

Who's to Blame for Survey Instability: Respondents with Random Preferences or Researchers with Flawed Measures?¹

Gary King²

Institute for Quantitative Social Science
Harvard University

Johns Hopkins University, 2/12/2026

¹1st sentence of abstract: “Neither.” Slides, paper, data: GaryKing.org

²Based on joint work with [Libby Jenke](#), University of Houston

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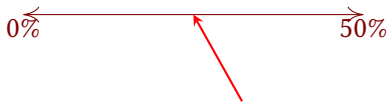
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0% \longleftrightarrow 50%

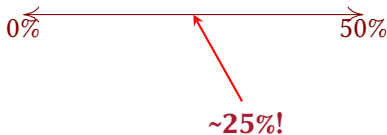
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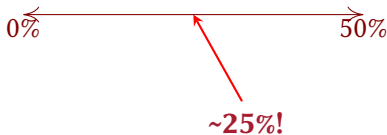
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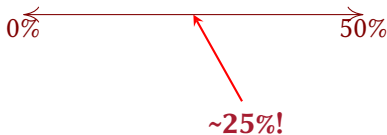
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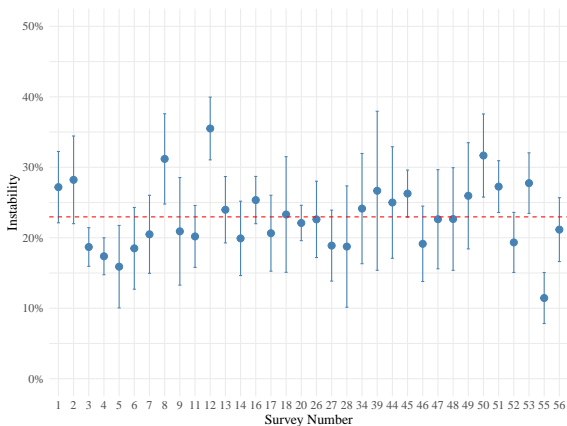
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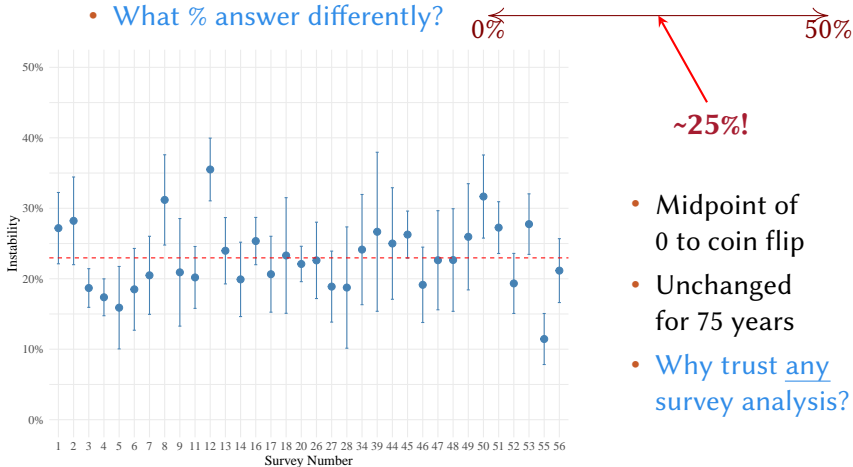


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~25!

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- **Why trust any survey analysis?**

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[Instability: 25%!]

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- ⇒ We've got to figure this out!

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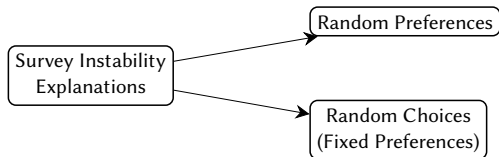
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Survey Instability
Explanations

