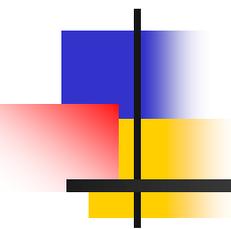




# Protective measures, personal experience, and the affective psychology of time



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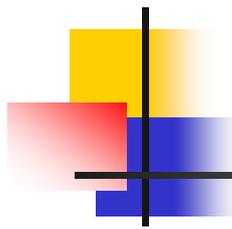
Ellen Peters

Ohio State University

with H. Kunreuther, N. Sagara,  
P. Slovic, & D.R. Schley  
(in press, Risk Analysis)



# Negative affect and anticipatory risk reactions



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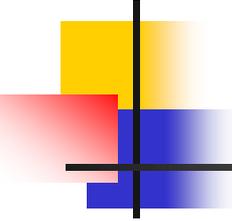
- Fear of flying after 9/11 led to fewer plane flights; people drove instead (Gigerenzer, 2006)
- Cancer and screening (Diefenbach et al., 1999; McCaul and colleagues, 1996, 1998)
- Disease and genetic testing (Cameron & Diefenbach, 2001)
- Radiation and nuclear power (Many)
- Graphic warnings and cigarettes (Fong, etc.)
- ...



# Functions of affect (Peters, 2006)

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- **Affect as information** (Schwarz & Clore, 1983; Slovic et al., 2002; Loewenstein et al., 2001)
- **Affect as spotlight**
  - Probability neglect (Rottenstreich & Hsee, 2001)
  - Scope neglect (Hsee & Rottenstreich, 2004)
  - Time neglect too?



## Participants were told:

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- Leasing an apartment
- Could put another deadbolt lock on the door at a cost of \$54
- Annual chances of being burglarized without the additional lock (2 in 1000) and with it (1 in 1000)



# Manipulations

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- Time
  - 1 or 2 year lease
  
- Affect to belongings
  - Affect-rich. You love all of the things you bought... they have special meaning
  - Affect-poor. You do not have any special feelings about the things you bought



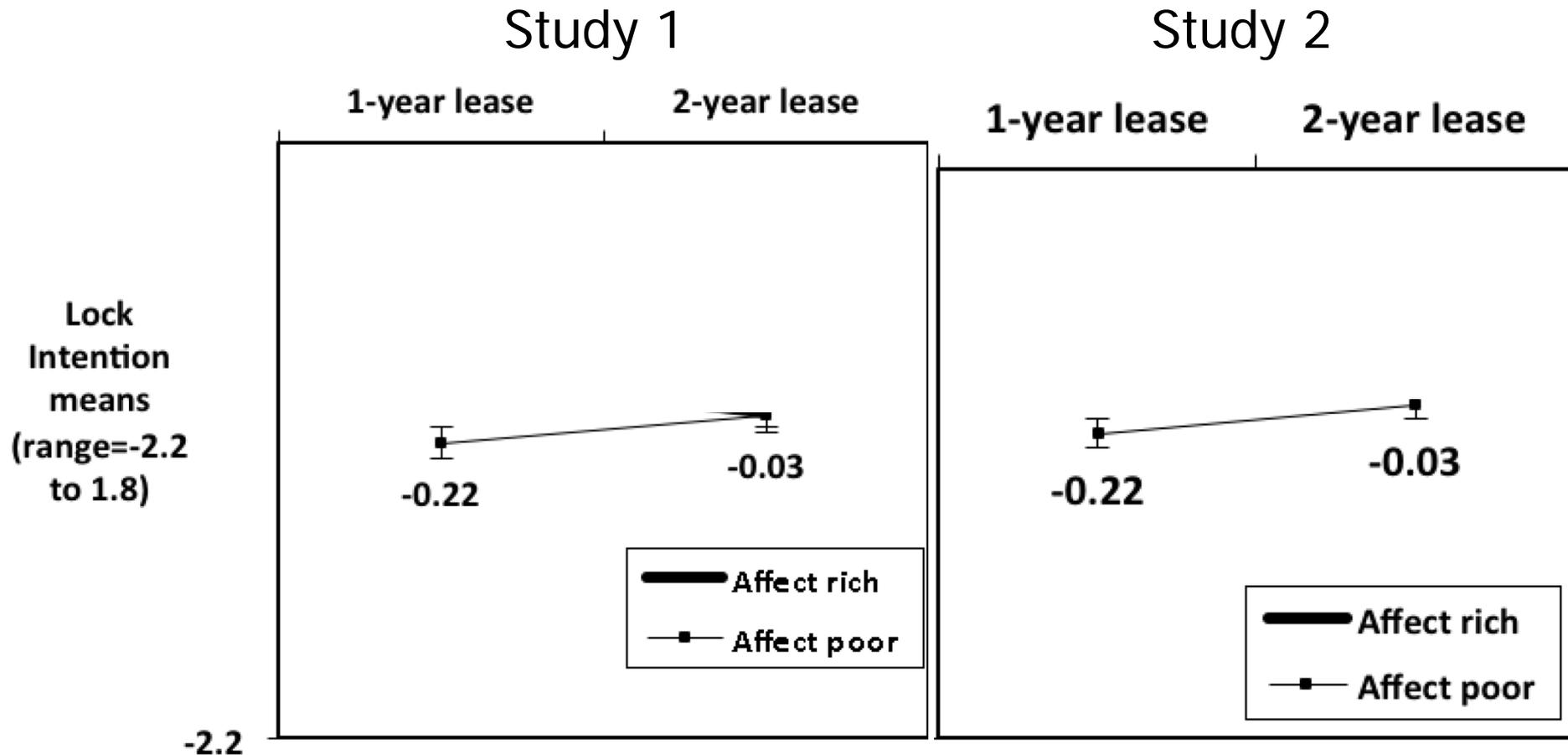
# What are we trying to predict?

