

Some^{more} knotty problems in communicating wind energy

Jean Goodwin

Professor, Speech Communication (English)



The Science Communication Project @ISU

The basic rules of communication

The basic rules of communication:

1. Understand your audience.

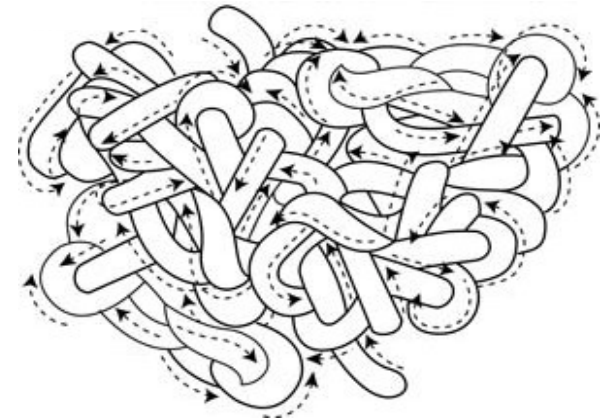
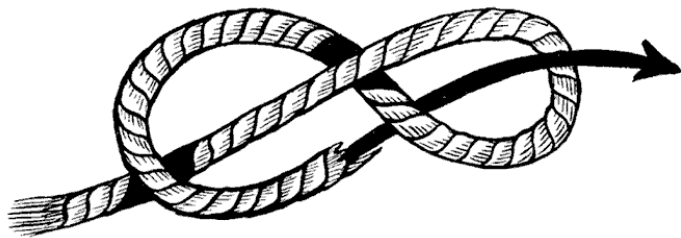
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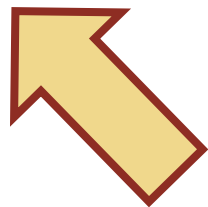
1. Understand your audience.

2. Adapt to them.

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1. Understand your audience.

2. Adapt to them.

W. Haman
Renewable Energy Program
Manager, Iowa Energy Center



Audience →





Audience →





What do they know?





- **Power in the wind;**

$$Power = \frac{1}{2} \rho A C_p V_\infty^3$$

$$C_{p_{max}} \cong 0.59$$

?





Wind Assessment and Calculator

Wind Turbine Output Calculator

Currently Viewing Cities For Story County

Select [Town](#)

Select [Period](#)
(hold down Shift, Ctrl, or Command to Select Multiple)

Select Turbine Size:

Select [Turbine](#) Type:

Select [Units](#) of Measurement:

Enter Tower [Height](#):
(meters/feet):
(Enter in meters if "Metric" was selected.
Enter in feet if "English" was selected)

Enter [Number](#) of Turbines:

Enter [Loss](#) Factor (%):

Display [Frequency](#) Distributions:

[Switch To a Different County](#)

Zearing

All
Annual
January
February

All

AAER Wind Energy A-1500, 70m; 1500 kW

Metric: English:

165

1

12

No

Calculate

Print Version

?





Wind Assessment and Calculator

Wind Turbine Output Calculator

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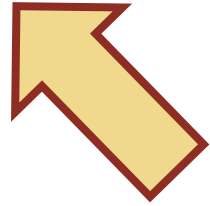
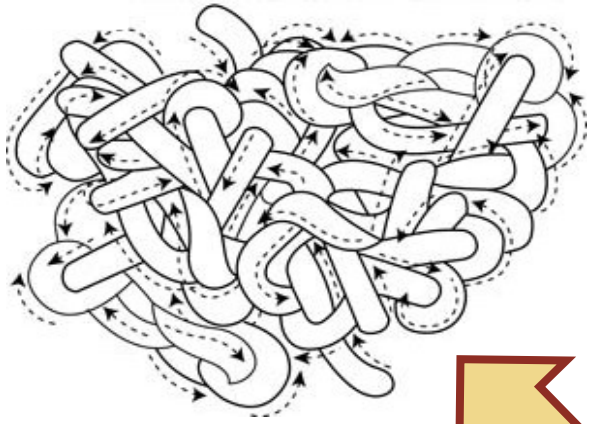


DEFICIT



DEFICIT

ENGAGEMENT





I am thinking of a rule for a sequence of numbers.
Your job is to guess what the rule is.



