

# JOURNEY TO THE DORK SIDE (HUMOR IN SCIENCE)



## Humor in Science



### Lew Lefton

School of Mathematics & College of Sciences  
Georgia Institute of Technology, Atlanta GA

### Pete Ludovice

School of Chemical & Biomolecular Engineering  
Georgia Institute of Technology, Atlanta GA

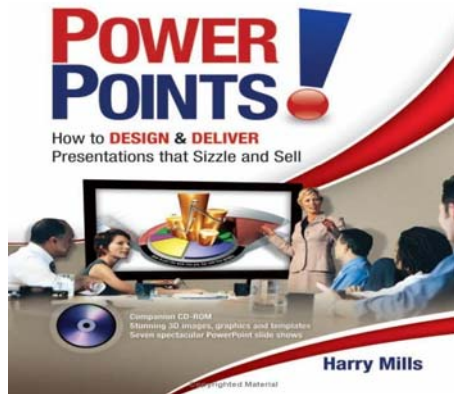
## Topics

- Why Humor in Science?
- Humor in Math - Examples
- Humor in Science & Technology - Examples
- Creating Humor in Science & Technology (Interactive!)
- Humor in Scientific Innovation
- Summary

## Why Humor in Science?

- Improve Science Communication
- Improve Science Education
- Improve Science Innovation

# Humor in Communication



**Wit Increases Participation...**

**“If I can get you to laugh with me,” says actor John Cleese, “you like me better, which makes you more open to my ideas...”**

# Humor in Technical Communication



A note about humor: only a few hundred people in the United States make a good living being comedians. **LEAVE THE JOKES TO THE NORMAL PEOPLE** don't plan to tell jokes. In the context of the presentation that provides an opening for a witty remark, and you are good at making witty remarks, fine.

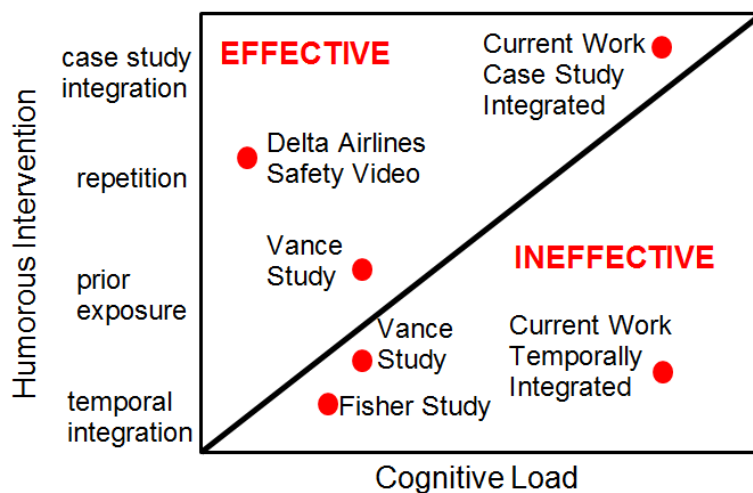
**But don't prepare to be funny.**

# Technical Education without Humor



## Designing missile guidance systems

# When Does Humor Work in Education?



Vance, C.M. "A Comparative Study on the Use of Humor in the Design of Instruction," *Instructional Sci.*, 16 79-100 (1987).

Fisher, M.S. "The Effect of Humor on Learning in a Planetarium," *Sci. Educ.* 81(6), 703 (1997).