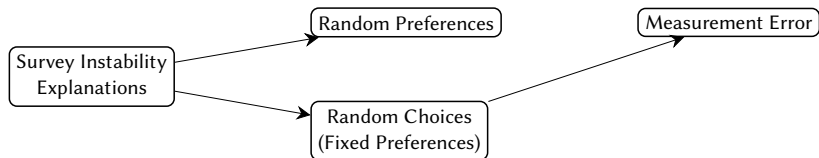
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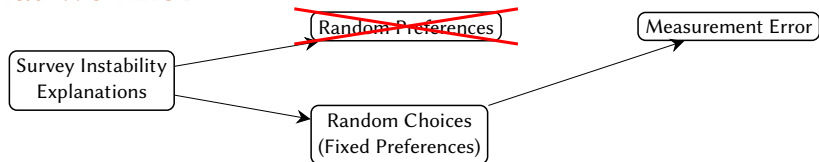
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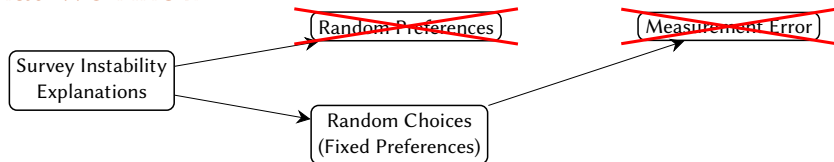
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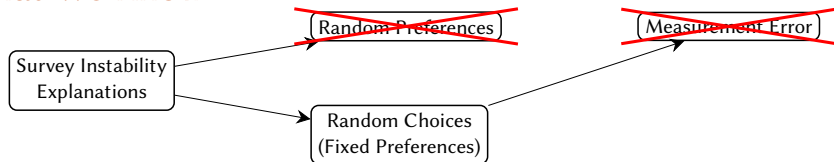
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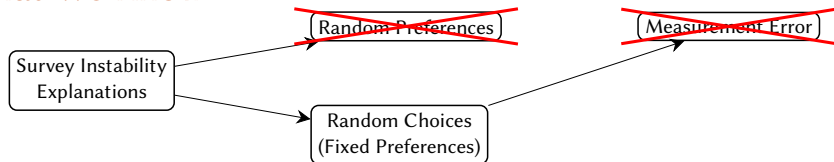


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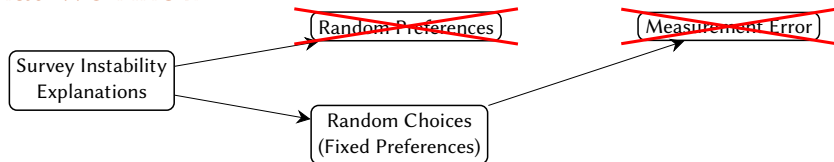
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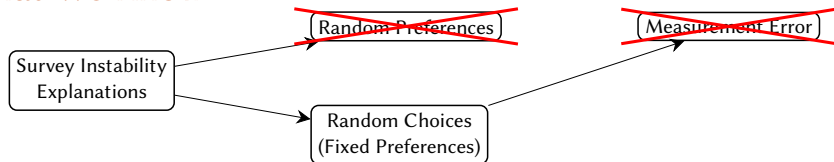
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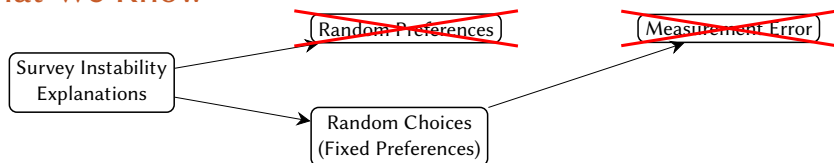
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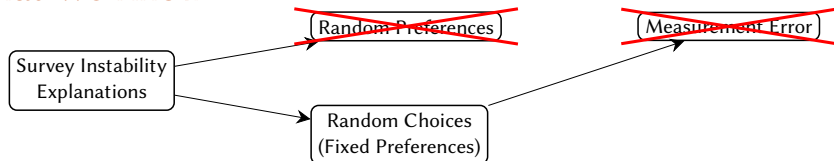
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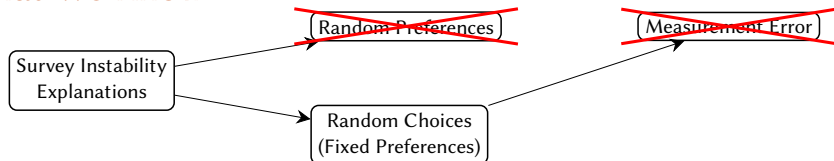
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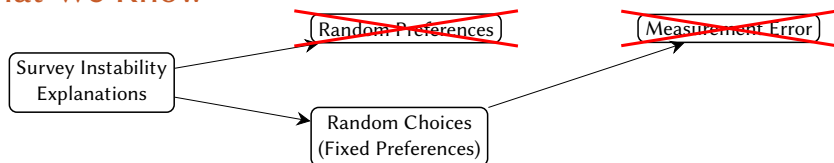
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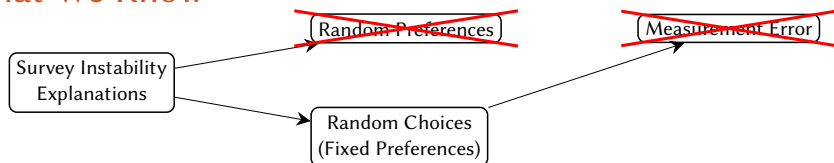
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What We Know



