



# *Misresponse to Survey Questions*

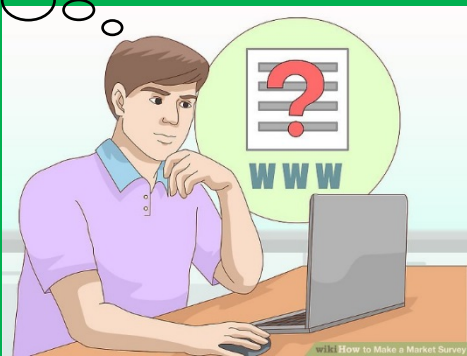
Hans Baumgartner  
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*Smeal College of Business, Penn State University*

## *Misresponse to survey questions*

- assumption that surveys yield a faithful representation of reality;
- unfortunately, there are many sources of error in surveys;
- misresponse as the difference between the “true” response and the response provided by a respondent (random or systematic);
- measurement error contaminates the data and limits the theoretical and practical usefulness of findings;

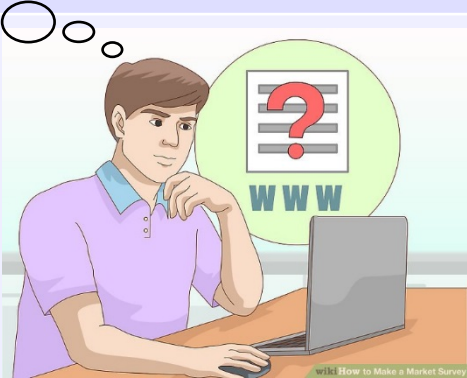

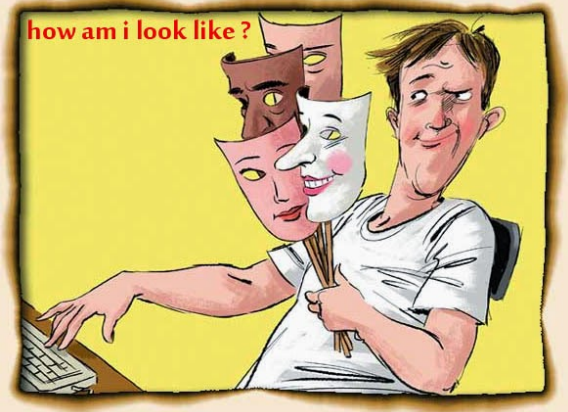


## Goals and resources as response determinants

		Respondents' resources (ability and motivation)	
		High	Low
Respondents' goals	Accuracy		
	Other		

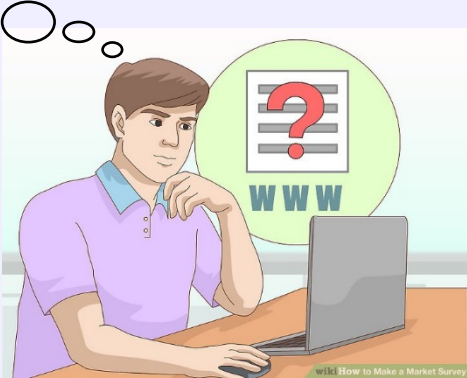

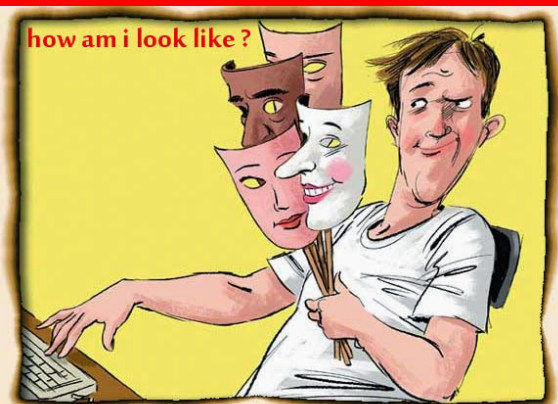


## Goals and resources as response determinants

Resources		Respondents' resources (ability and motivation)	
		Goals	
Respondents' goals	High		
	Low		
	Accuracy		
	Other		



## Goals and resources as response determinants

Resources Goals		Respondents' resources (ability and motivation)	
		High	Low
Respondents' goals	Accuracy		
	Other		

## *Socially desirable responding* (Steenkamp, de Jong, and Baumgartner 2010)

- Respondents provide answers that make them look good:
  - Unconscious vs. deliberate
  - Superheroes (agency) vs. saints (communion)

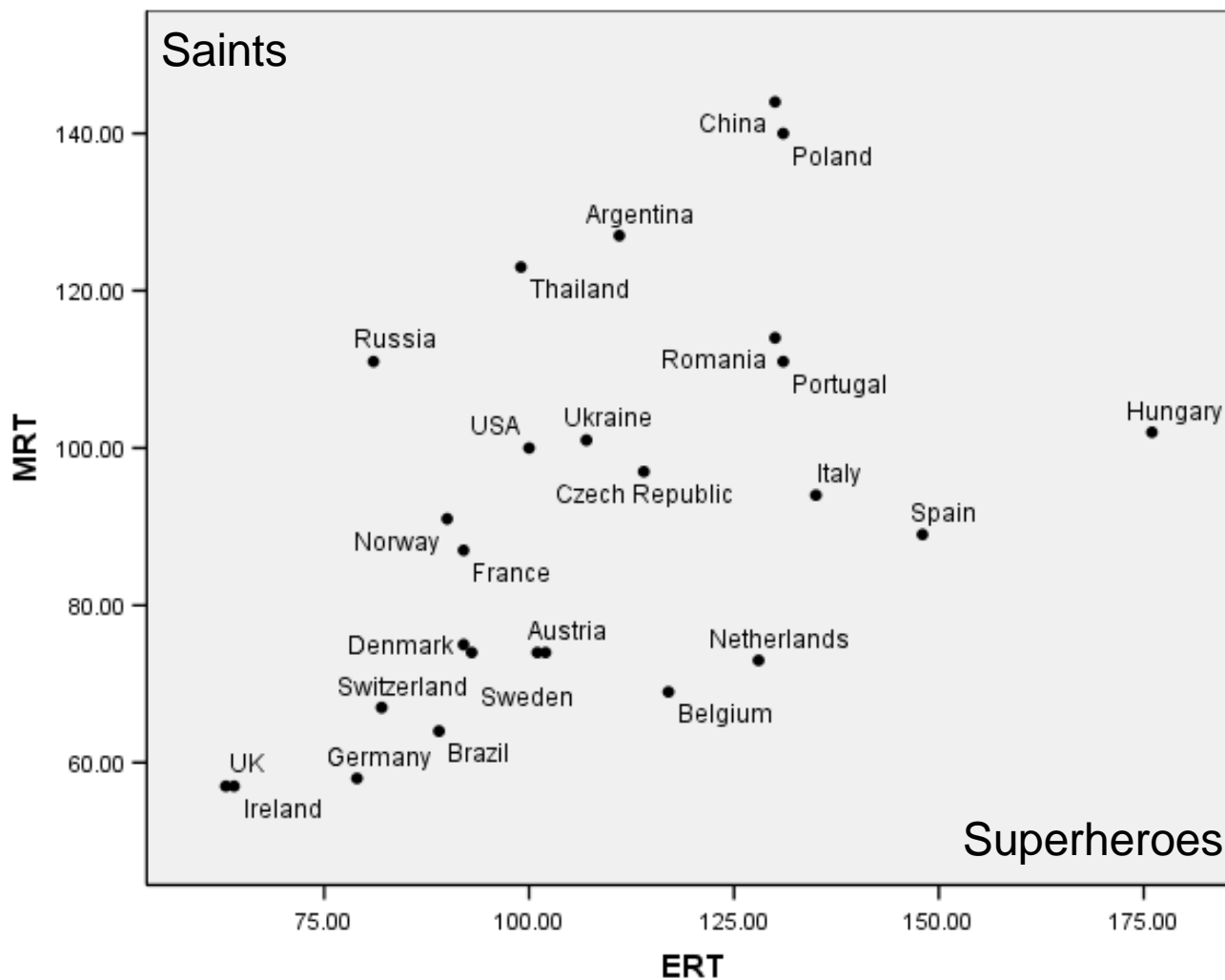


## *Socially desirable responding* (Steenkamp, de Jong, and Baumgartner 2010)

- SDR is more common in high-demand situations (e.g., questions about sensitive topics, possible public disclosure of responses, important outcomes at stake);
- Individual and cultural differences in SDR:
  - Exaggerating uncommon desirable behaviors (e.g., I always know why I like things; I always obey laws, even if I am unlikely to get caught)
  - Denying common undesirable behaviors (e.g., It's hard for me to shut off a disturbing thought; I have received too much change from a salesperson without telling him or her)