# Numerical Modeling in Science

$$\frac{dP}{dt} = k_1 P - k_2 S (P - P_c) - k_7 S (t - T) + k_3 b - k_6 PS (b)$$

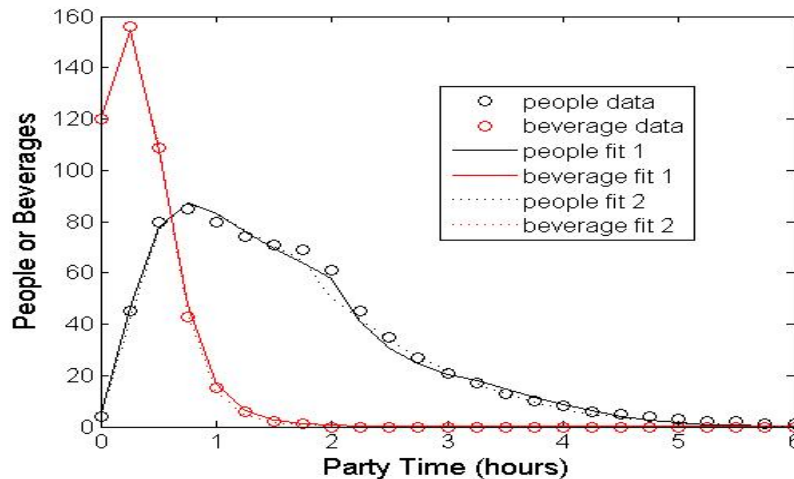
popularity coefficient  $k_1$     crowding coefficient  $k_2$     time to study coefficient  $k_7$   
 beer popularity coefficient  $k_3$     run-out-of-beer coefficient  $k_6$

$$\frac{db}{dt} = -k_4 P b + k_5 \frac{dP}{dt}$$

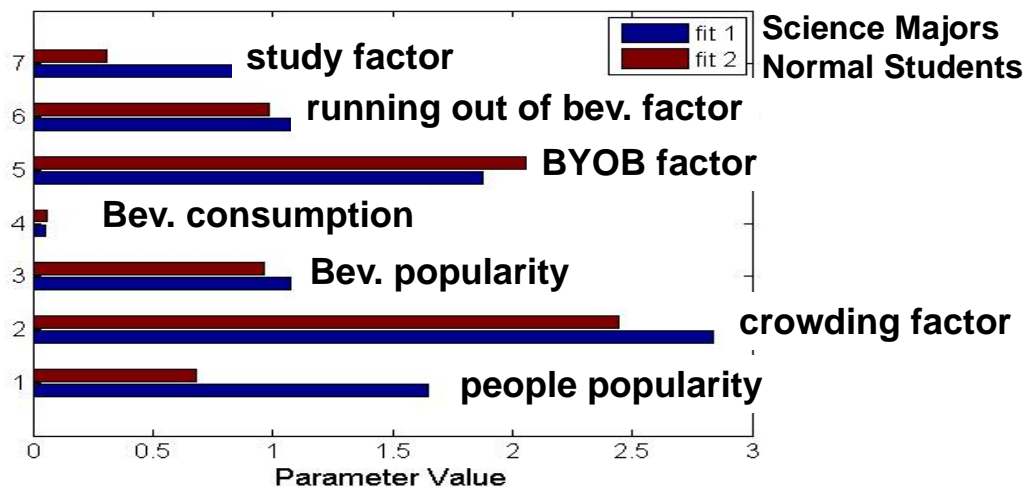
beer consumption coefficient  $k_4$     BYOB coefficient  $k_5$

P=people at a party  
 b="Beverages" at the party\*

## Realistic Models



# Interpreting Models



# What is STEM?

Science  
Mathematics  
Engineering  
Technology



**SMET**  
What NSF  
called it in the  
90s



People who  
thought SMET  
sounded like  
something you  
scrape off your  
shoe

Science  
Technology  
Engineering &  
Mathematics

**ARTS**



**SMEAT**

**ARTS**



**STEAM**

# Humor in Math Examples

## Math Humor

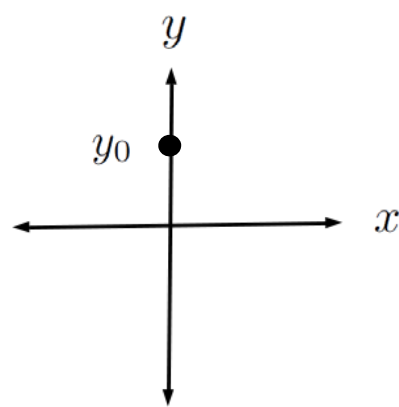
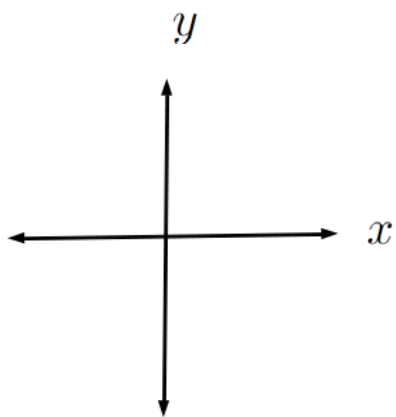
- Complex numbers
- Topology
- Algebra
- Applied Math
- Limits
- Geometry

