



# Affect and Deliberation: Dual Modes of Thinking in Judgment and Decision Processes

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Ellen Peters  
Decision Research  
Eugene, OR  
[empeters@uoregon.edu](mailto:empeters@uoregon.edu)



# The Experiential and the Deliberative

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Characteristics of two  
information-processing systems (Epstein, 1994):

■ Deliberative:

- analytical
- logical
- conscious
- slower
- fairly recent evolutionary history

■ Experiential:

- affective
- intuitive and holistic
- based on our experiences
- fast
- less than conscious “We are seized by our emotions”



# Choosing in Complex Decision Situations

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- I. Traditional “high reason” view of decision making
  - Deliberation!!
  - But limited capacity to represent, process, and manipulate information



# Choosing in Complex Decision Situations

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## II. An affective view

- Affect guides decisions and perceptions of information (e.g., Damasio, 1994; Loewenstein et al., 2001; Peters & Slovic, 1996, 2000)
- Affect acts as a source of information
  - consideration of possible bad outcomes leads to unpleasant gut feelings — alarms
  - Consideration of possible good outcomes leads to pleasant feelings — beacons of incentive
  - Without affect, information lacks meaning



## Affect Is:

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- Positive and negative feelings about an object, option, attribute, or event
- Experienced as you consider the object
- e.g., Your feelings about:

sunshine

funeral



# Affect Influences Perceptions of Likelihood

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- We are sensitive to possibility rather than probability with strong positive and negative events (Loewenstein et al., 2001; Rottenstreich & Hsee, 2001)



# How much would you pay to play each lottery?

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## Certainty

- 100% chance to win \$200
- 100% chance to meet and kiss your favorite movie star (affect-rich)

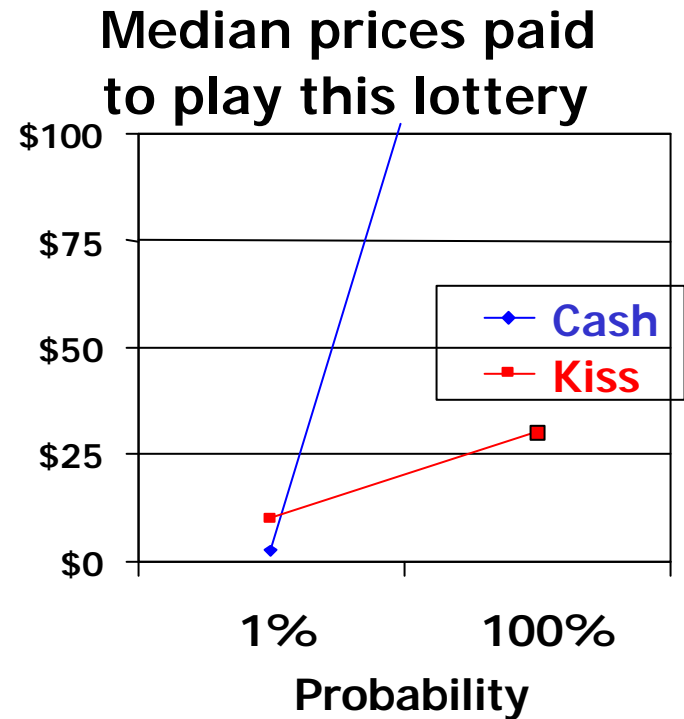
## Possibility

- 1% chance to win \$200
- 1% chance to meet and kiss your favorite movie star (affect-rich)

# Strong Affect Insensitive to Probability

- The attractiveness of the kiss lottery was not much affected by the probability of winning

(Rottenstreich & Hsee, 2001)