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- Intentions to buy a lock
  - Measured as a factor score of likelihood to buy (verbal and numeric) and worry about being burglarized

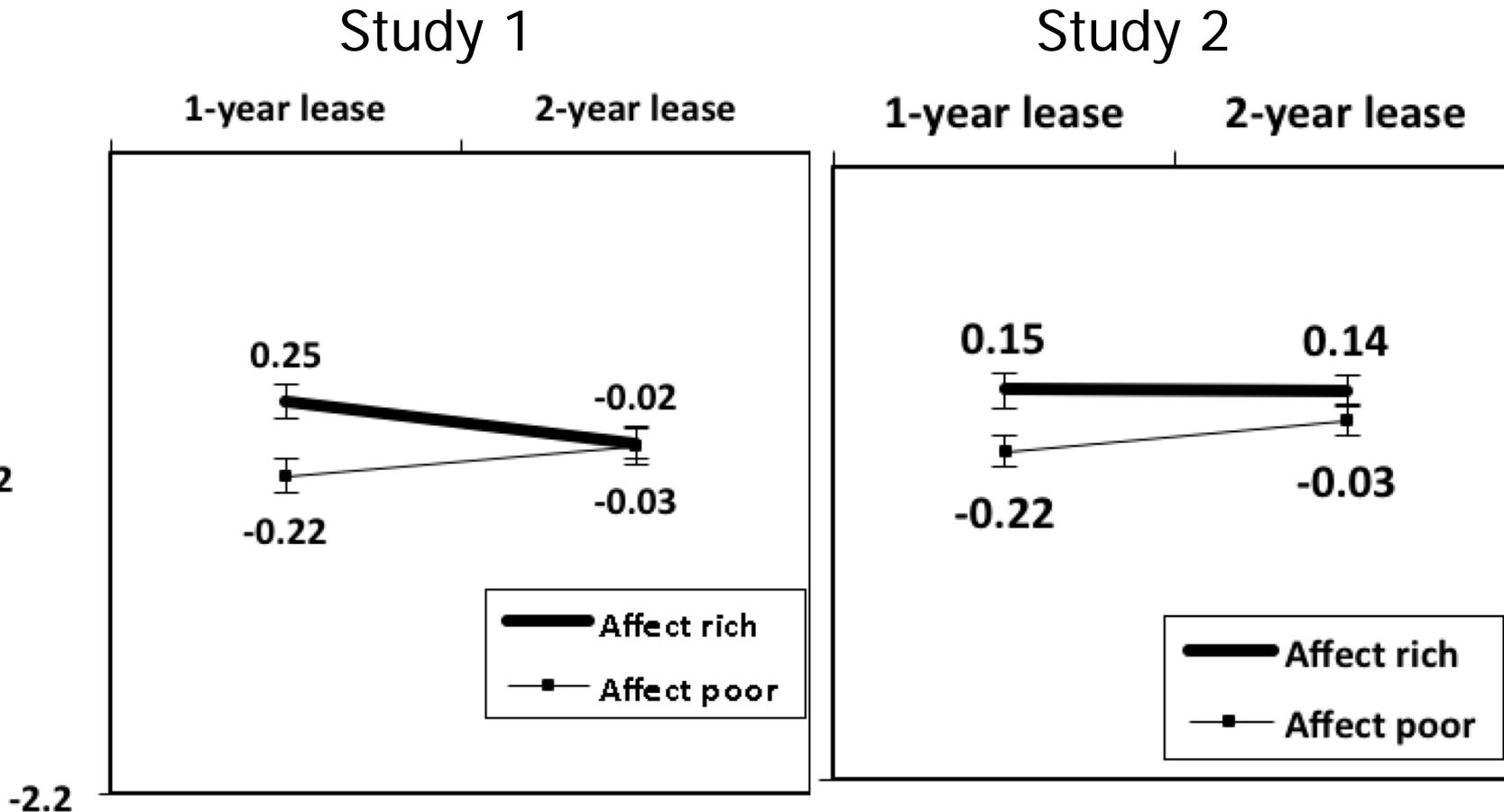
# Results –

time sensitivity with affect-poor belongings