## Limits

$$\lim_{x \rightarrow 8^+} \frac{1}{x - 8} = \infty$$

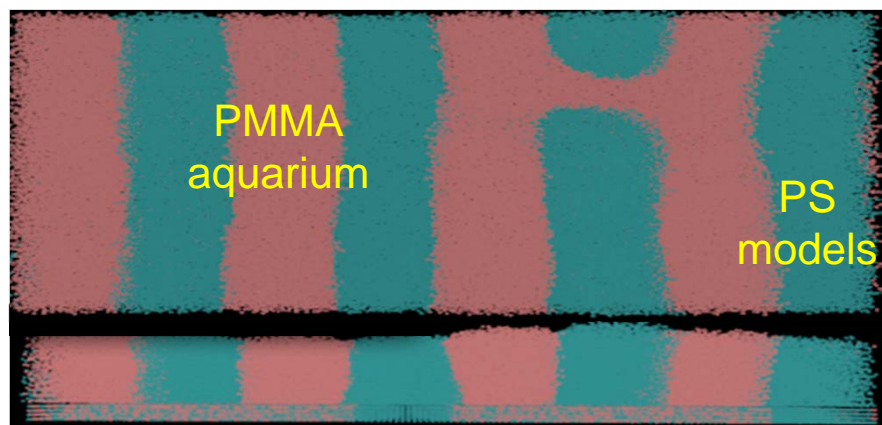
$$\lim_{x \rightarrow 5^+} \frac{1}{x - 5} = \infty$$

## Geometry



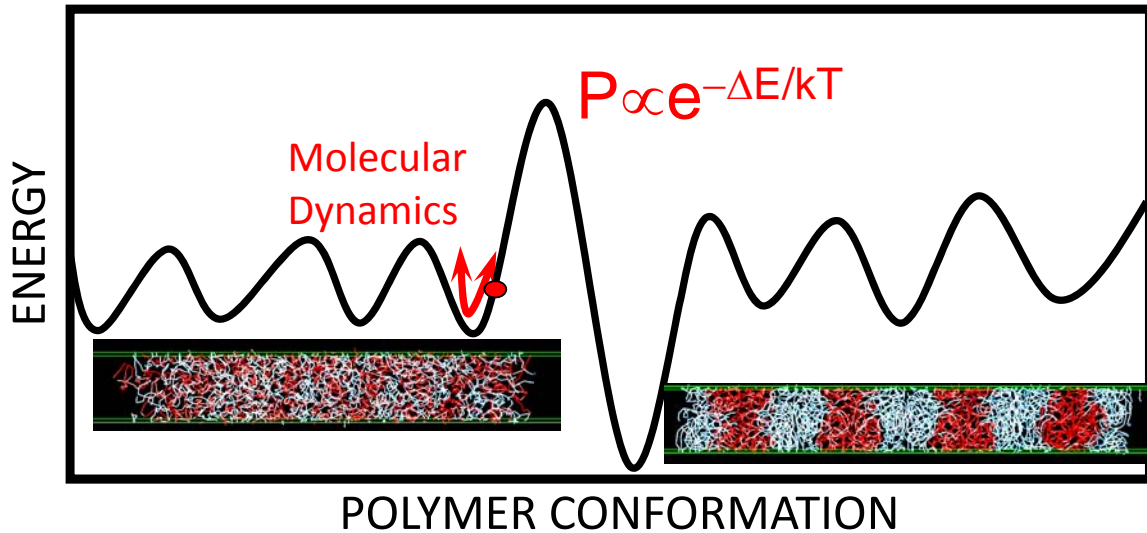
# Humor in Science & Technology Examples