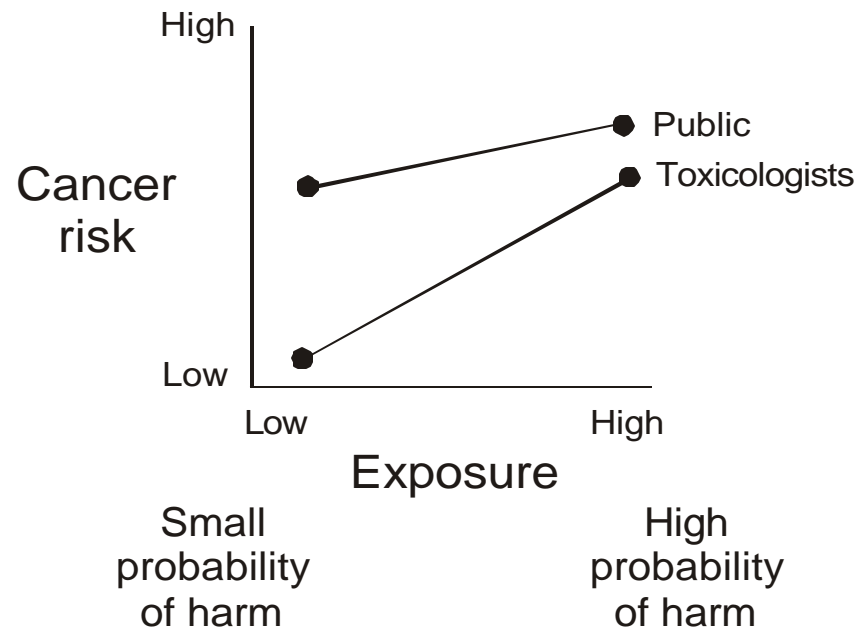
# Intuitive Toxicology: Main Results

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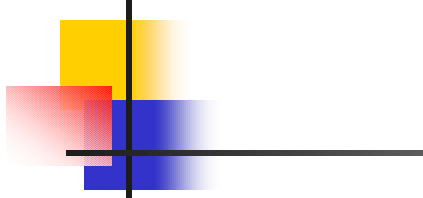
- Many laypeople are insensitive to different exposures of chemicals that can produce dreaded effects, such as cancer (high affect)

# Intuitive Toxicology: Main Results

- If large exposures are bad, small exposures are also bad (except medicines)



# Street Calculus





# Affective Markers Guide Decision Making

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- The markers are thought:
  - to operate covertly
  - to improve the efficiency and quality of decision making
  - to be acquired through experience

(Damasio, 1994; Bechara et al., 1994)

- But what if we don't have experience?



# Information Presentation and Bringing Meaning to Numbers

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- The way information is presented can make a difference to how difficult it is to understand and use.
  - Information is more likely to be used if it is easier to map onto a good/bad scale
  - Reduces cognitive burden
  - Increases affective feelings



# Methods to Make Numbers More Meaningful

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- Covert affective markers (Damasio, Bechara)
- Comparison of options (Hsee)
  - Joint compared to separate evaluation
- Overt affective markers (Peters, Slovic, Hibbard)
  - Relative Frequency versus Probability
  - Stars (e.g., movie reviews)
  - Affective Categories



# Risk Communication

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- Probability and Relative Frequency
- Are they the same or different in communicating risk?

e.g., 1% chance

vs.

1 out of 100



# Risk Communication

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(Slovic et al., 2000)

- Subjects are expert forensic clinicians
- A patient — Mr. James Jones — has been evaluated for discharge from an acute civil mental health facility where he has been treated for the past several weeks. A psychologist whose professional opinion you respect has done a state-of-the-art assessment of Mr. Jones. Among the conclusions reached in the psychologist's assessment is the following:





# Mr. James Jones

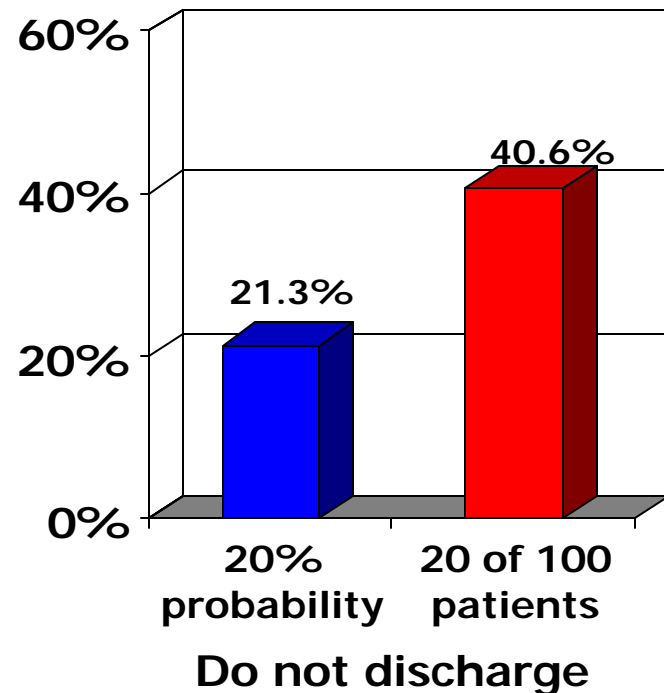
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- Probability condition  
Patients similar to Mr. Jones are estimated to have 20% probability of committing an act of violence to others during the first several months after discharge
- Frequency condition  
Of every 100 patients similar to Mr. Jones, 20 are estimated to commit an act of violence to others during the first several months after discharge



# Question:

- If you were working as a supervisor at this mental health facility and received the psychologist's report, would you recommend that Mr. Jones be discharged from the hospital at the present time?





# Patient Evaluation

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- Before answering, please write a few brief thoughts or images that come to your mind as you think about this question. Write anything you wish.



# Patient Evaluation

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## A. 10%

- Very few people are violent
- $10\% = 1/10$
- Probably won't hurt anyone, though

## B. 1 out of 10

- He could be the 1 out of 10
- Some guy going crazy and killing people
- The patient attacking someone
- An act of violence
- There has to be at least 1 in 10. Mr. Jones could very well be that 1

# Times

Washing  
cloudy  
Tonight,  
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## *Extensive Effort Seeks to Clarify Medicare Maze*

*Complex New Choices  
Baffling the Elderly*

By ROBIN TONER

WASHINGTON, Sept. 26 — In a vast public education campaign, the biggest in the 34-year history of Medicare, the Federal Government is mailing handbooks to 39 million Medicare beneficiaries this month to try to guide them through the increasingly complicated world of health care.

Backed up by toll-free telephone service, (800) 633-4227, an expanding Internet site ([www.medicare.gov](http://www.medicare.gov)) and outreach efforts with more than 200 local and national groups, the new campaign is intended to aid an aging population that, experts say, is often ill-equipped to handle the brave new world of health care choices envisioned by Congress.

Nancy-Ann Min DeParle, the administrator of the Health Care Financing Administration, which oversees Medicare, has suggested that this may be the "biggest peacetime education program the Federal Gov-

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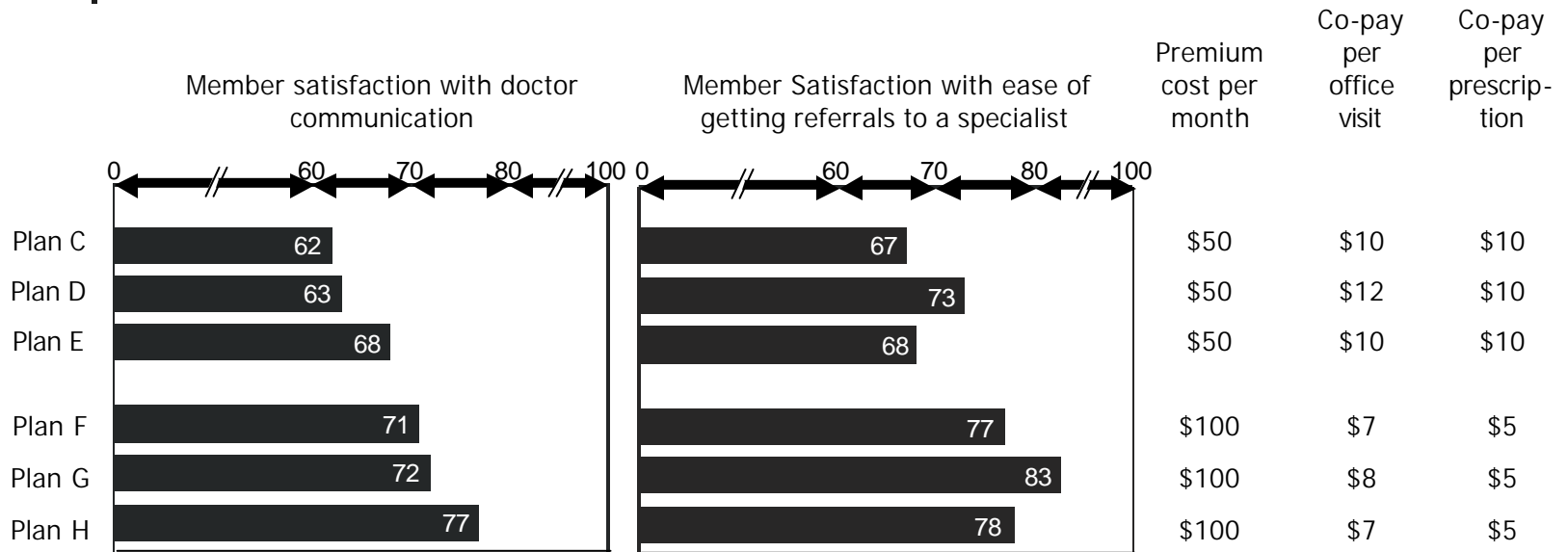
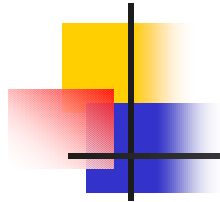
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- Using comparative information to make health plan choices can be difficult