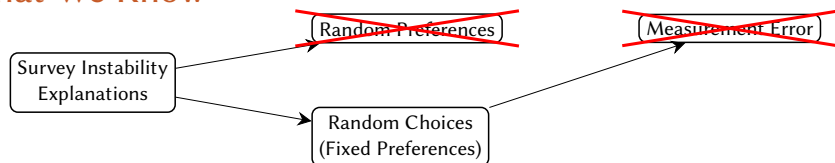
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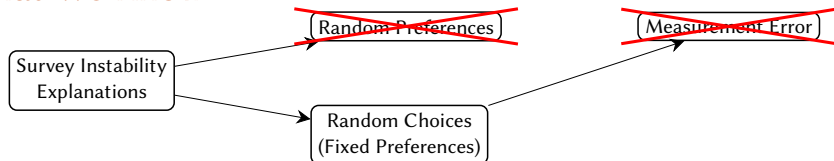
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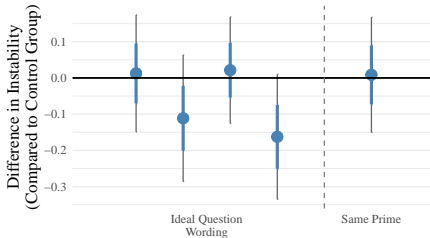
What We Know

~~(Random Preferences)~~

~~(Measurement Error)~~

Survey Instability
Explanations

Reducing Bias Doesn't Reduce Instability



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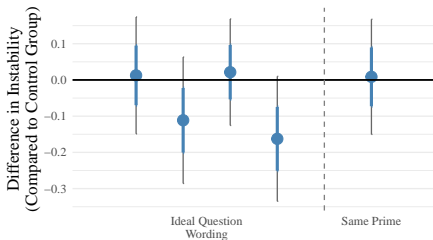
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- Left: 2008 ANES question wording changes

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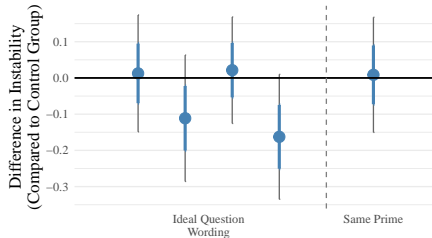
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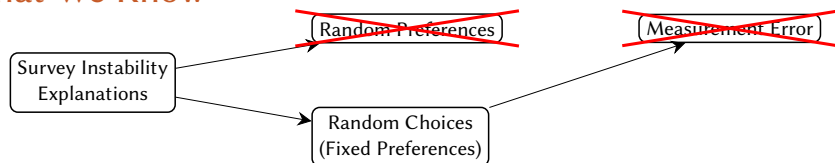
Reducing Bias Doesn't Reduce Instability



- Left: 2008 ANES question wording changes
- Right: different (priming) “considerations”