## Simulate Defect Formation



guide  
stripe

## Statistical Mechanics & Computers



## How Do We Do It?

- PCND (100-1000)



- GPU Processing (200-1000)



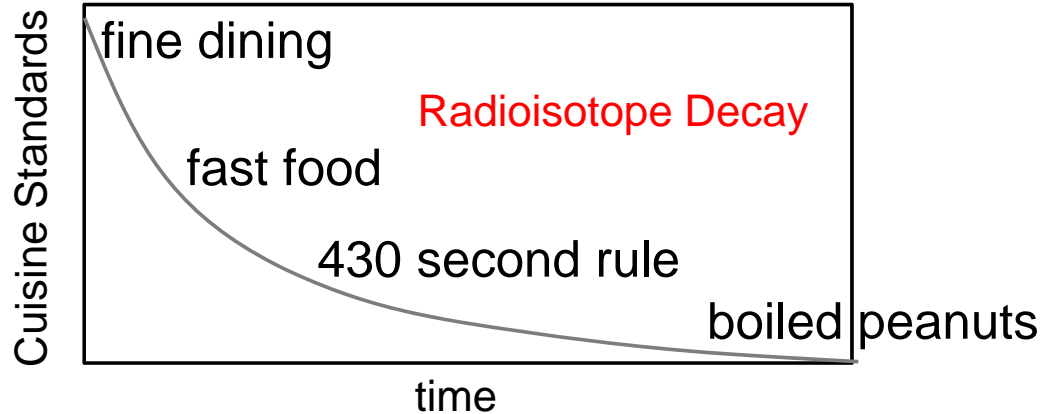
# What was that Weird Symbol?

The base of the natural logarithm

**e**

$e=2.718281\dots$

$$m(t) = m_0 e^{-kt}$$



# A Relevant Statistical Application



Losers whose lives are so pathetic they often eat their dinner from a vending machine

## The Crème Filling Plot

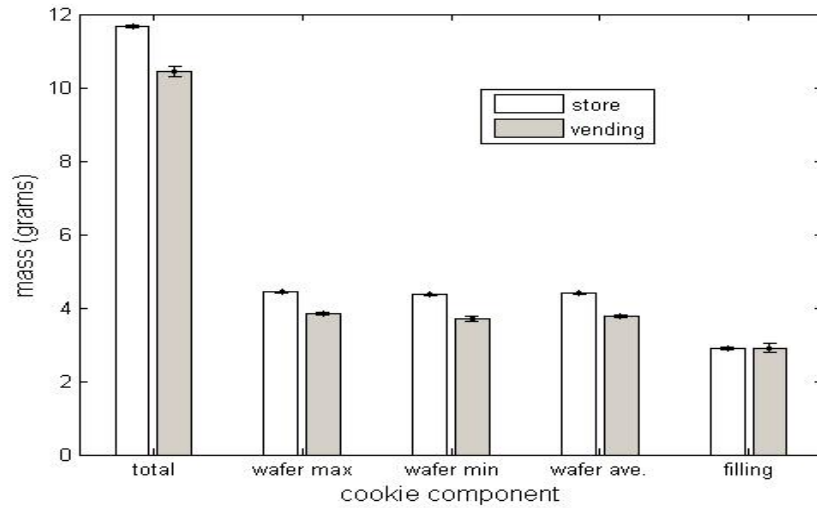


**HYPOTHESIS:** Oreos in vending machines have less cream filling

## OREO COOKIES



# OREO COOKIES



Dear Mr. Ludovice

Thank you such much for your inquiry about our product. As far as we know there is no difference between the manufacturing of our Oreo ® cookies sold in the store and those sold in vending packs.

We wish to thank you for your patronage and hope you continue to enjoy Oreo cookies and our other fine NABISCO brand products.



Dear Mr. Ludovice

As we said in our last correspondence, we assure you that there are no manufacturing differences attributable to the data your daughter produced in her recent science fair project. Further, we wish to assure you that there is no “Cream Filling Conspiracy” despite your insistence otherwise.