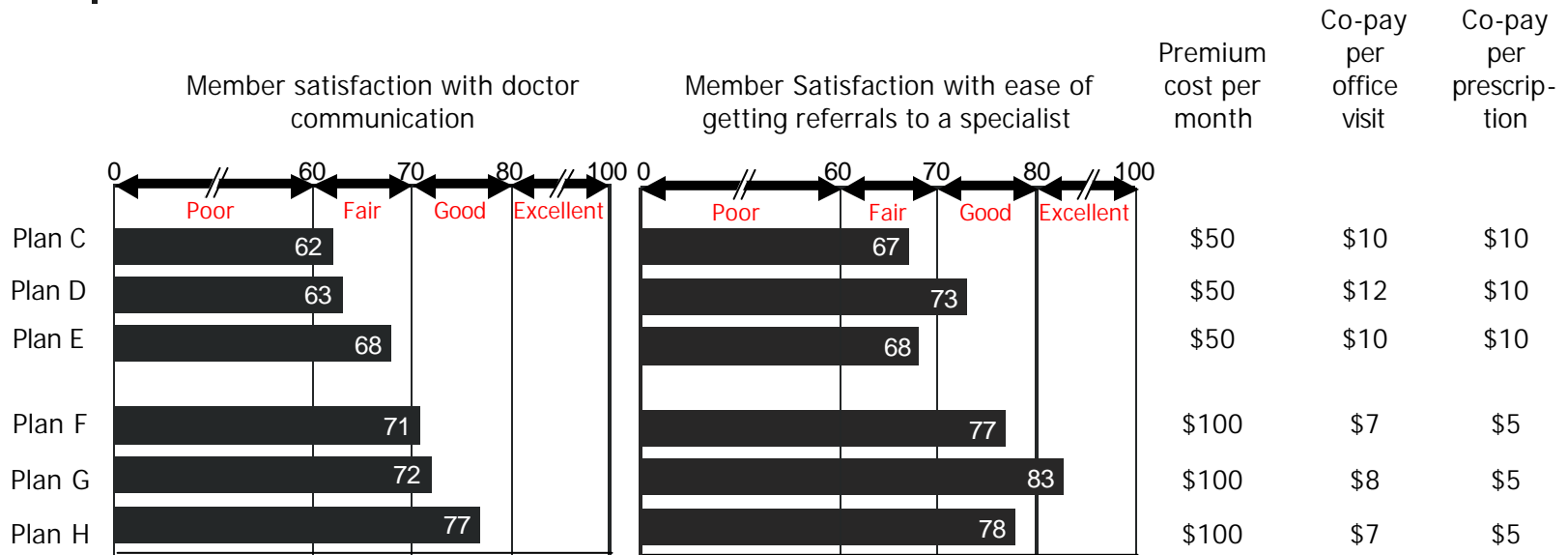
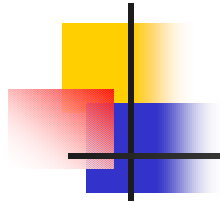
- Use overt affective markers?

