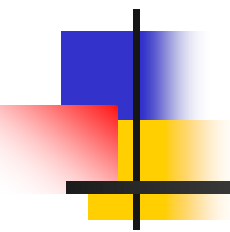


Protective measures, personal experience, and the affective psychology of time



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



- 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)

- **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:

- 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

- 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

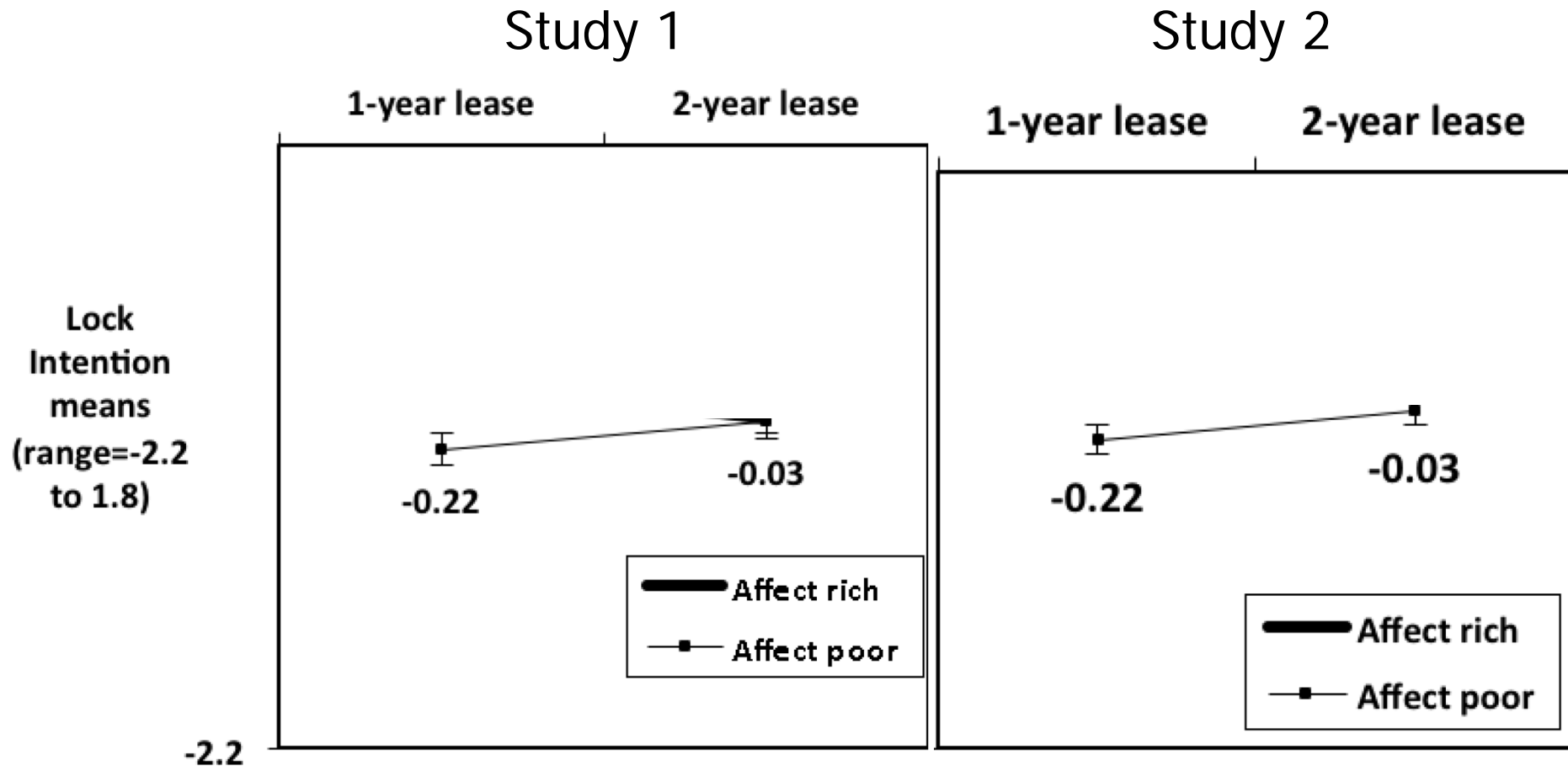


What are we trying to predict?