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2 4 8



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What I did:

3 9 27





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What I did:

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5 25 125 



I am thinking of a rule for a sequence of numbers.
Your job is to guess what the rule is.

**Rule: Each number is bigger
than the one before.**



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Your job is to guess what the rule is.

Rule: Each number is bigger
than the one before.

What I should have done:
Taken a guess.

Thought of a sequence that **DISconfirms** that guess.

SCIENTIFIC METHOD



I am thinking of a rule for a sequence of numbers.
Your job is to guess what the rule is.

Rule: Each number is bigger
than the one before.

What I did:

Took a guess.

Thought of a sequence that **confirms** that guess.

CONFIRMATION BIAS



Rule: Each number is bigger than the one before.



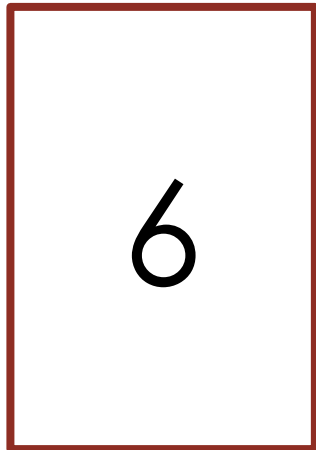
80% of the guessers made their guess **without receiving even one "no" answer.**

New York Times: The Upshot
A quick puzzle to test your problem-solving

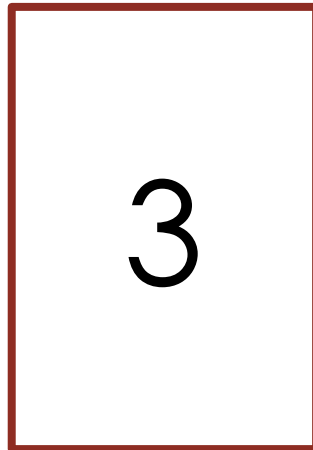


Rule:

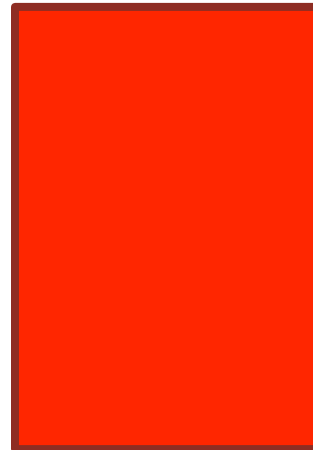
If a card has an even number on one side,
it has red on the other side.



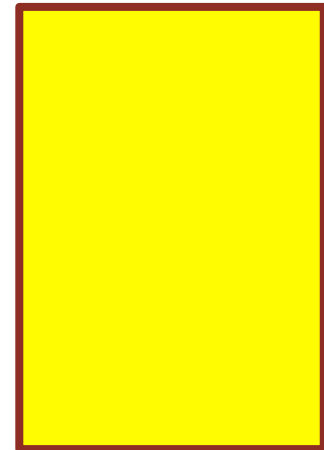
a



b



c



d

Which cards do you turn over to test
whether the rule is being obeyed?