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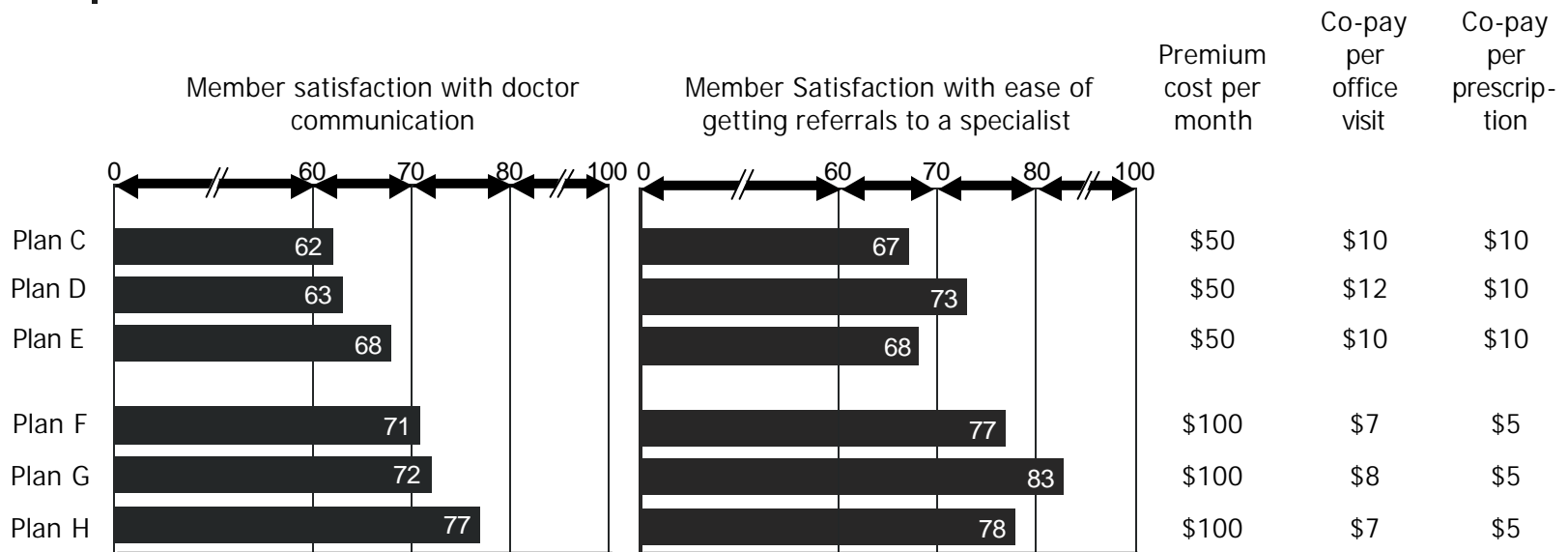
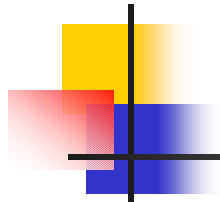
# Complex Data Display