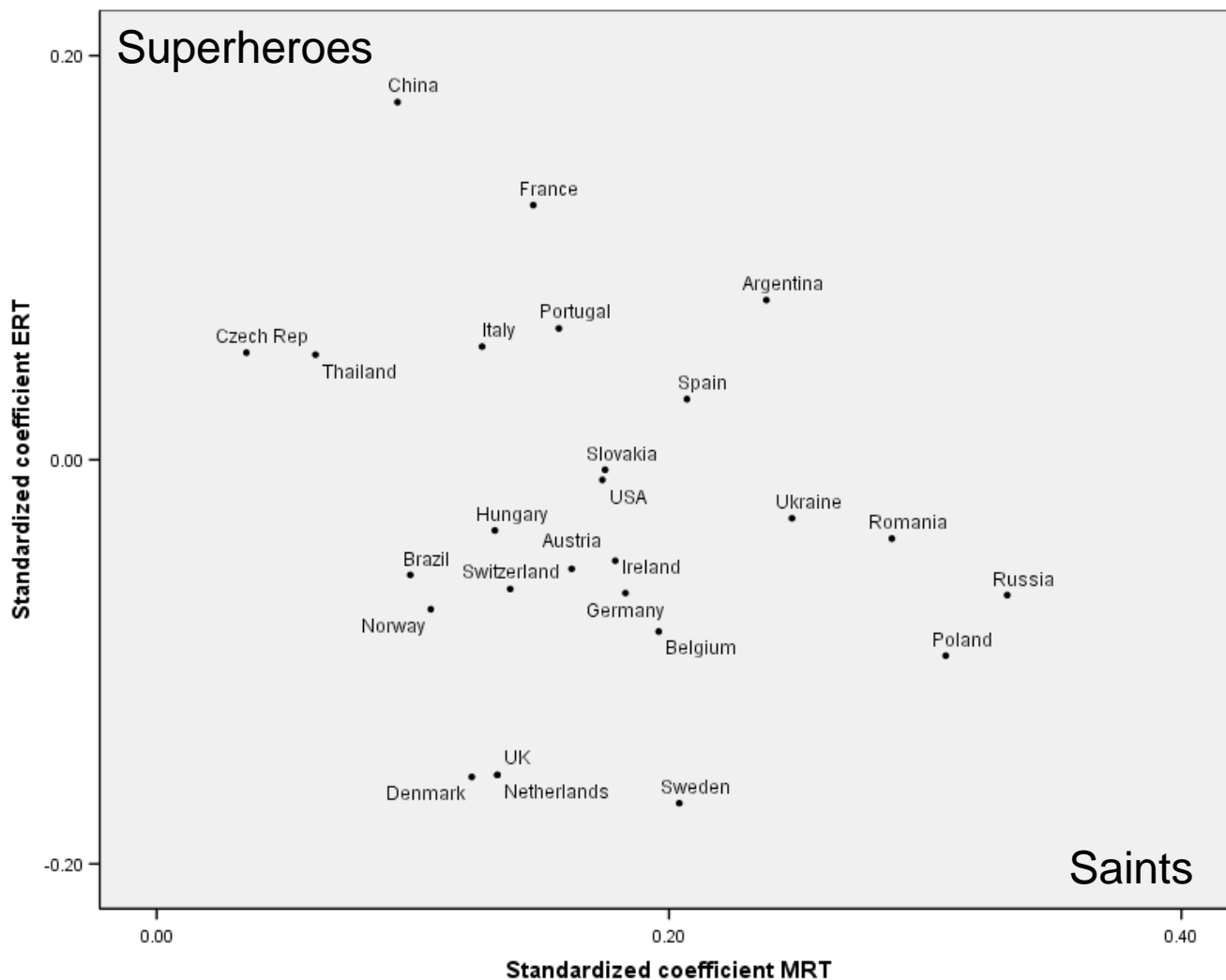
# Country scores for two varieties of SDR



Note: 32% (13%) of the variation in ERT (MRT) was between countries.

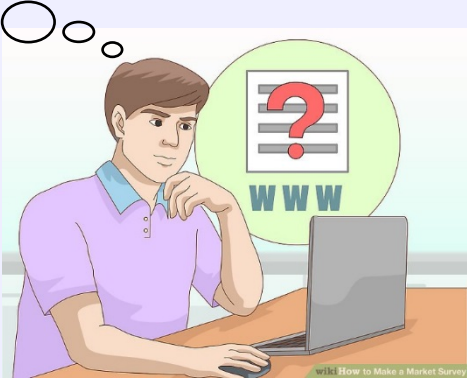

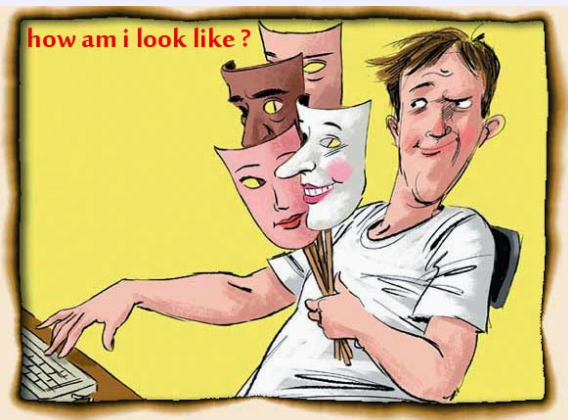


# Example: The effect of SDR on environmental consciousness by country





## Goals and resources as response determinants

		Respondents' resources (ability and motivation)	
		High	Low
Respondents' goals	Accuracy		
	Other		

## *Satisficing in surveys*

- people as cognitive misers (Fiske and Taylor 1991);
- Krosnick (1991) argues that when respondents satisfice, the four steps of the response process (comprehension, retrieval, judgment, response) are compromised to some extent, and some steps might be skipped entirely;

## *Encouraging respondents to optimize*

In the first part of the survey, we're interested in how you respond to questions when you want to do a good job answering questions carefully and accurately.

On the following screens you will see questions about a variety of important topics. Many of these **questions are likely relevant** to college students like you. We want you to **read each question carefully and provide a response that reflects your true opinion**. Proceed at your own pace, but **pay careful attention** to what each question asks and **answer each question truthfully**. Adopt the mindset that this survey is important to you personally; **read each question carefully and think about your answer before responding**.