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

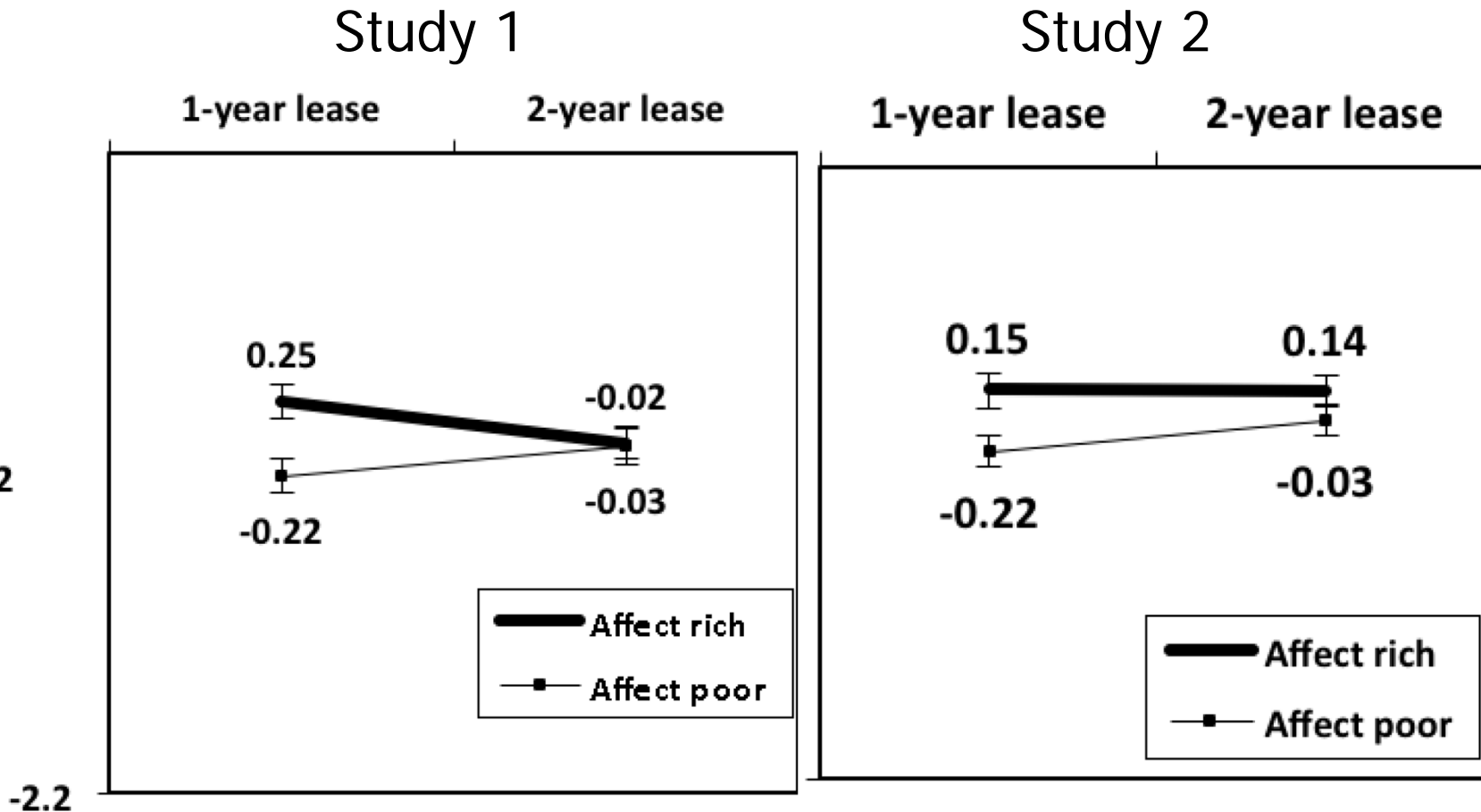
Results –

time sensitivity with affect-poor belongings