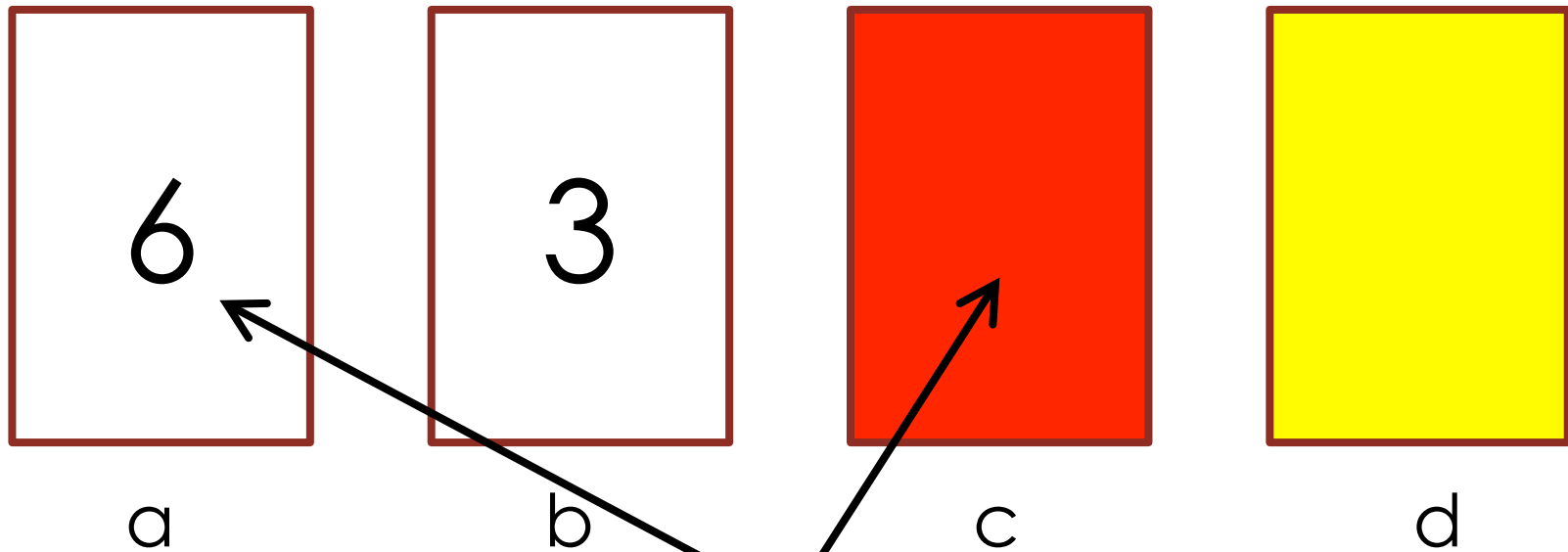
(Don't turn over more than *absolutely* necessary)

Wason Selection Task



Rule:

If a card has an even number on one side,
it has red on the other side.



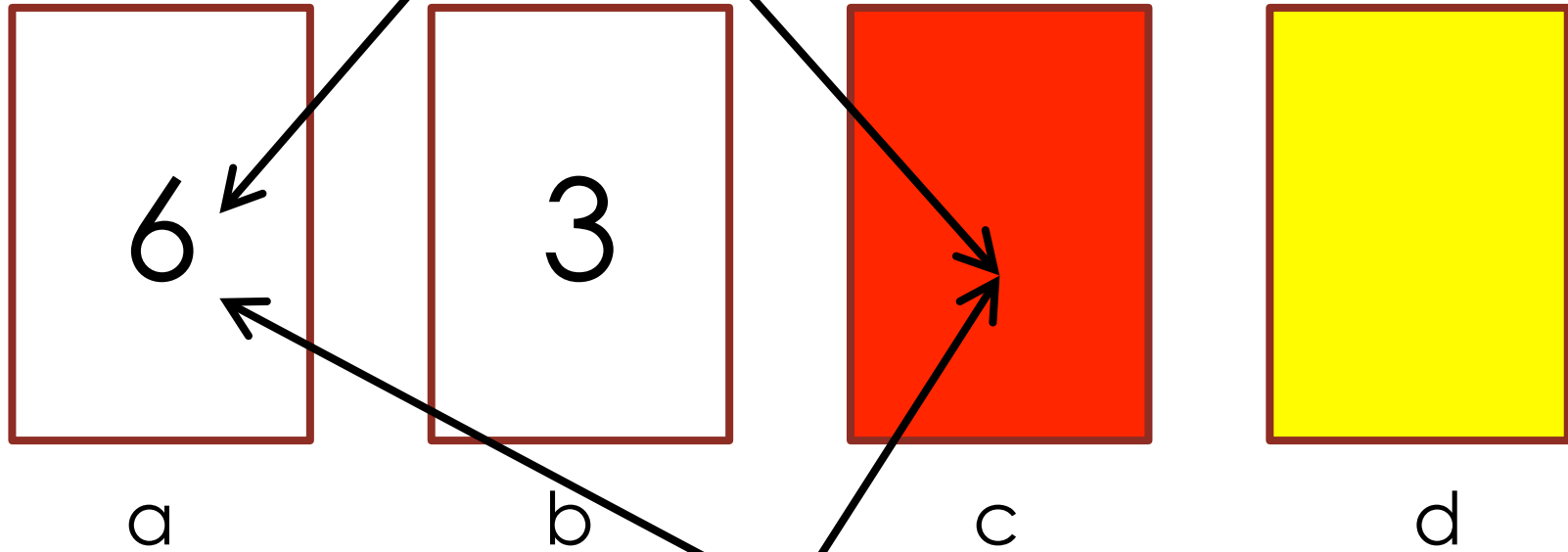
80% of people say



Rule:

If a card has an **even** number on one side, it has **red** on the other side.

confirmation bias



80% of people say



Rate your agreement with the following statements.

strongly disagree.....strongly agree

I am having a good day. 1 2 3 4 5 **6** 7



Rate your agreement with the following statements.

strongly disagree.....strongly agree

I am having a bad day. 1 2 3 4 **5** 6 7



Rate your agreement with the following statements.

confirmation bias

strongly disagree.....strongly agree

I am having a **good** day. 1 2 3 4 5 **6** 7

I am having a **bad** day. 1 2 3 4 **5** 6 7



confirmation bias

Our brains automatically seek out information that **confirms** our beliefs.



confirmation bias

Audience →





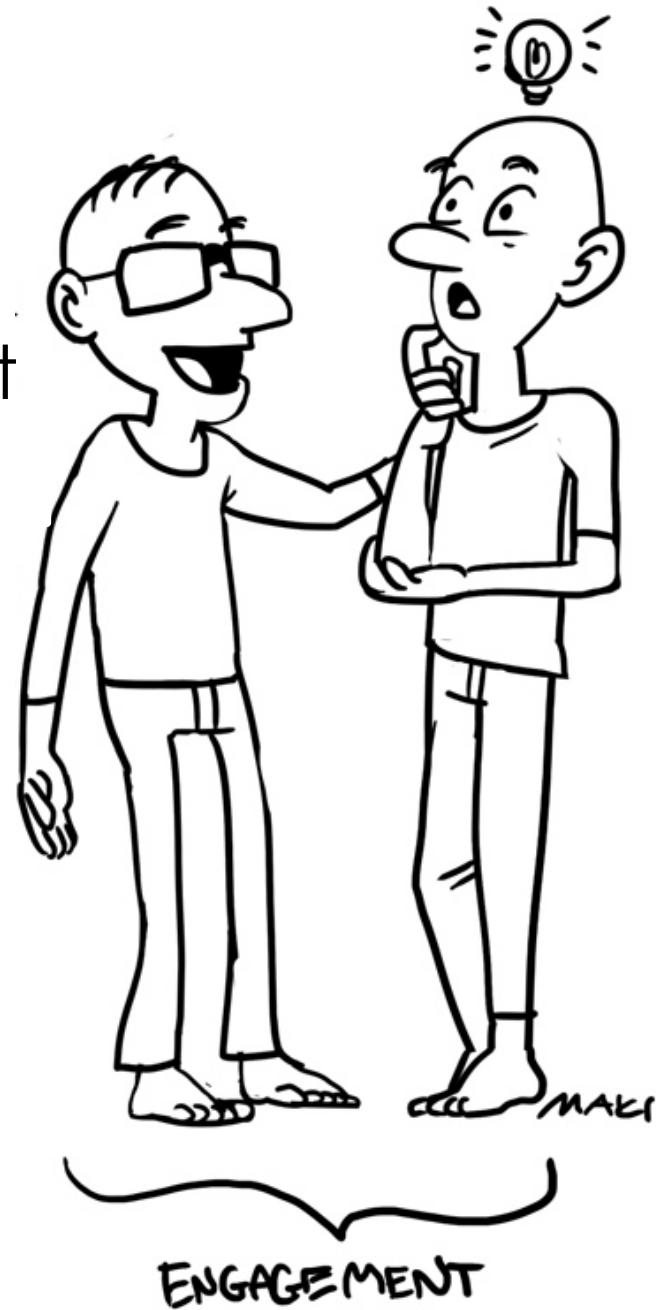
DEFICIT

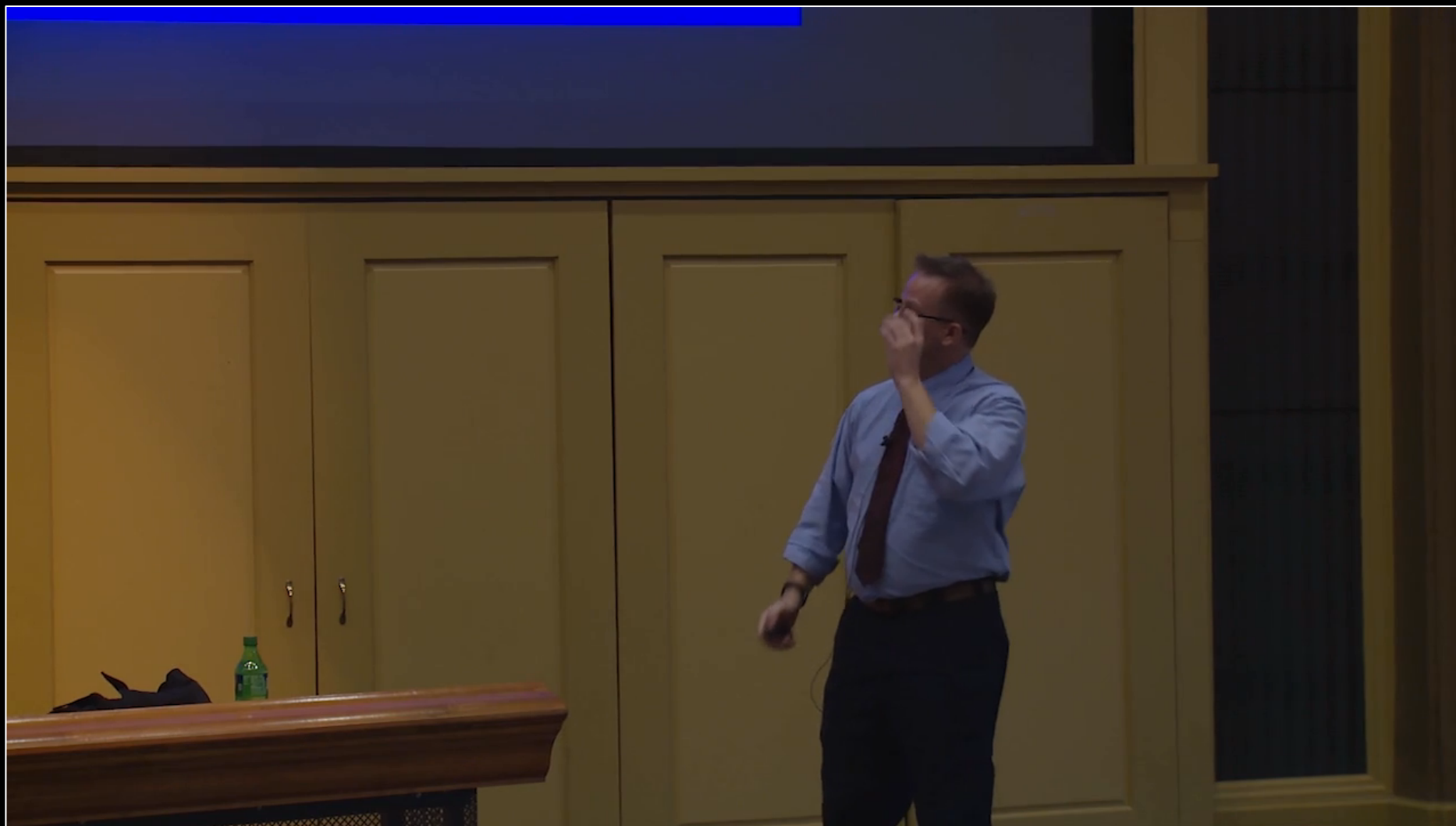
ENGAGEMENT



- More facts \neq more impact
- Lead with agreement*
- Stress common values*

*if you can do it sincerely!

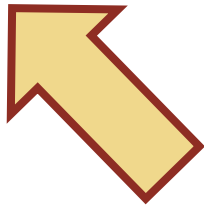
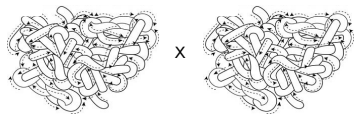




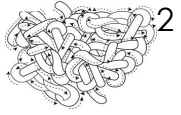
Dr. Kevin Folta on GMOs, ISU, Spring 2015



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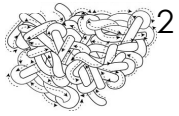
GMOs