## Measures of satisficing

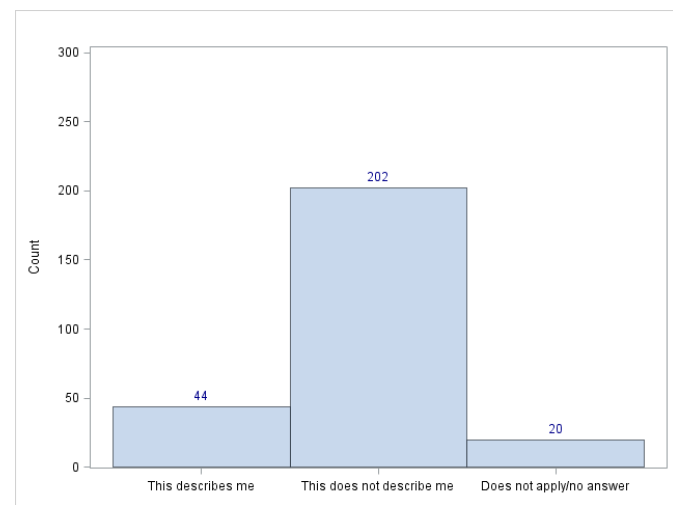
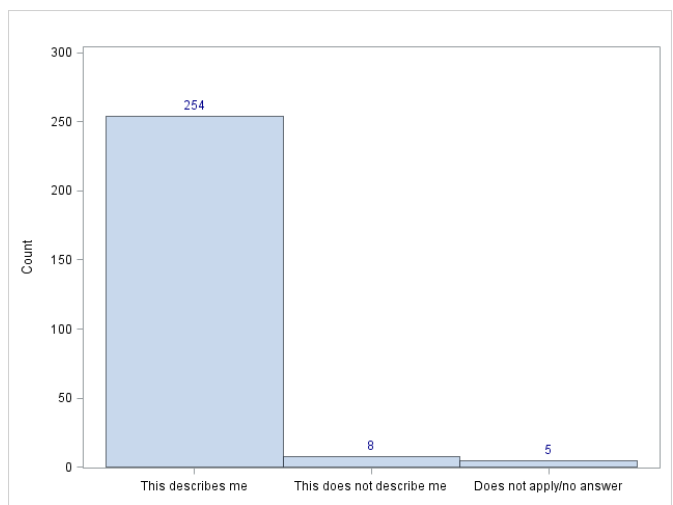
	DEDICATED MEASURES Special items or scales are included in the questionnaire to measure satisficing	NO DEDICATED MEASURES Satisficing is inferred from respondents' answers to substantive questions
DIRECT MEASUREMENT Satisficing is assessed directly by measuring respondents' tendency to minimize time and effort when responding to a survey	CATEGORY 1 Self-reported effort (e.g., I carefully read every survey item).	CATEGORY 2 Response time
INDIRECT MEASUREMENT Satisficing is assessed indirectly based on the presumed consequences of respondents' attempts to minimize time and effort on the quality of responses	CATEGORY 3 Quality of responses to special items or scales (e.g. bogus items, instructed response items)	CATEGORY 4 Quality of responses to substantive questions (e.g., outlier analysis, lack of consistency of responses, excessive consistency of responses)



## Category 1: Self-reported effort

How would you describe your own way of responding while filling out the questionnaire?

	This describes me	This does not describe me	Does not apply/no answer
I carefully considered my answers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I gave thoughtless answers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

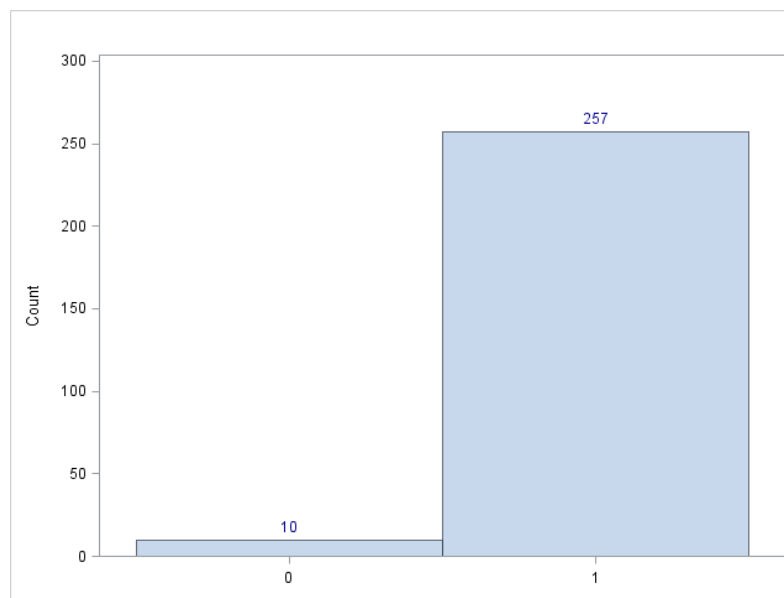


## Category 1: Self-reported effort (cont'd)

You will receive credit for this study no matter what. However, we would like to ask you a couple of questions about how much effort you put into answering the questions in this survey. Please provide your honest opinion.

In your honest opinion, should we use your data?

- Yes
- No







# Misresponse to survey questions

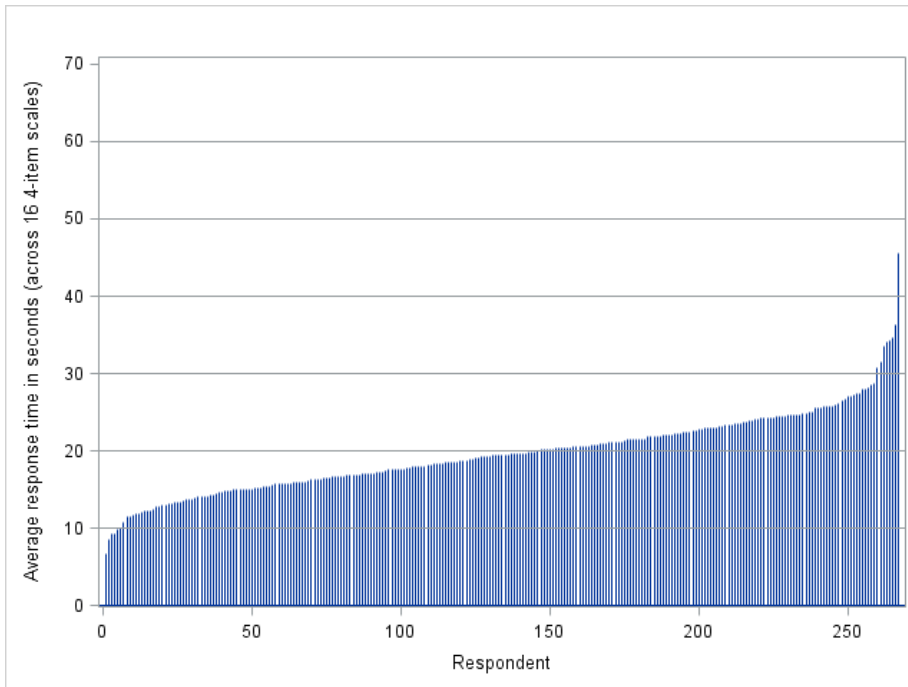
	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Advertising is generally truthful.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advertising is a reliable source of information about the quality and performance of products.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe advertising is informative.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In general, advertising doesn't present a true picture of the product being advertised.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Continue

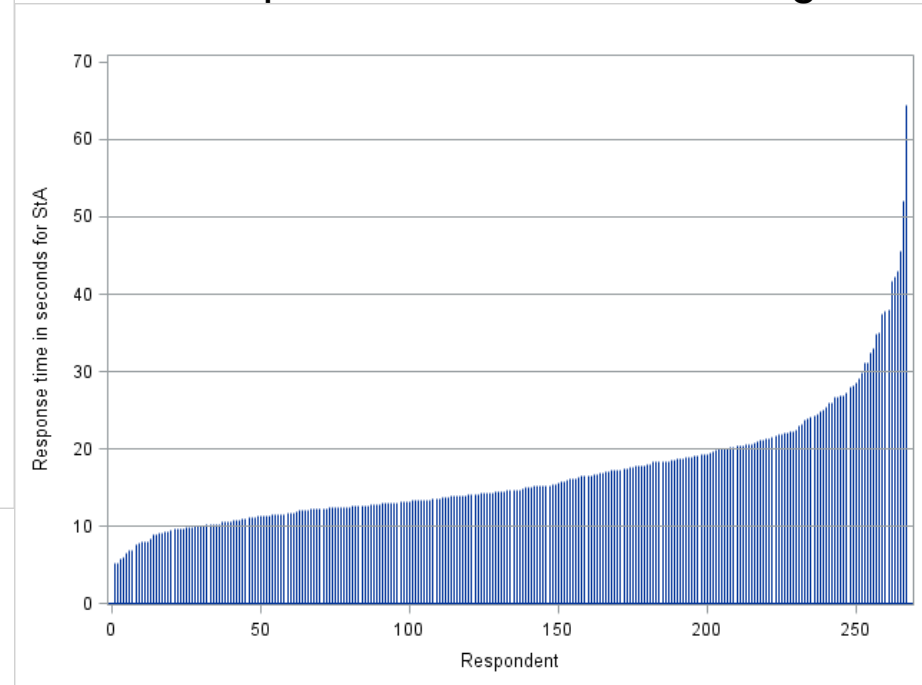
Survey Powered By [Qualtrics](#)

# Category 2: Response times

Average response time for 16 4-item scales



Response time for Skepticism toward Advertising



### *Category 3: Response to special items*

#### Sports Participation

Most modern theories of decision making recognize the fact that decisions do not take place in a vacuum. Individual preferences and knowledge, along with situational variables can greatly impact the decision process. In order to facilitate our research on decision making we are interested in knowing certain factors about you, the decision maker. Specifically, we are interested in whether you actually take the time to read the directions; if not, then some of our manipulations that rely on changes in the instructions will be ineffective. So, in order to demonstrate that you have read the instructions, please ignore the sports items below, as well as the continue button. Instead, simply click on the title at the top of this screen (i.e., "sports participation") to proceed to the next screen. Thank you very much.