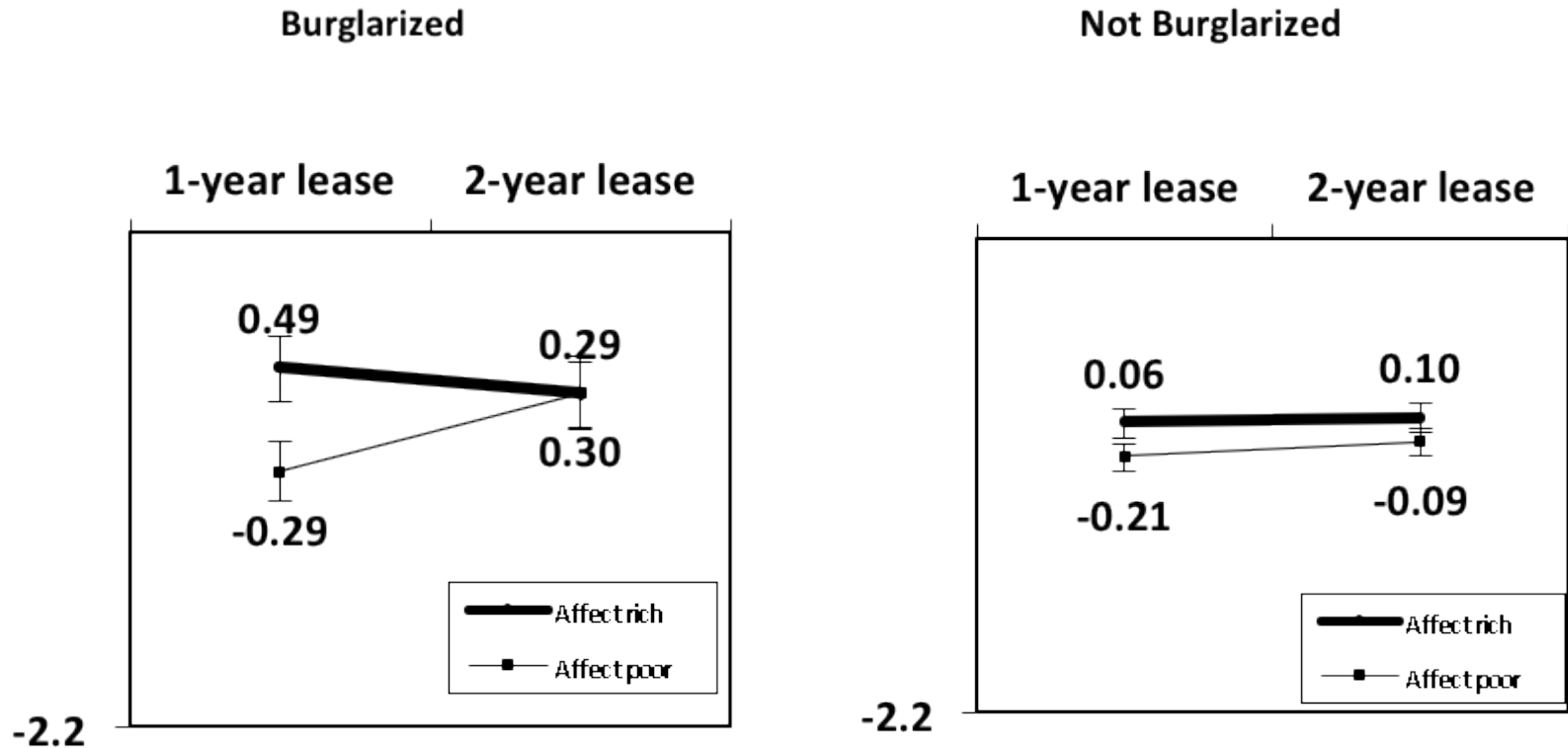


Results – but time neglect when belongings had special meaning

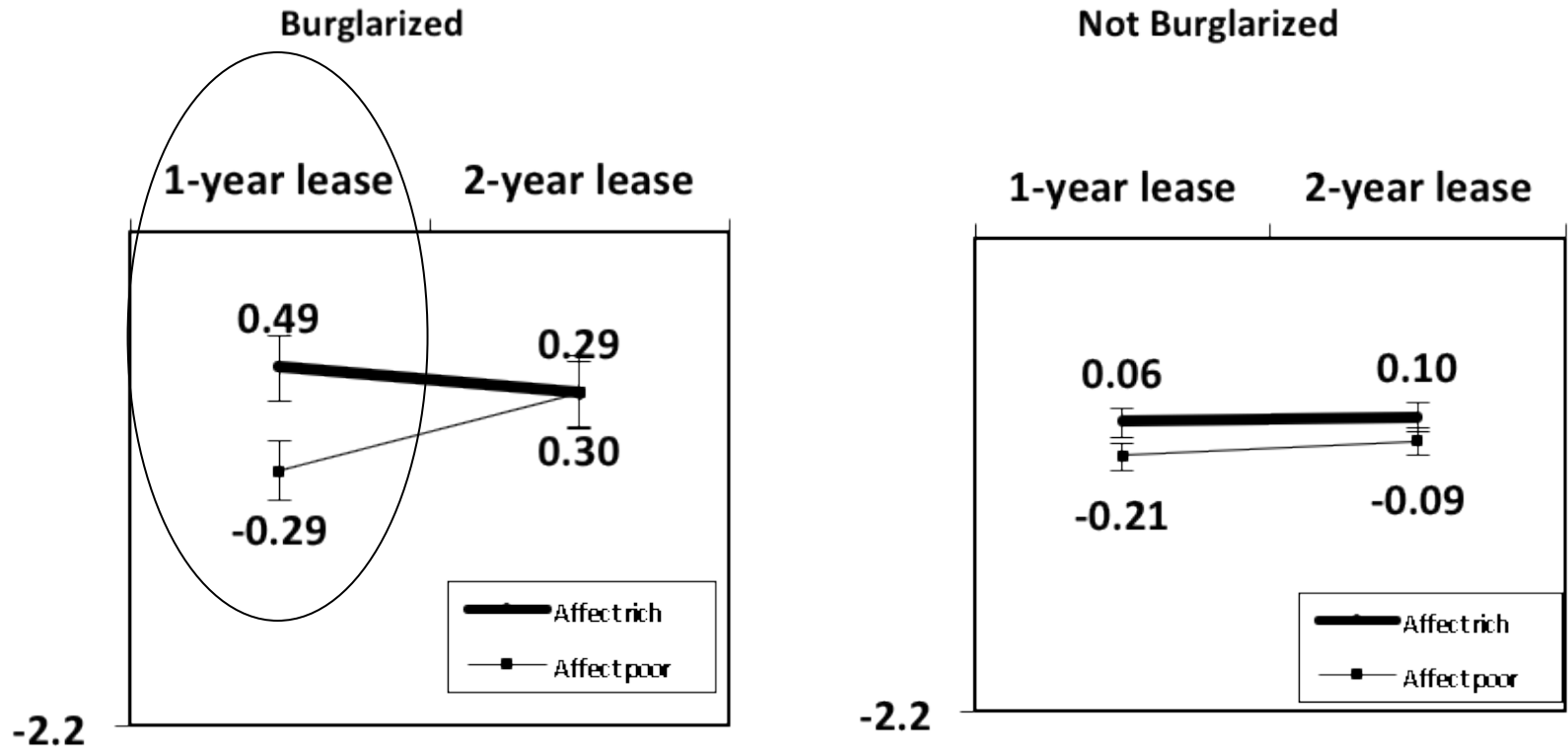
Lock
Intention
means
(range=-2.2
to 1.8)



