Recitation #3

Taking measurements

Measurement scales

- Nominal scale
  - Bus #; Gender?
- Ordinal scale
  - House numbers; Rank in class
- Interval scale
  - Complex, maybe Grades
- Ratio scale
  - Heart rate; any measure in %

Scales & Statistics

- Can you take an average of A nominal scale?
  - Gender
  -

- Think about the meaning of the measurements!

Scales

- In most cases when asking people for their opinions researchers behave as if they have ratio scales, wishing they had interval scales but in fact they have an ordinal scale.

- It is also important to use measurement scales that people find meaningful
  - If people can distinguish only 3 levels, don't use an 100 point scale

Two types of measures

- "Subjective"
  - Introspection
  - Intuitions
  - Opinions
- Objective
  - Behavioral
  - What SS actually do
  - Examples:
    - How much do you enjoy this class?
    - Who came to class today?
- Which is better? Why?

Objective measures

- Observing behavior (parking, men's room)
- Choice
- Payments, bids, etc
- Time in task
-
- Limited to things we can observe
- Statistically expensive in many cases (choice)
- usually harder to get

Subjective measures

- Intentions
  - What would you do
  - What would others do
- Attitudes
  - How much do you like X?
- Verbal reports
  - On-line introspections

Quantitative subjective measures

- Likert scale
  - 1-7; 1-10; 1-100
- Guttman scale
  - A yes no response to a continuum of questions that are ordinal
- Hypothetical choice
- Ranking
-
- Quantitative ≠ objective

Fresh-Samantha Paradox

Fresh Samantha Flavors	Average Rating	Market Share
Carrot	2.7	33%
Orange Carrot	3.0	0%
Orange	2.3	33%
Soy Shake	2.0	33%

1	2	3	4
worst			best

- Can anyone come up with an explanation for this data?

Highest *average* ranking, but 0 market share

	(4 points) 1st Choice	(3 points) 2nd Choice	(2 points) 3rd Choice	(1 point) 4th Choice
(A)	Carrot	Orange-Carrot	Orange	Soy Shake
(B)	Orange	Orange-Carrot	Carrot	Soy Shake
(C)	Soy Shake	Orange-Carrot	Carrot	Orange

What is the origin of this paradox?

- Ratings do not translate directly to behavior

Subjective measures

- Very popular
- Cheap
- Can tell us things we cannot observe (why..)

- Social desirability demands
- Demand characteristics (effects)

- Depend on interpretation
- Intuitions & not behavior
- Depends on the extend to which people can introspect

Subjective measures I

- Social desirability demands
  - How often do you cheat?
  - Would you steal if you were sure no one will catch you?
  - Would you rather watch "the piano" or Rambo?
  –

- Demand characteristics (effects)
  - Do you agree that red is a nice color?

Subjective measures II

- Individuals have problems with:
  - Reporting their intentions
  - Predicting their own emotions in a different state
  - Interpreting own emotions

Reporting intentions

- Hypnosis interpretation

- ....

-

– People can easily give reasons for their behavior but it is not clear that the reasons articulated have anything to do with reality

Predicting I

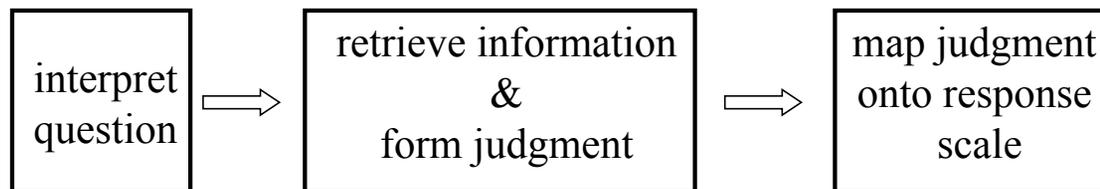- Predicting emotions & actions in a different state (VanBoven & Loewenstein)

	before exercising	after exercising
Thirst before hunger in essay	**19%**	**50%**
Thirst more unpleasant	**61%**	**92%**
Would regret more not packing water	**61%**	**88%**
Thirst more unpleasant *for hikers*	**57%**	**88%**
Hikers **would regret more no packing water**	**52%**	**92%**

Predicting II

Interpreting own emotions

- Run because you are afraid?
- Afraid because you run?
-
- Festinger -- Cognitive dissonance
- Running up the stairs makes people believe the experimenter is attractive.
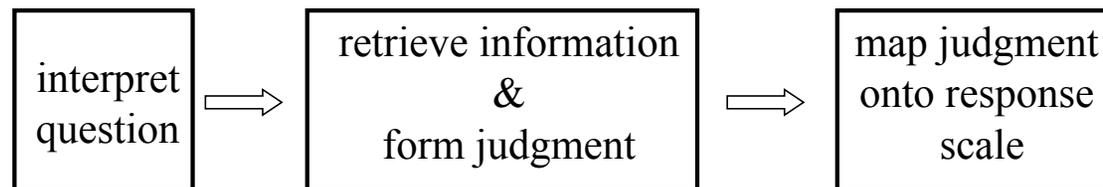- Crossing a bridge…
- The movies, an ideal place for a date…