Which of these activities do you engage in regularly?  
(click on all that apply)

skiing

soccer

snowboarding

running

hockey

football

swimming

tennis

basketball

cycling

Continue

### Sports Participation

Most modern theories of decision making recognize the fact that decisions do not take place in a vacuum. Individual preferences and knowledge, along with situational variables can greatly impact the decision process. In order to facilitate our research on decision making we are interested in knowing certain factors about you, the decision maker. Specifically, we are interested in whether you actually take the time to read the directions; if not, then some of our manipulations that rely on changes in the instructions will be ineffective. So, in order to demonstrate that you have read the instructions, please ignore the sports items below, as well as the continue button. Instead, simply click on the title at the top of this screen (i.e., "sports participation") to proceed to the next screen. Thank you very much.

So, in order to demonstrate that you have read the instructions, please ignore the sports items below, as well as the continue button. Instead, simply click on the title at the top of this screen (i.e., "sports participation") to proceed to the next screen

ski

foo

Continue

### Sports Participation

Most modern theories of decision making recognize the fact that decisions do not take place in a vacuum. Individual preferences and knowledge, along with situational variables can greatly impact the decision process. In order to facilitate our research on decision making we are interested in knowing certain factors about you, the decision maker. Specifically, we are interested in whether you actually take the time to read the directions; if not, then some of our manipulations that rely on changes in the instructions will be ineffective. So, in order to demonstrate that you have read the instructions, please ignore the sports items below, as well as the continue button. Instead, simply click on the title at the top of this screen (i.e., "sports participation") to proceed to the next screen. Thank you very much.

Which of these activities do you engage in regularly?  
(click on all that apply)

skiing

soccer

snowboarding

running

hockey

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swimming

tennis

basketball

cycling

Continue

Between 14% and 46% of respondents failed this test in Oppenheimer et al. (2009)

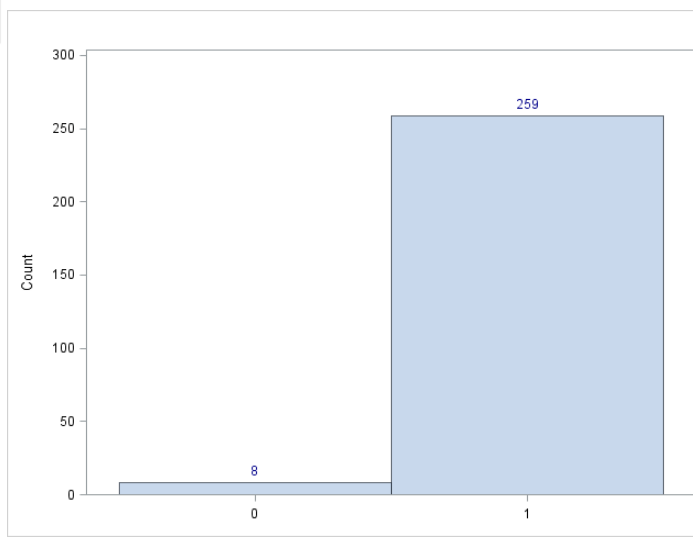




## Category 3: Response to special items (cont'd)

How would you describe your own way of responding while filling out the questionnaire?

	This describes me	This does not describe me	Does not apply/no answer
I carefully considered my answers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I gave thoughtless answers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I first thought and responded only then.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I answered without thinking.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Do not check a response option now, but skip this question and go to the next page (this is an attention check).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## *Category 4: Quality of substantive responses*

- Lack of consistency of responses  
(responses to items that are similar in content should be consistent and responses to items that are polar opposites in meaning should be dissimilar)
- Excessive consistency of responses  
(long strings of identical responses)



*Survey misresponse due to item reversal:  
The Material Values Scale  
(Richins and Dawson 1992)*

- I'd be happier if I could afford to buy more things.
- I have all the things I really need to enjoy life.
- My life would be better if I owned certain things I don't have.
- I wouldn't be any happier if I owned nicer things.

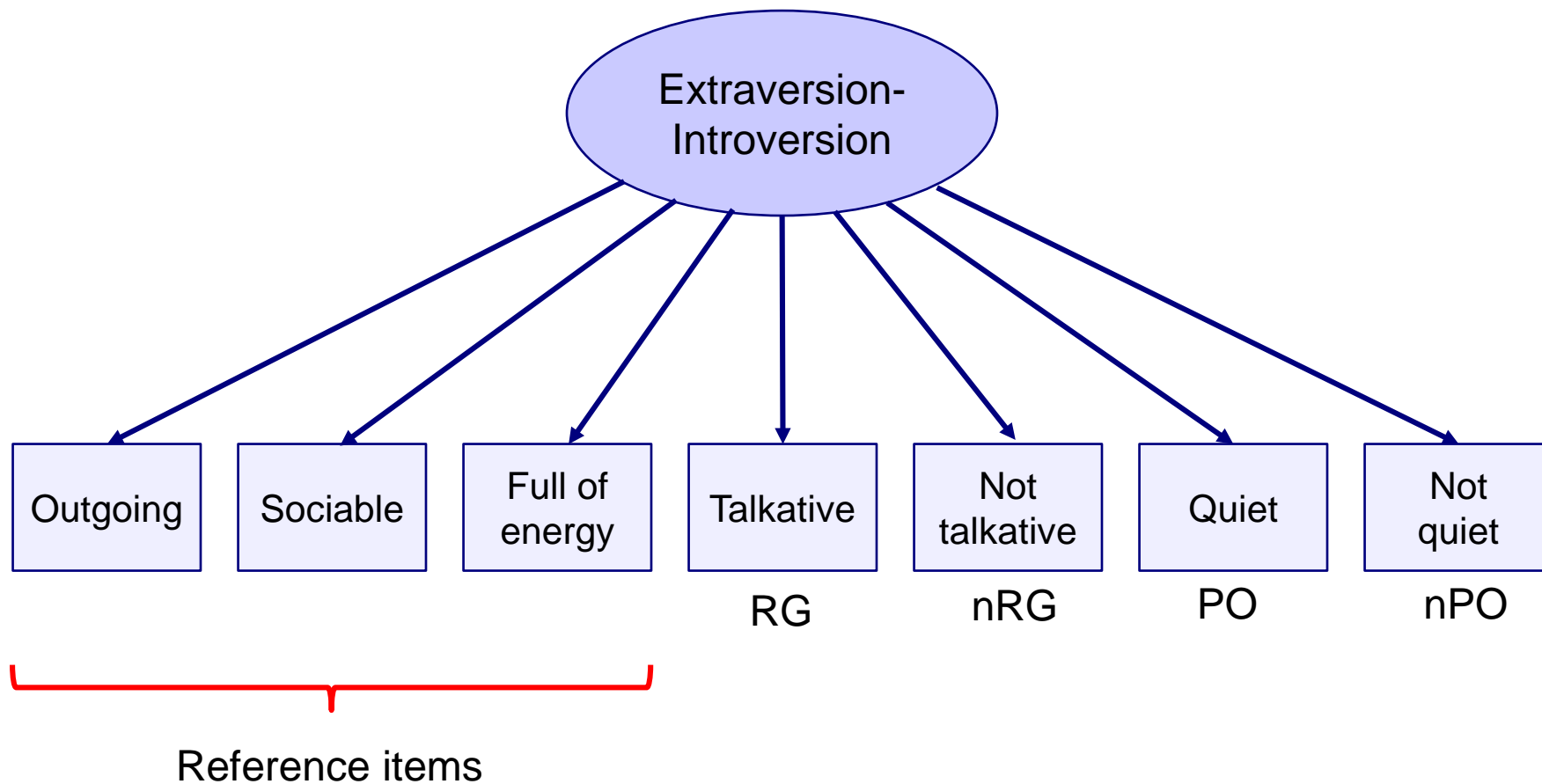
## *Survey misresponse: Item reversal (Weijters and Baumgartner 2012)*