GMOs



confirmation bias



GMOs



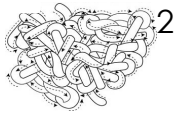
confirmation bias



**"identity-protective
motivated reasoning"**



Dan Kahan
Cultural Cognition Project @Yale



2

Books:

- The Immigrant Invasion: Threatening the American Way of Life
- The War on American Manhood
- Selfishness Is Not a Vice: Individual Freedom and the Public Good
- Why Big Government Doesn't Work



Books:

- The Crisis of Authority: The Assault on Traditional Values in America
- How "Women's Liberation" Hurts Women - and Men and Children, too!
- Community First: Fighting Selfishness in American Society
- The Limits of Individual Rights

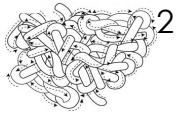
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- A Free Market Defense of Workplace Equality
- Respect for Individual Choice: the Cornerstone of a Free and Equal Society
- Stop Treating Us Like Infants: Why Government Shouldn't Tell Adults What to Do



Books:

- Three Social Evils: Sexism, Racism, and Homophobia
- Raising Children: Avoiding Sexual Stereotypes
- People Before Profit! Fixing Corporate America
- Society as Family: One for All and All for One



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Evolution

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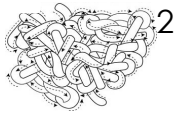
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Climate Change

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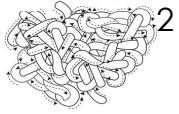
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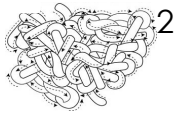
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identity-protective motivated reasoning

People work to hold onto beliefs that maintain

- their personal sense of "who I am" and "how the world should be"
- their membership in their community



identity-protective motivated reasoning

People
maintain

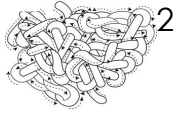
- their
"honor"
- their



at

"and

unity

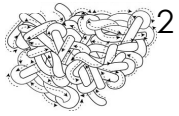


identity-protective motivated reasoning

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In a "polluted science communication environment," science can become tied to identity, too.



Wind Energy?

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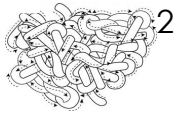
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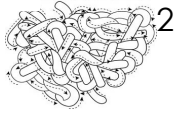
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Wind Energy?