3 cognitive stages in answering questions

interpret question	$\Rightarrow$	retrieve information & form judgment	$\Rightarrow$	map judgment onto response scale

- "File drawer" view:
  - Attitudes are stable dispositions that are stored in long-term memory, and you just retrieve them
- "Construal" view:
  - Attitudes are constructed on the fly, computed when necessary from whatever information comes to mind
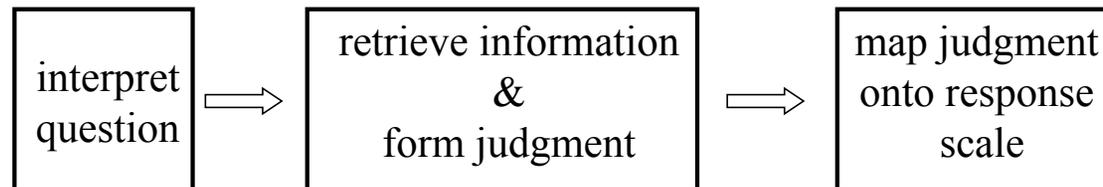
Do people interpret the question as intended?

- ## What brand of soft drink do you typically buy?
  - What is the time period involved? (How far back do I go ... I bought Gatorade in the summer; Hi C when I was a kid)
  - Do purchases at movies, in restaurants, & sporting events count?
  - Does "you" refer to me or to my household?
  - What is a "soft drink" exactly?
    - do lemonade, iced tea, fruit punch, & mineral water count?
  - Are Coke and Cherry Coke the same brand?

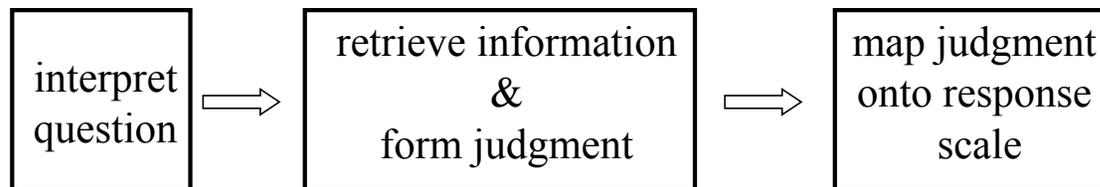| interpret question	$\Longrightarrow$	retrieve information & form judgment	$\Longrightarrow$	map judgment onto response scale

Can people retrieve the relevant information?

- ## How many ounces of alcohol did you consume last year?
  - ### What would be a better question to ask?

interpret question	$\Longrightarrow$	retrieve information & form judgment	$\Longrightarrow$	map judgment onto response scale

How do people select responses?

- How successful are you?
  - on a scale from 1 to 10?
  -

- Is 10 the valedictorian of your high school? Ted Turner? Michael Jordan?

| interpret question | ⟹ | retrieve information & form judgment | ⟹ | map judgment onto response scale |

Effects of response scale format

How successful have you been in life ?

| 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

not at all   **very**

| -5 | -4 | -3 | -2 | 1 | 0 | 1 | 2 | 3 | 4 | 5 |

not at all   **very**

Response scale provide cues for the "normal" levels of a behavior

How many hours a day do you spend watching TV ?

7%	18%	26%	15%	18%	16%
up to .5	.5 to 1	1 to 1.5	1.5 to 2	2 to 2.5	more than 2.5

How many hours a day do you spend watching TV ?

62%	23%	8%	5%	2%	0%
up to 2.5	2.5 to 3	3 to 3.5	3.5 to 4	4 to 4.5	more than 4.5

Effects of scales:

- In many cases the scales we give people are not ones they are to think about (even hours of watching TV)
- In such cases people use the scales to determine the acceptable range and their subjective fit within the range to determine their response

Response scale provide cues for the "normal" levels of a behavior

How many times do you floss in a typical **day** ?

0   1   2   3   4   5   6   7   8   9   10   >10

How many times do you floss in a typical **year** ?

0   1   2   3   4   5   6   7   8   9   10   >10

How likely are you to develop gum disease?
How much would you pay for a bottle of Scope mouth wash?

Another example….

The importance of context

1. How bad is it to jaywalk?

2.

   0 1 2 3 4 5 6 7 8 9 10
not at   very
all bad   bad

3.

4. How bad is it to spray paint the side of a building?

5.

   0 1 2 3 4 5 6 7 8 9 10
not at   very
all bad   bad

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1. How bad is it to murder your professor?

2.

   0 1 2 3 4 5 6 7 8 9 10
not at   very
all bad   bad

3. How bad is it to spray paint the side of a building?

4.