- reverse-keyed items are common in multi-item summative scales:
  - consideration of the issue from multiple perspectives
  - cognitive speed bumps
  - control for acquiescence and other biases
- but they lead to many problems:
  - poor reliability
  - misleading factor structures
  - distorted estimates of relationships with other constructs

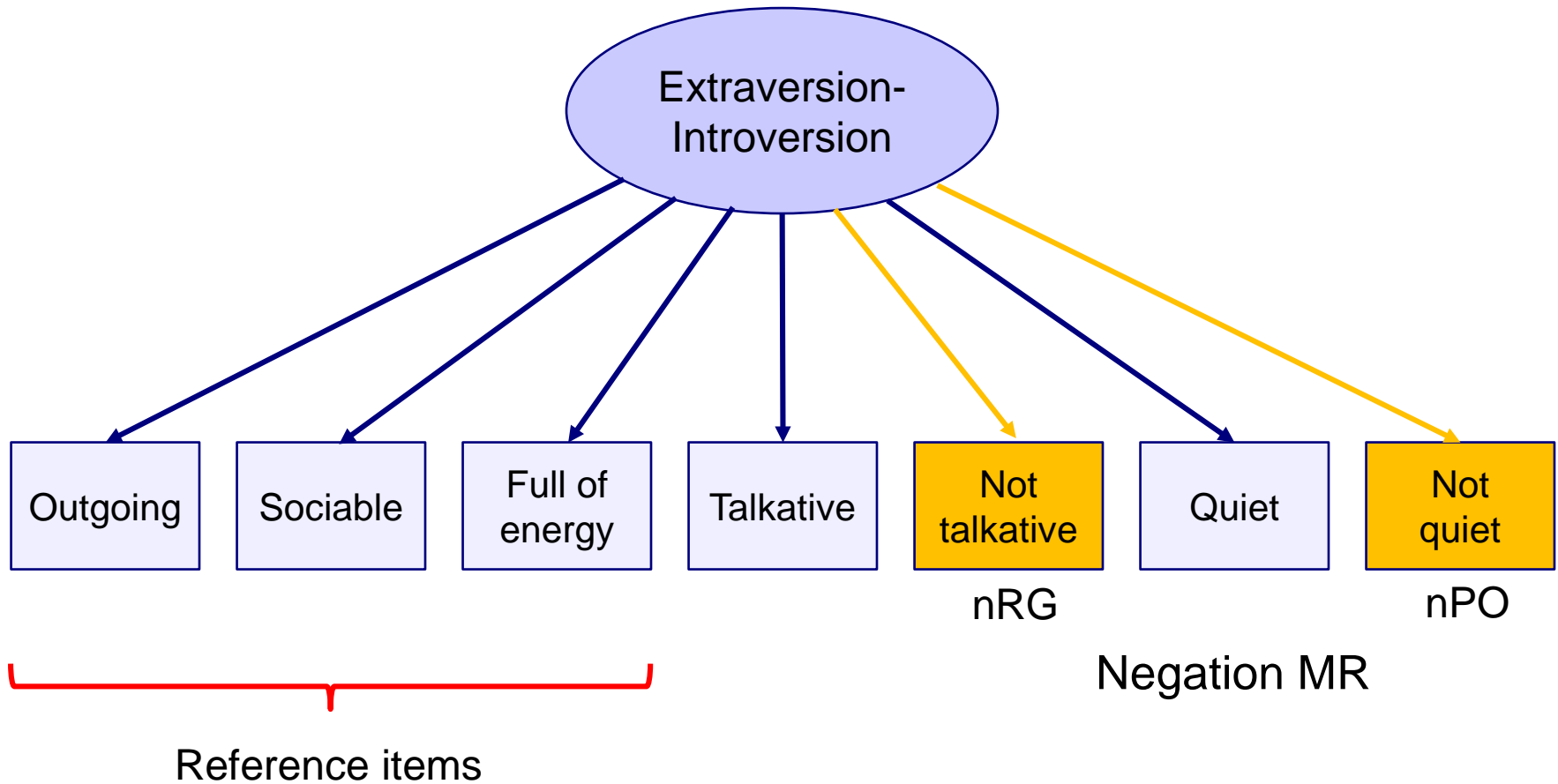
## *Distinguishing three forms of misresponse (Baumgartner, Weijters, and Pieters 2018)*

(1) Respondent disposition	(2) Target item	Item characteristics			(6) Expected response based on respondent disposition	Forms of item misresponse based on three systematic response patterns		
		(3) Does item contain a negation?	(4) Does item contain a polar opposite core concept?	(5) Is item reversed?		(7) Negation MR	(8) Polar Opposite MR	(9) Reversal MR
Extravert	Talkative (RG)	No	No	No	Agree	Agree	Agree	Agree
Extravert	Not talkative (nRG)	Yes	No	Yes	Disagree	Agree	Disagree	Agree
Extravert	Quiet (PO)	No	Yes	Yes	Disagree	Disagree	Agree	Agree
Extravert	Not quiet (nPO)	Yes	Yes	No	Agree	Disagree	Disagree	Agree
Introvert	Talkative (RG)	No	No	No	Disagree	Disagree	Disagree	Disagree
Introvert	Not talkative (nRG)	Yes	No	Yes	Agree	Disagree	Agree	Disagree
Introvert	Quiet (PO)	No	Yes	Yes	Agree	Agree	Disagree	Disagree
Introvert	Not quiet (nPO)	Yes	Yes	No	Disagree	Agree	Agree	Disagree