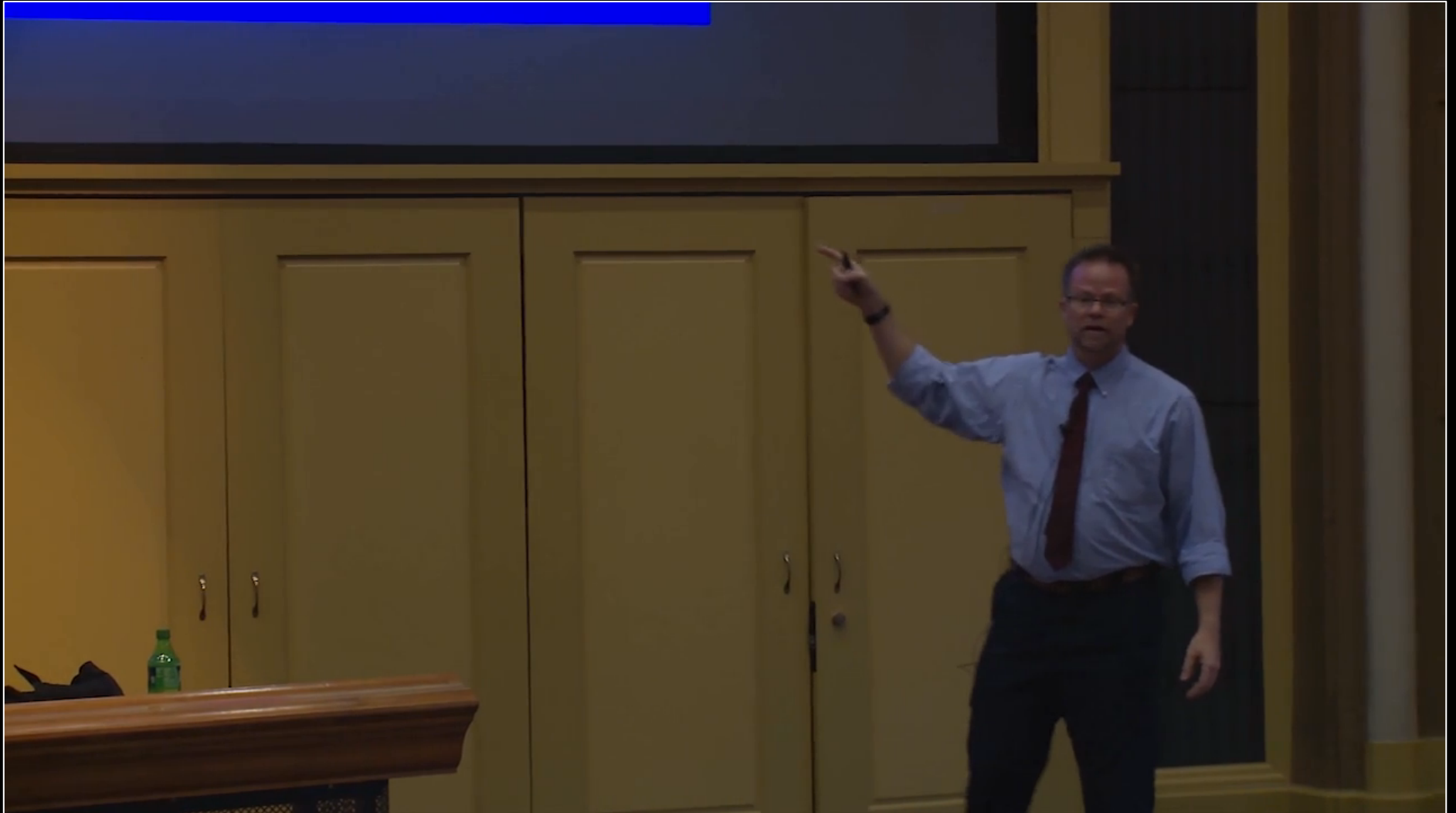




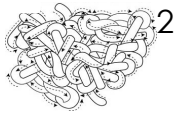
Don't "pollute the science communication environment"!

- Don't tie wind energy to any specific way the world should be —tie it to *every* vision of the world.





Don't have enemies.



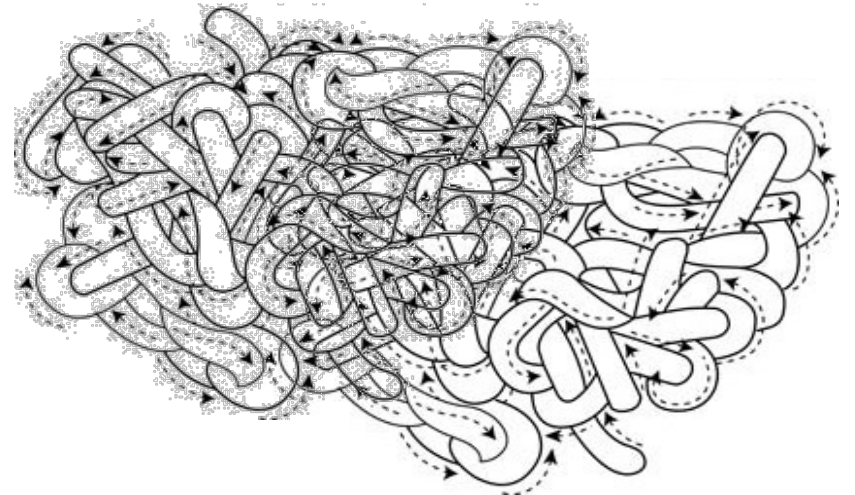
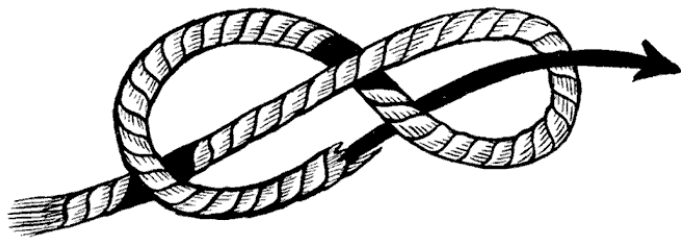
Don't "pollute the science communication environment"!