   0 1 2 3 4 5 6 7 8 9 10
not at   very
all bad   bad

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Ease of recall affects liking

Condition 1

- List 10 reasons to buy a BMW:
2) _____
3) _____
4) _____
5) _____
6) _____
7) _____
8) _____
9) _____
10) _____
11) _____

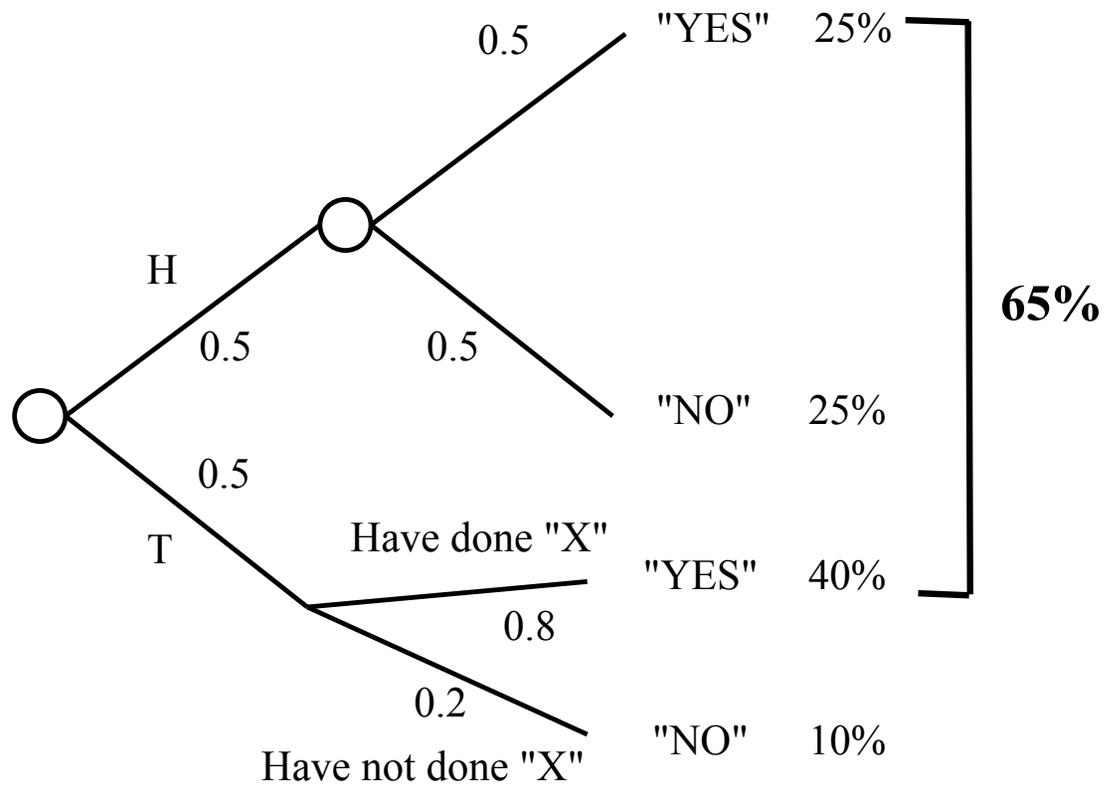## Condition 2

List 1 reason to buy a BMW:
1) _____

-

_

Effects of scales:

- The constructive view of preferences:
  - People do not know but if you ask them they will give you an answer
  - And they will be sure about it
  - But …..
- In some cases people"learn" about themselves from their own answers

Extracting sensitive information

- Do you happen to have done X in the last year?
- As you know, many people have been doing X these days. Do you happen to have done X?
- Do you know anyone who has done X? How about yourself?
-
- Pull a coin from your pocket. If it lands Heads, answer Question 1. If it lands Tails answer Question 2:
  -

      1. Is your birthday between January 1st and June 1st ?
      2. Have you ever done X?

Question Order I

- How satisfied are you with your life overall?

-

- How is the weather?

- How satisfied are you with your life overall?

  –

  – In one of these conditions, was there a strong correlation between current weather (whether it was raining outside or sunny) and people's appraisal of their life as a whole.

  –

  – In which of these two conditions was the correlation observed.

Question Order II

- How many dates did you have last month?
- How satisfied are you with your life, in general?
  - R = 0.66
  -
- How satisfied are you with your life, in general?
- How many dates did you have last month?
  - R = 0.0

Question Wording

- The government is spending too little on "**welfare**"
  - » Yes   No
- 25%   75%
-
- The government is spending too little on "**assistance to the poor**"
-
-                 Yes   No
- 65%   35%

Response language

- Asking questions is like a discussion
- People make assumptions about the intended meaning

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Summary

- **Subjective vs. objective (behavioral measures)**
  - The main question is when are people able to report
  - Sensitity to scales, order, etc.
  - Response language
- **The constructive view**
  - Do people have preferences?
  - Inferences of attitudes from questions / answers
  - Awarness based on questions
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