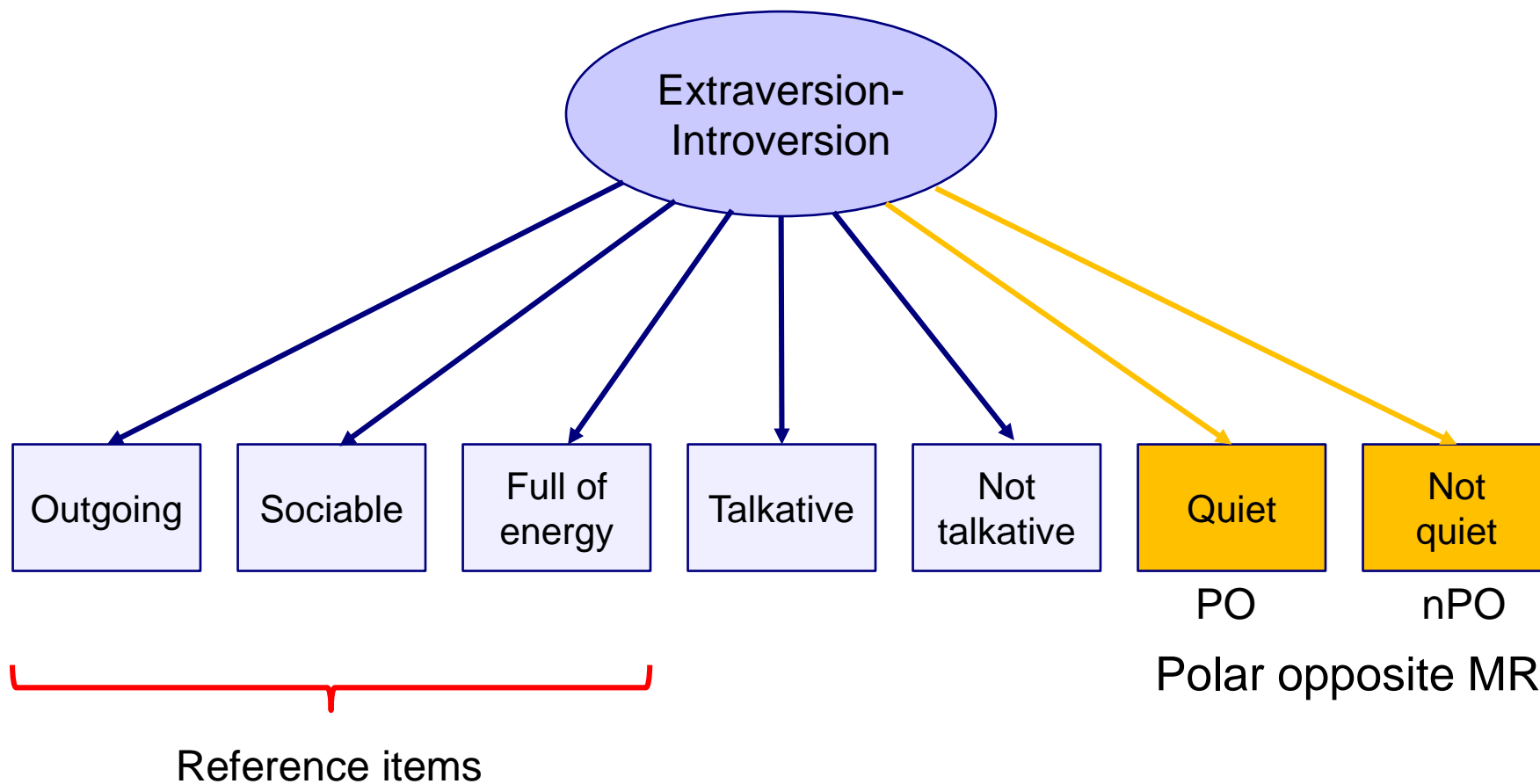
# Factor loadings as a measure of MR



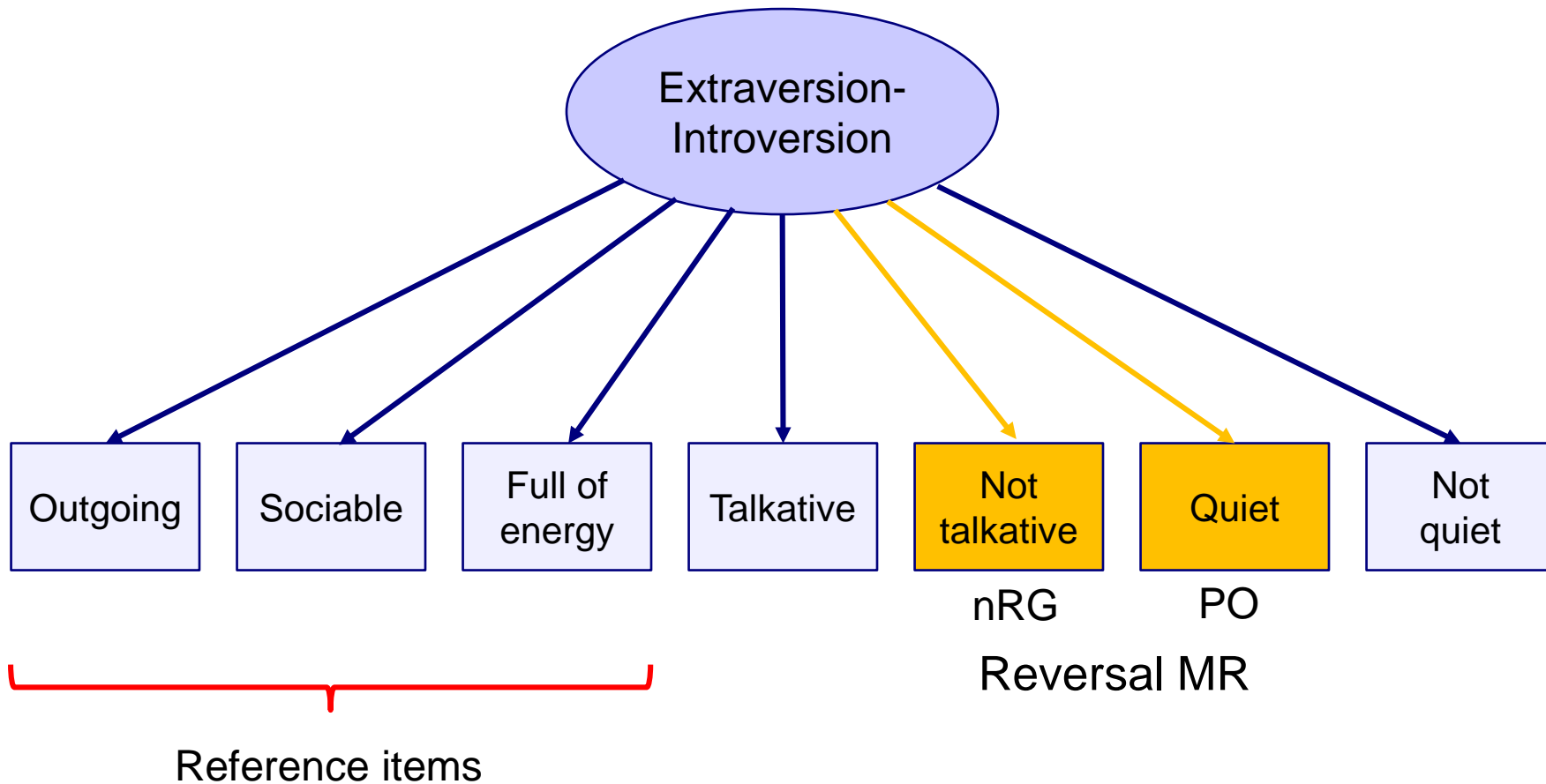
# Factor loadings as a measure of MR



# *Factor loadings as a measure of MR*



# Factor loadings as a measure of MR





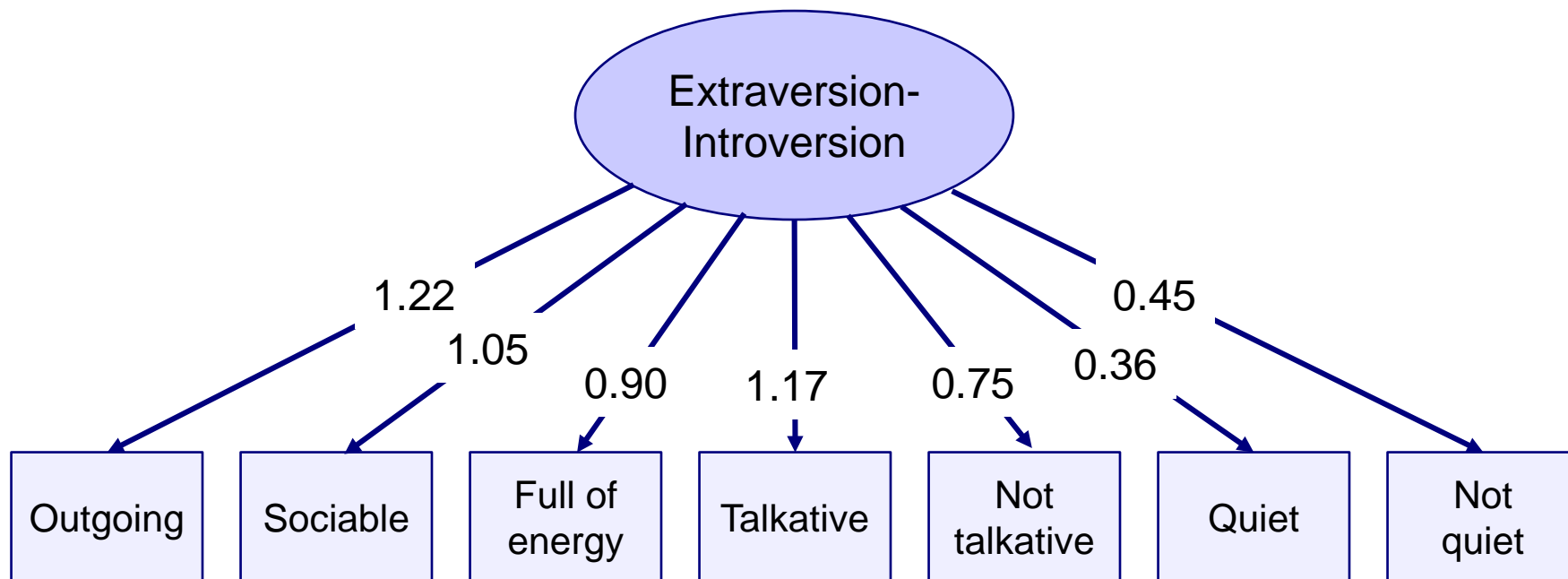


## Misresponse to survey questions

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Advertising is generally truthful.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advertising is a reliable source of information about the quality and performance of products.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe advertising is informative.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In general, advertising doesn't present a true picture of the product being advertised.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Continue