We wish to thank you for your patronage and hope you continue to enjoy Oreo cookies and our other fine NABISCO brand products.



Dear Mr. Ludovice

Look, we’re sure your daughter is a sharp as a tack, a regular chip off the old block, but come on now she’s just a kid. We’re a large multinational corporation, with significant resources to assure the quality control of our manufacturing processes World-wide.

Any further correspondence shall be referred to our corporate security division. Trust me, they’re not nearly as nice as those of us who make cookies.

# OREO COOKIES

**Cellophane**



**Metal-Plastic  
Laminate**



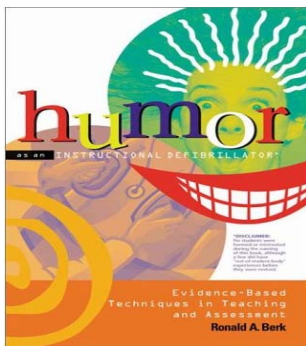
**CONCLUSION:** Water hydrates  
Oreos in store more

Creating Humor for Science &  
Technology

## Types of Jokes

- hyperbole/exaggeration/understatement
- irony/sarcasm
- switching
- wordplay/puns
- insult/violation of social norms
- absurdity/non sequitur
- juxtaposition
- running gag/call back

## Humor is All Around Us



Humor as an Instructional Defibrillator – Ronald A. Berk (chapter 2)

- You don't have to write your own jokes.
- Borrowing bits from popular culture works well – Berk
- There are jokes in Science as well

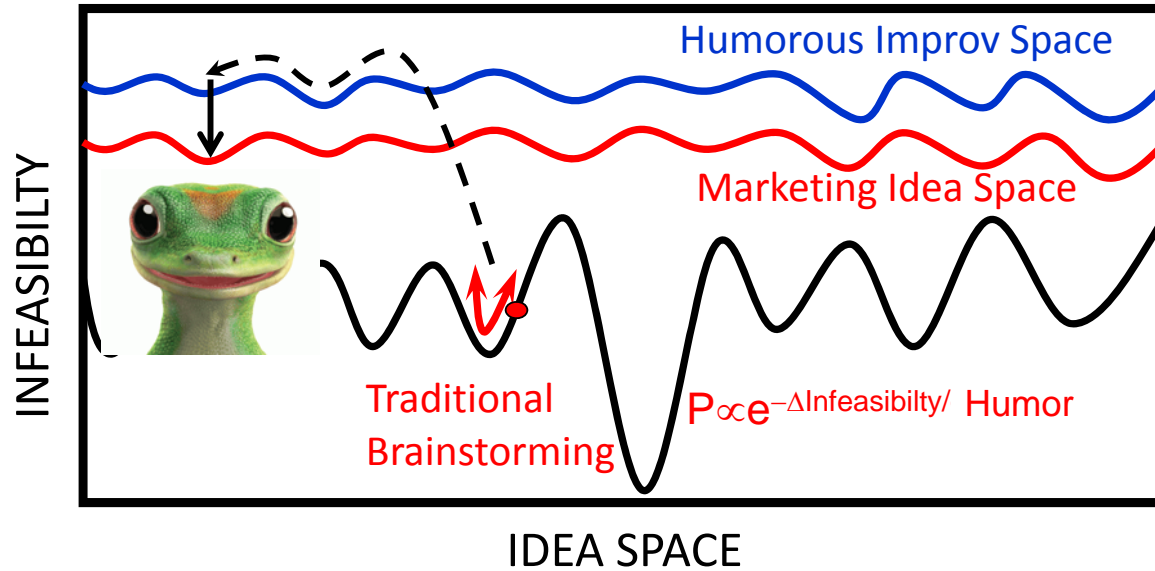
## Jokes from NSF

- “It’s only a proposal. It’s not like it’s a publication.”
- “The reviewers are smart enough to know what is my work and what is someone else’s.”
- “My English teacher told me it’s not plagiarism if I change every seventh word.”
- “It’s not plagiarism; it’s just bad citation.”
- “It got funded before.”
- “I didn’t have space for all the citations.”
- “I didn’t do it. My grad student/undergraduate/postdoc/grant writer/faculty colleague/secretary/ Co-PI/SRO/AOR/VP of Research/Dean/spouse wrote that section.”
- “It was ‘an act of lamentable carelessness’ and therefore not misconduct.”
- “Severe acid reflux.”