- Don't tie wind energy to any specific way the world should be —tie it to *every* vision of the world.
- Present multiple options with the advantages and disadvantages of each. Be an "honest broker" (Pielke).
- Offer multiple faces.



Knotty problems:

Your audience may know quite a bit,
and quite a bit of that may be wrong
—but tied to their identities

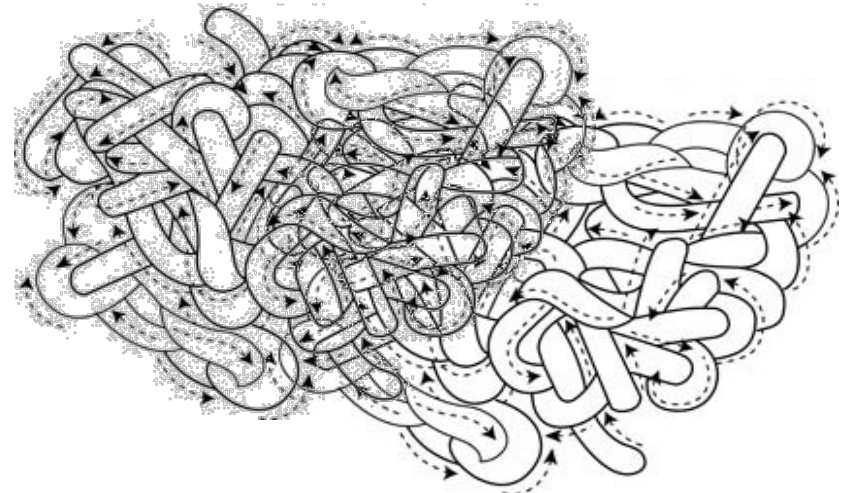
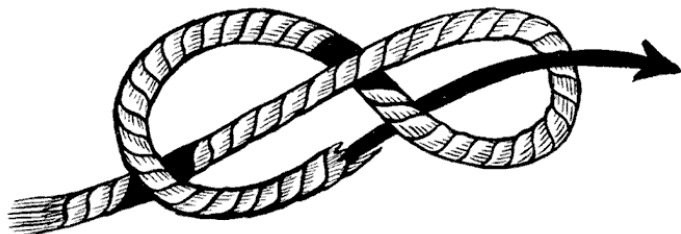




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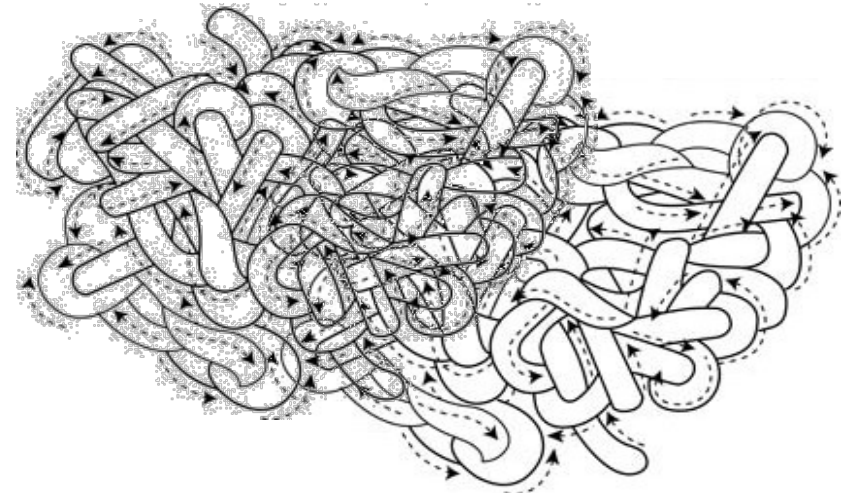
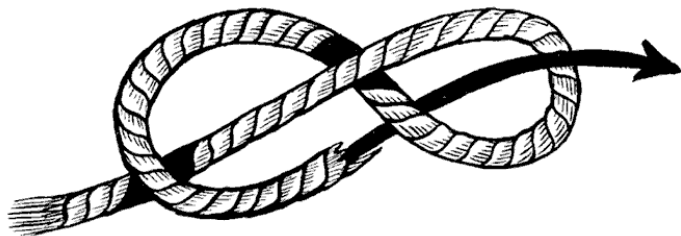
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just like you.



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2. Adapt to them.



Thanks!



The Science Communication Project @ISU