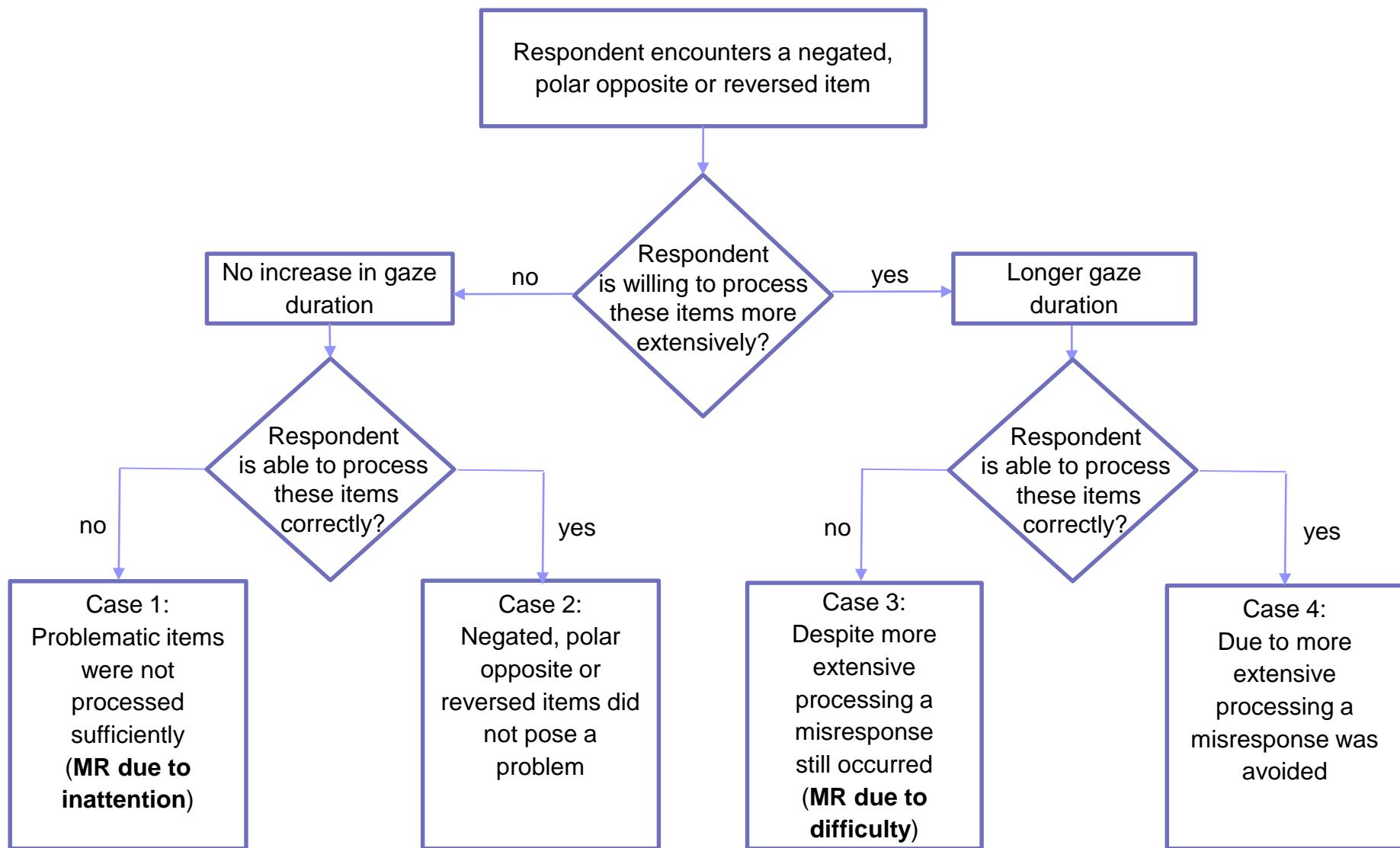
# Factor loadings as a measure of MR



Reference items

Negation MR:           -.17 [ -.58, .24 ]  
Polar opposite MR:   -.55 [ -.97, -.15 ]  
Reversal MR:           -.26 [ -.68, .15 ]

# Does inattention or difficulty cause MR? (Baumgartner, Weijters, and Pieters 2018)





## *Skepticism toward Advertising – The fourth item is a negated regular item (nRG)*

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Advertising is generally truthful.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advertising is a reliable source of information about the quality and performance of products.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe advertising is informative.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
In general, advertising doesn't present a true picture of the product being advertised.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Continue



## Misresponse to survey questions

*Colored Areas-of-Interest (AIO) overlaid on the screen for spatial aggregation of eye fixations prior to analysis*