Study 2 – experience matters



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





Discussion – Studies 1 and 2

- 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

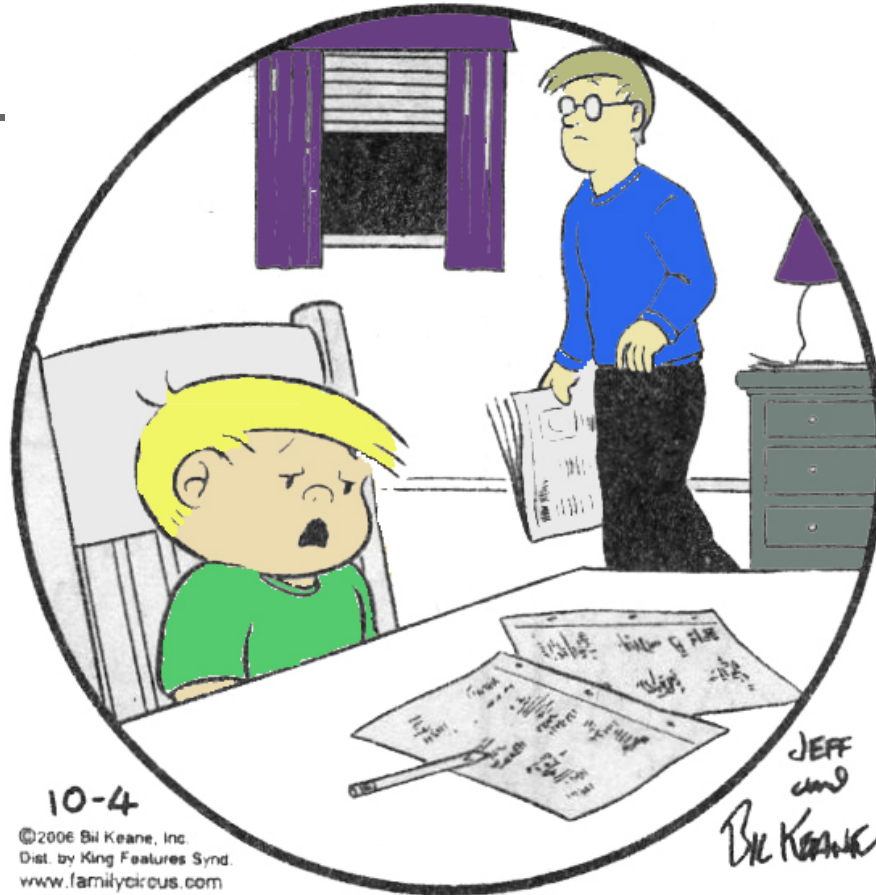
- Four analogous calculation problems
- Example: Imagine that, when the Columbus Clippers and the Eugene Emeralds minor league baseball teams have played each other, the Columbus Clippers won only 10% of the time. If the teams play a double header (two games), by your calculations, what are the chances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



Participants did not do well

- 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

©2006 Bill Keane, Inc.
Dist. by King Features Synd.
www.familycircus.com

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



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

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!