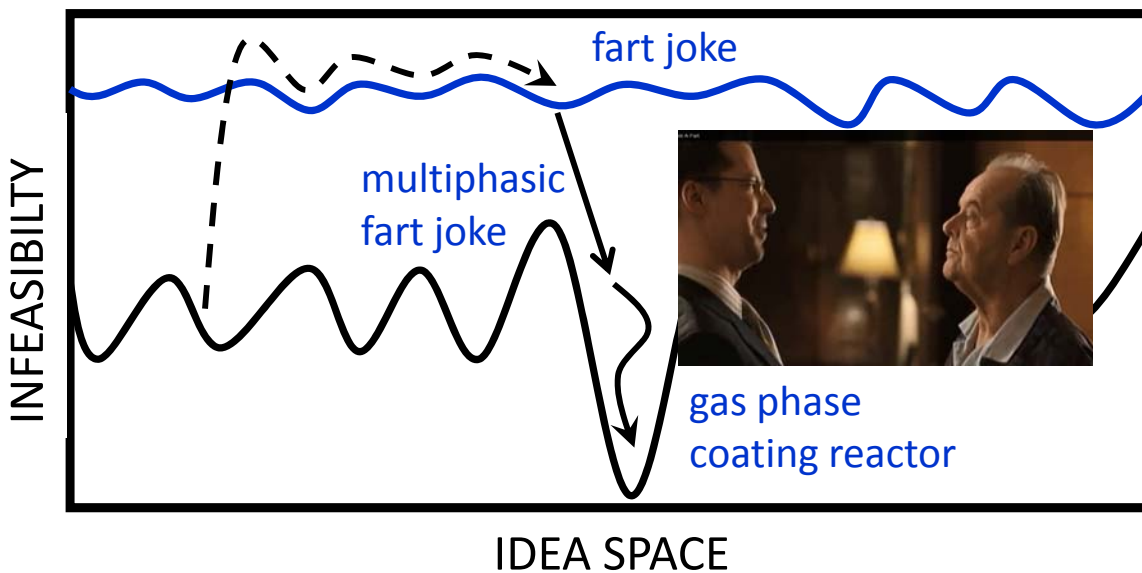


## Humor in Scientific Innovation

## Other Applications of Statistical Mechanics



## Lead Oxide Acid Coating Reactor



# Techniques for Improv

- Yes, and...
  - Acceptance, agreement. Contributing something new.
- Listening
  - Silence is OK.
- Trust
  - Everyone has a good idea. Make everyone else look good.
- Spontaneity
  - No fear. Focus on the present. Speak your mind, work at the top of your intelligence. You can't be wrong.
- Failure is funny (and liberating)

## It Comes as a Workshop Too!

Ludovice, P.J.; Lew Lefton, L.; Catrambone, R. “Improvisation for Engineering Innovation,” American Society of Engineering Education National Meeting, Louisville, KY, June, 2010.

Ludovice, P.; Lefton, L.; Catrambone, R.; Ludovice, P. J. “Humorous Improvisation Tailored for Technical Innovation,” (in press, Proc. of the American Society of Engineering Education, South East Regional Section Meeting, 2013.

[www.appliedhumor.com](http://www.appliedhumor.com)

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Ludovice, P.J.; Lew Lefton, L.; Catrambone, R. “Improvisation for Engineering Education” *Journal of Engineering Education* 2010.

Ludovice, P. J. “Humor and Innovation,” (in *Humor in Education*, South East Regional Section Meeting, 2013.



[www.appliedhumor.com](http://www.appliedhumor.com)

## Summary

- Humor can be helpful in science communication, education and innovation
- There is no cream-filling conspiracy
- Beer makes differential equations more engaging
- Chickens can't cross a Möbius strip
- Humor can be found in science (even the NSF)
- Bulleted lists are boring
- Remember the 1<sup>st</sup> Rule of Science Comedy...

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