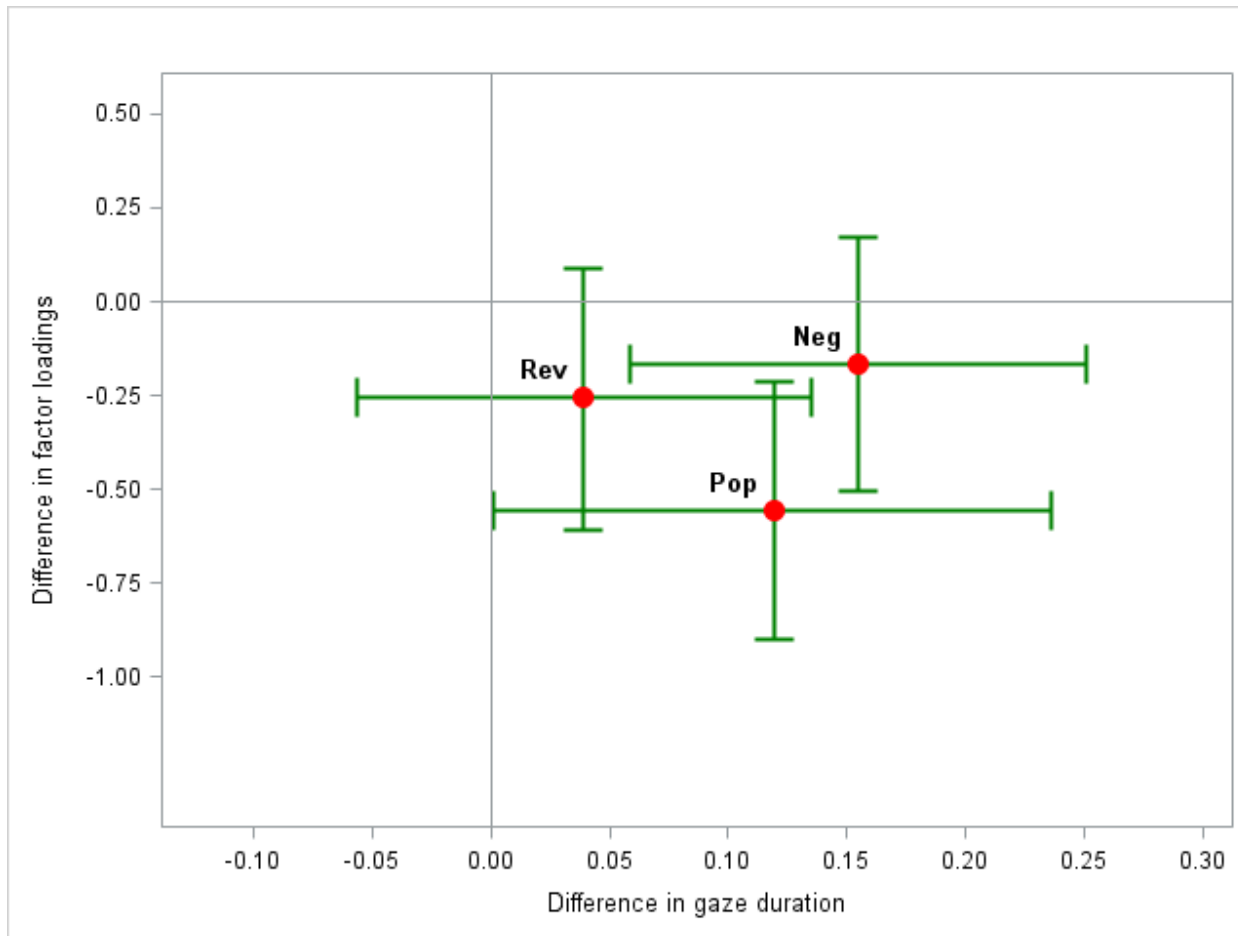
## Misresponse to survey questions

*Selected eye fixations of a single participant on the fourth item (center of circle is center of fixation location, size of circle is fixation duration)*

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Advertising is generally truthful.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
Advertising is a reliable source of information about the quality and performance of products.	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe advertising is informative.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
In general, advertising doesn't present a true picture of the product being advertised.	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>

Continue

# MR and gaze duration





## *Conclusions*

- Respondents don't always have an accuracy goal and often aren't sufficiently motivated and able to provide accurate answers;
- SDR can be problematic under certain circumstances and with certain respondents;
- Satisficing is often a problem in surveys (esp. in online contexts)
  - include measures of satisficing
  - MR is more pronounced for certain types of items, which have to be used with care;

## *Incentive-aligned conjoint analysis (Ding, Grewal, and Liechty 2005)*

Combo	Price	Drink	Cookie	Korean cereal bar	Fruit
1	\$2.50	Water	Peanut butter	Strawberry	Banana
2	\$1.75	Orange juice	Peanut butter	None	Apple
3	\$2.50	Diet Coke	Chocolate fudge	White chocolate	Banana

Please indicate your most preferred choice:

\_\_\_\_\_ Combo (1, 2 or 3)

\_\_\_\_\_ Don't want to purchase any combo from this page

## *Incentive-aligned conjoint analysis (Ding, Grewal, and Liechty 2005)*

- Choice of snack combos:
  - Drink (water, Coke, Diet Coke, iced tea, orange juice)
  - Cookie (peanut butter, chocolate fudge, oatmeal raisin, none)
  - Korean cereal bar (white, dark, strawberry chocolate, none)
  - Piece of fruit (banana, apple, none)
  - Price (\$1.00, \$1.75, \$2.50)

Combo	Price	Drink	Cookie	Korean cereal bar	Fruit
1	\$2.50	Water	Peanut butter	Strawberry	Banana
2	\$1.75	Orange juice	Peanut butter	None	Apple
3	\$2.50	Diet Coke	Chocolate fudge	White chocolate	Banana

Please indicate your most preferred choice:

\_\_\_\_\_ Combo (1, 2 or 3)

\_\_\_\_\_ Don't want to purchase any combo from this page

# *Incentive-aligned conjoint analysis (cont'd)*

- Hypothetical conjoint:

You will be shown 27 sets of three snack combos. For each set of three combos, imagine that you were asked to choose between no snack and one of these three different snacks at the stated price. Select the most attractive option (which could include not selecting any of the snacks).

- Incentive-aligned conjoint:

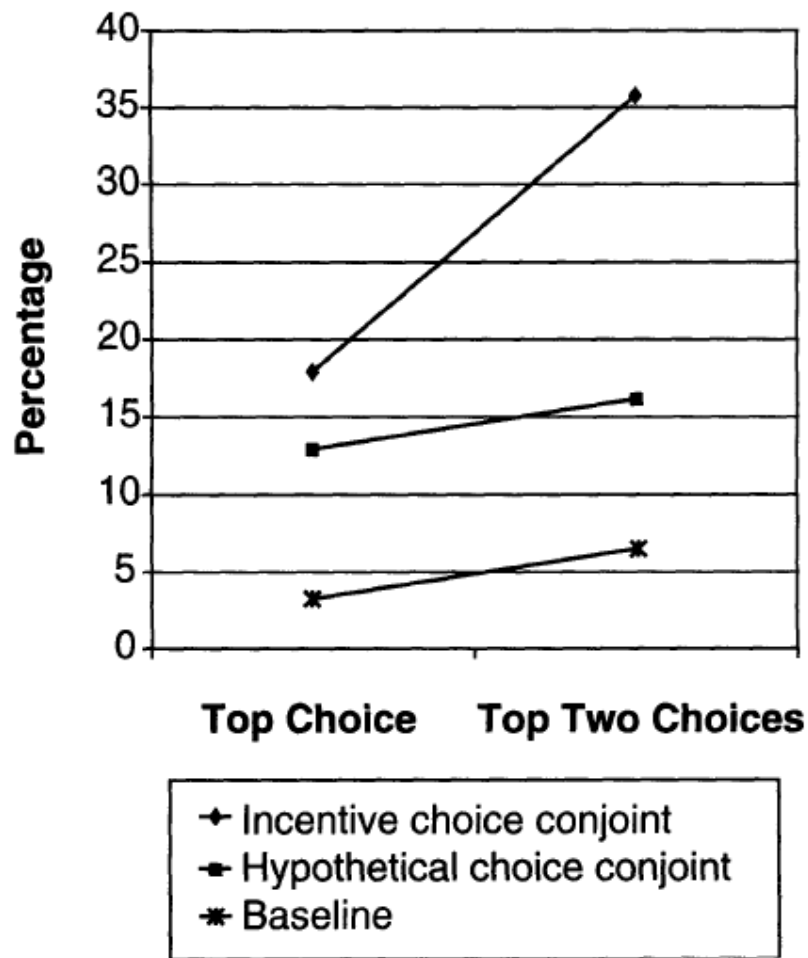
You will be shown 27 sets of three combos. For each set of three combos, please choose between no snack and one of these three different combos at the stated price. **After you complete your selection, we will randomly choose a set from these 27 sets, and your choice for that set will be fulfilled. If you have selected no snack for that set, you will be given \$3 cash; if you have selected a snack combo for that set, you will be given \$3 minus the price of that combo as stated, in addition to the actual snack combo.** Remember, the choice you make here in the experiment will be fulfilled (you will receive the actual snack combo selected by you).

- Holdout task:

You will receive \$3, and you can use it to purchase a snack. Please select the combo (out of 30 available snack combos) that you will be interested to buy (just one) or, in case you are not interested in any of them, indicate as such.



Figure 2  
PREDICTIVE PERFORMANCE FOR HOLDOUT TASK: STUDY 2





## Preferences for certain response options (Baumgartner and Steenkamp 2001)

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Acquiescence	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>
Disacquiescence	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Midpoint responding	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
Extreme responding	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>



## Using eye tracking to study response to RG, nRG, PO, and nPO items

	Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree
Advertising is generally truthful.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Advertising is a reliable source of information about the quality and performance of products.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
I believe advertising is informative.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
↳ In general, advertising presents a true picture of the product being advertised.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
↳ In general, advertising doesn't present a true picture of the product being advertised.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
↳ In general, advertising presents a false picture of the product being advertised.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
↳ In general, advertising doesn't present a false picture of the product being advertised.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>



## Areas of interest

AOI1a to AOI1e

		Strongly Disagree	Disagree	Neither Agree nor Disagree	Agree	Strongly Agree	
AOI2a	Even though certain food products are available in a number of different flavors, I tend to buy the same flavor.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	AOI3a
AOI2b	I think of myself as a brand-loyal consumer.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	AOI3b
AOI2c	When I go to a restaurant, I feel it is safer to order dishes I am familiar with.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	AOI3c
AOI2d	I usually buy brands about which I am not certain how well they will perform.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	AOI3d

AOI5b AOI5a

Continue

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AOI4a

AOI4b