional to modern, then high modern. The dilemma is captured by the observation...that whereas plants have roots, human beings have feet (p. 187).

|       | <b>Hearth</b> | <b>Cosmos</b> |
|-------|---------------|---------------|
| Space | Local         | Global        |
| Time  | Past          | Future        |

\*Tuan, Yi-Fu. 1996. *Cosmos and Hearth: A Cosmopolite's Viewpoint*. Minneapolis: University of Minnesota Press.

# Cosmos & Hearth: Debates on the Right and Left



Cosmos & hearth may capture many of our contemporary debates across the political spectrum, suggesting creative tensions both *within* and *between* current movements.

# Cosmos & Hearth...& EcoTypes Differences

| Dimensions & EcoTypes Factor Factors           | Hearth          | Cosmos     |
|--|-----------------|------------|
| Space  | Local           | Global     |
| Time   | Past            | Future     |
| FF1: Domain-Ethics-Future- Nature-Spirituality | Ecospirituality | ??         |
| FF2: Science-Time-Technology                   | Antimodernity   | ??         |
| FF3: Change-Scale-Society                      | ??              | Big Change |

*Cosmos & hearth may also be where the creative tensions in our environmental ideas ultimately reside.*

# Coming Soon: EcoTypes Phase II

- Reflect and dialogue on what we've learned so far
  - AESS 2017 and related venues
- Simplify survey; expand associated resources
  - v2 pilot survey in development for 2017-18
  - More policy applications; more instructor resources
- Consider venues for engagement on these creative tensions
  - Ways to sustain EcoTypes conversation among AESS members?
  - Opening up this conversation beyond college campuses?

# Thank You!

- Jenn Bernstein: Survey design and analysis assistance; environmental typology background literature
- Geography, ESS, & BTI colleagues: Input on early version & paper
- EcoTypes faculty collaborators: Pretest & spring 2017 pilot + feedback
- EcoTypes student participants: Completing an inordinately long survey
- ...and you for participating in our sessions as part of AESS 2017

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