# Affective Categories Add Meaning to a Complex Data Display



# Could Categorization Alone (the Lines) Impact Choices?

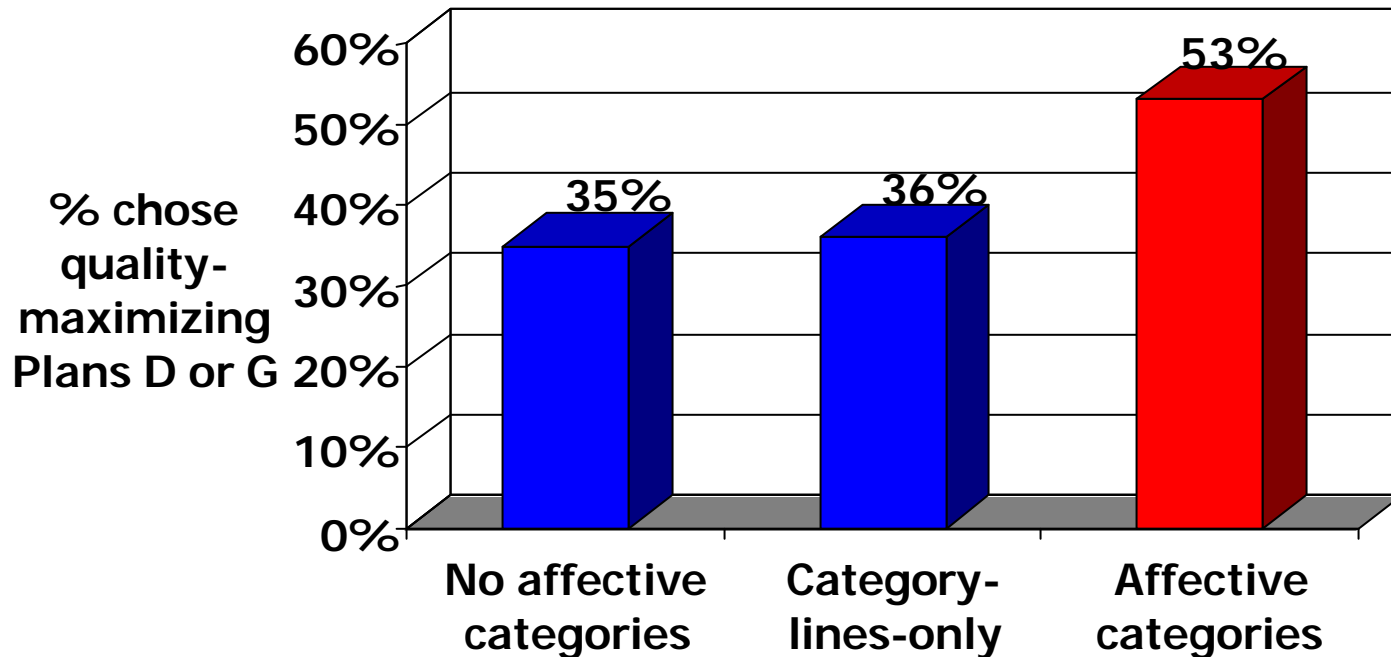




# Affective Categories Influenced Choices

- Category lines only did not

( $\chi^2(2) = 6.2, p < .05$ )





# Affective Categories – Summary of Health Plan Choice Studies

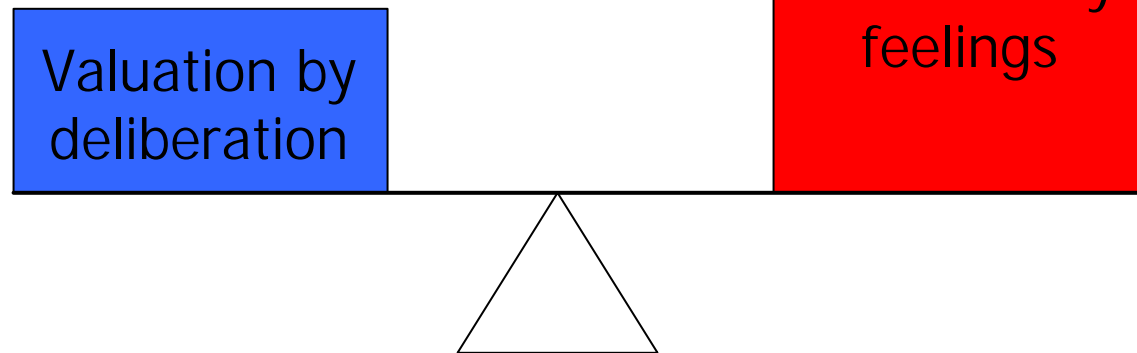
(Peters et al., 2003)