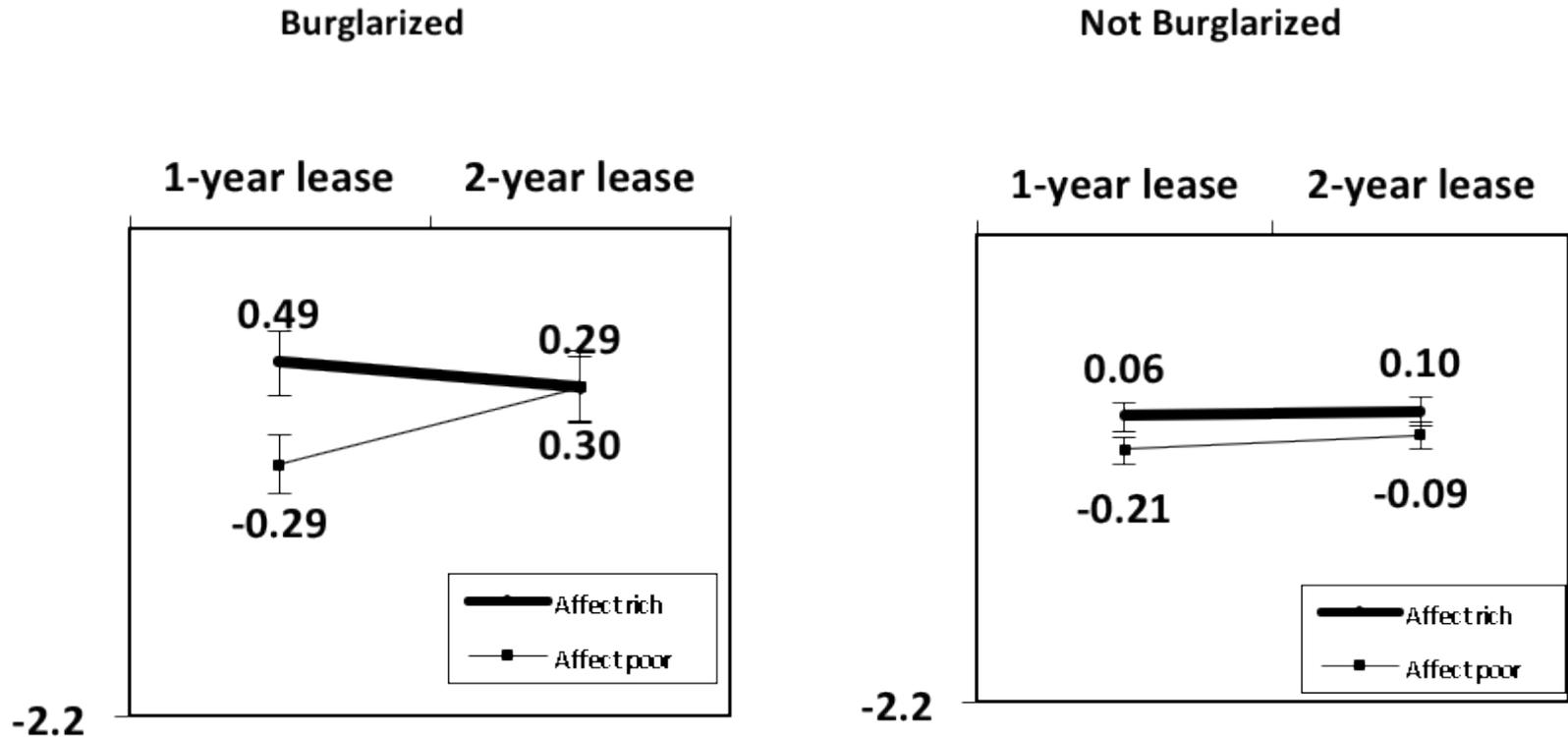


# Results – but time neglect when belongings had special meaning

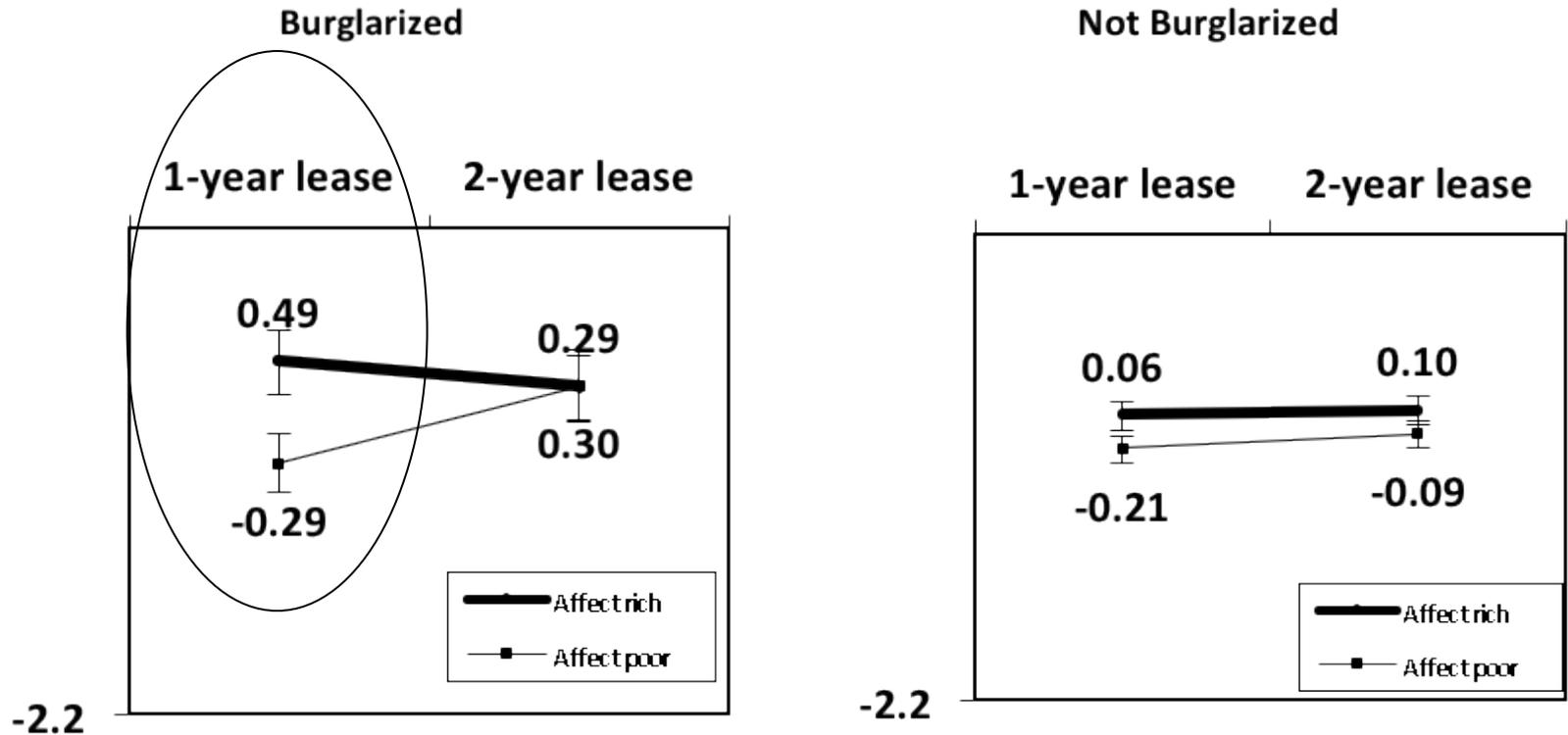
Lock  
Intention  
means  
(range=-2.2  
to 1.8)

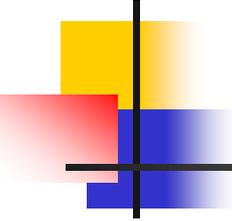


# Study 2 – experience matters



# Study 2 – affect as information in the short-term?

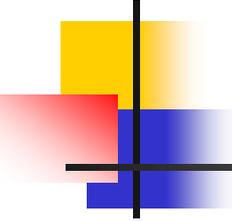




# Discussion – Studies 1 and 2

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- Affect as information in the short term
  - But not the long term (Loewenstein, 1996)
- Sensitivity to time in affect-poor situations
  - Are they calculating the odds?