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1. Impact on simple choices.
  - Impact occurs outside of awareness.
2. Impact on more complex choices.
  - Generalize to an older adult sample
  - Categories only do not impact choices
  - Individuals low in deliberative ability influenced more
3. Direct evidence for an affective mechanism
  - Feelings are faster than thoughts with affective categories
  - Feelings predict choice better than thoughts
4. Aids the use of more and more relevant information
  - More information is used in judgments
  - Made judgments more consistent with stated values
  - Stronger for older than younger adults (preliminary data)

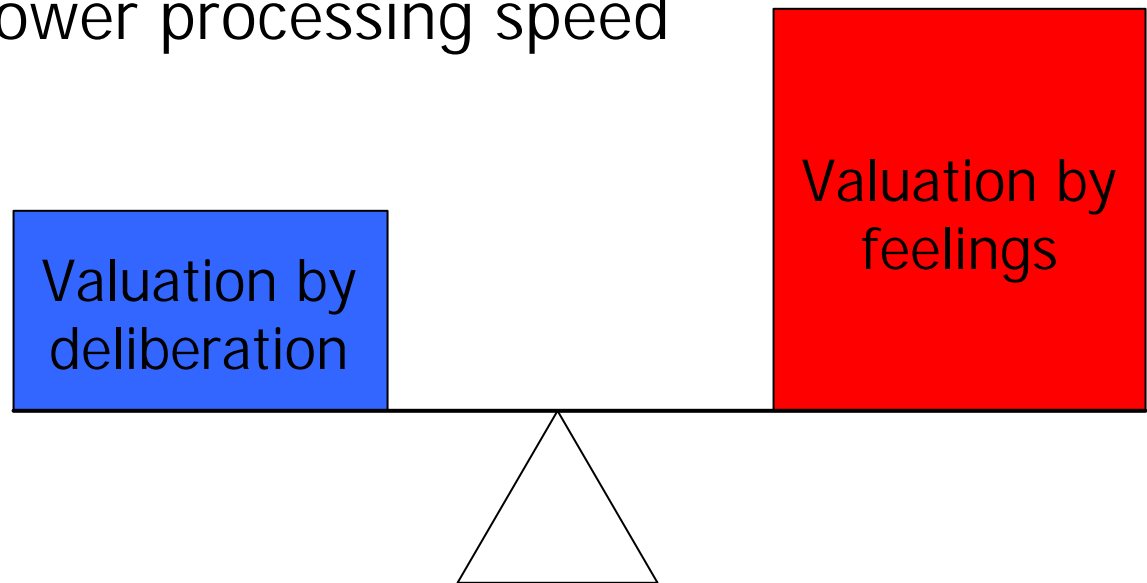
# Reliance on Feelings Increases with:

- Cognitive load or stress
  - Complexity of task and information
  - Memory demands
  - Time pressure
  - Poor health



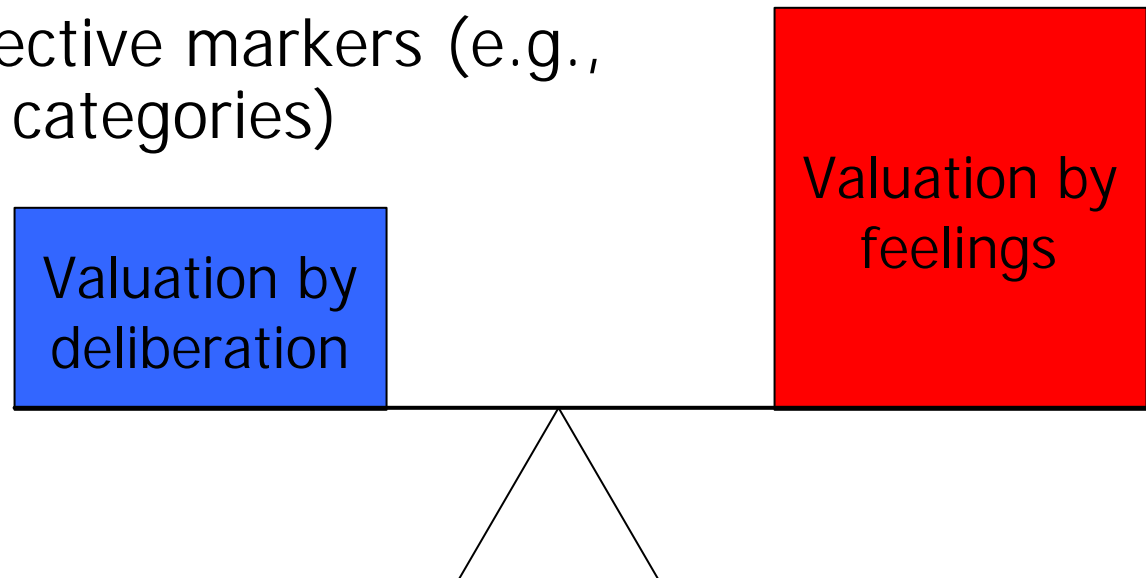
# Reliance on Feelings Increases with:

- Less cognitive efficiency
  - older age
  - slower processing speed



# Reliance on Feelings Increases with:

- Affective markers
  - covert affective markers developed through experience (Damasio, 1994)
  - overt affective markers (e.g., affective categories)



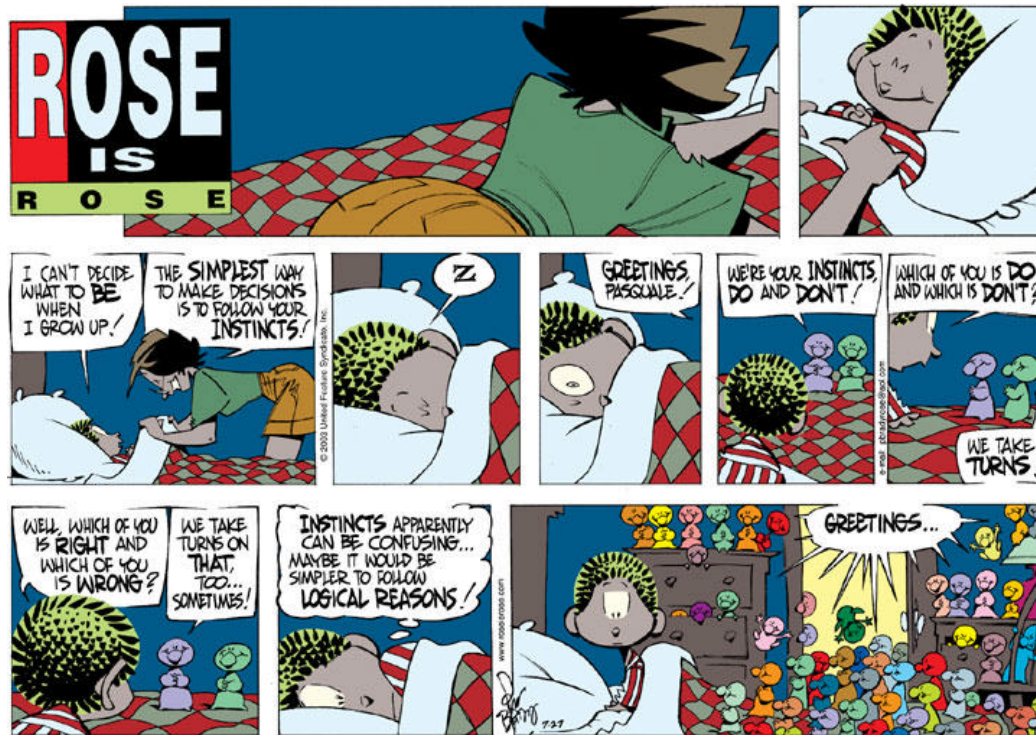


# Conclusions

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1. Affect matters in judgments
  - Perceptions of likelihood and risk
  - Risk communication
2. Affect matters in decisions
  - Across the lifespan
  - More for those low compared to high in deliberative ability
3. Affect acts as a source of information
4. Information presentation can influence affect

# Affect simpler than reasons?





# Implications

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1. Policy makers cannot present “just the facts”
  - every method of data presentation influences choices
  - need thoughtful and defensible choices of data presentation
2. Affect may influence people with low deliberative capacity more (older, sicker, under time pressure or cognitive load)
3. Numbers are just numbers, but affect provides meaning