# Study 3 – Calculating the odds

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- Four analogous calculation problems
- Example: Imagine that, when the Columbus Clippers and the Eugene Emeralds minor league baseball teams have played each other, the Columbus Clippers won only 10% of the time. If the teams play a double header (two games), by your calculations, what are the chances that the Clippers will win at least once? (Correct answer: 19%)
- Dependent variable: Number correct from 0-4

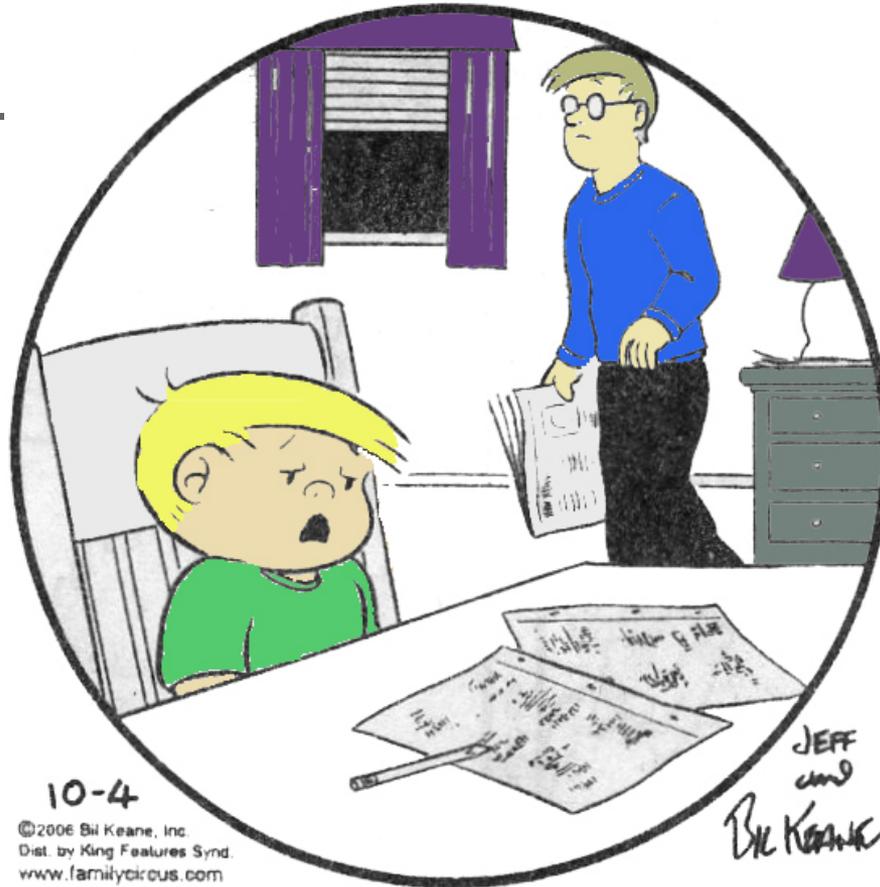


# Participants did not do well

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- Avg correct (out of 4): 1.15, range=0-3
- Correlation with numeracy:  $r = .11$ , ns
- Common mistakes
  - Chance of once=chance of multiple times
  - Multiple by number of years=Approx correct
  - Intuition that it's higher than one year
- Participants probably did not “calculate” the odds of being burglarized with a 2-year lease

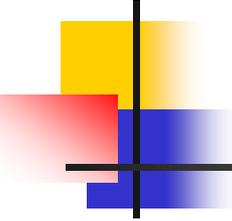
# FAMILY CIRCUS



10-4

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**“Math has way too many  
numbers in it.”**



# How can we improve identification and anticipation of risks and disasters?

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## A. Encourage individuals to invest in protective behaviors

- Help them understand long-term benefits of investing or long-term risks of not investing
  - Outcomes
  - Probability - Don't require inferences or calculations
  
- Make protective measures more financially attractive
  - e.g., Kunreuther suggests long-term contracts that tie together mortgage premium reductions with insurance purchase

## B. Improve statistical literacy

Thank you!