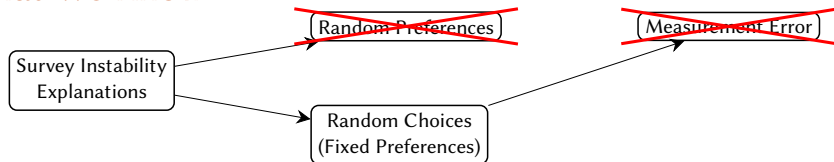
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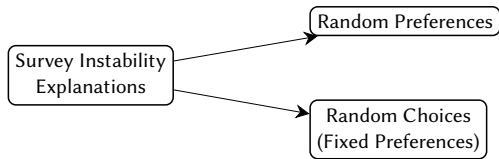
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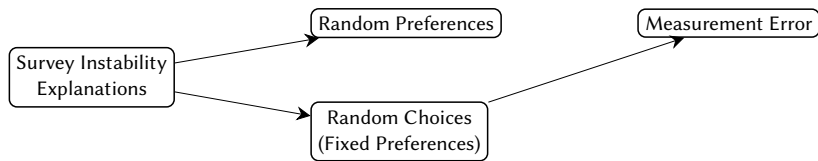
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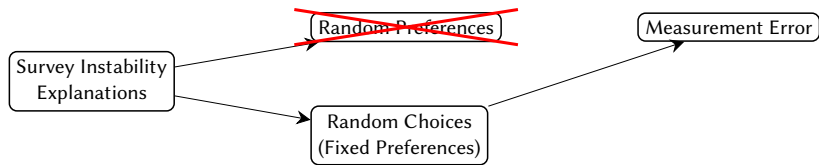
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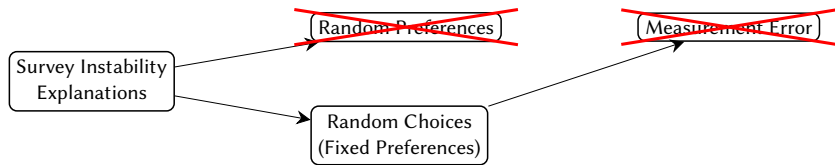
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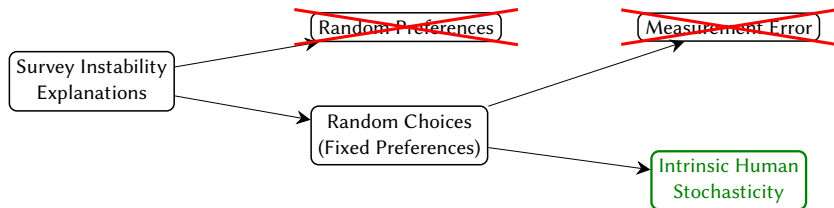
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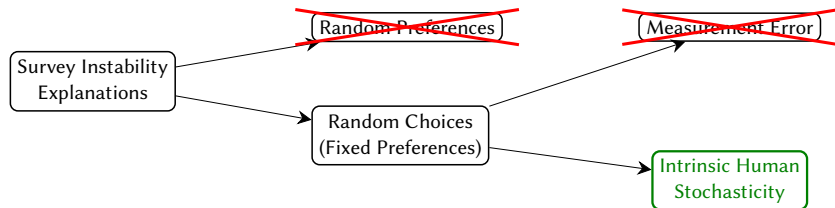
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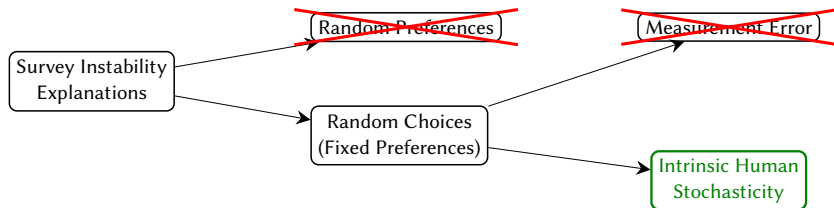


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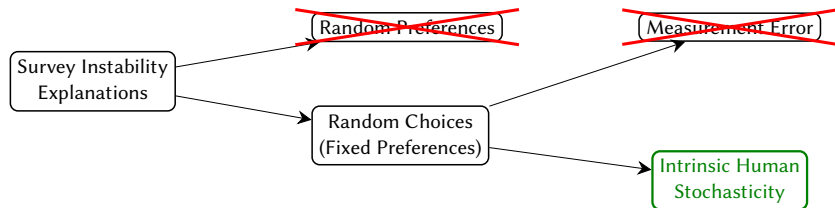
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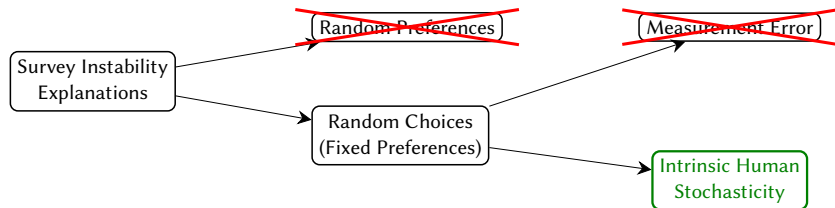
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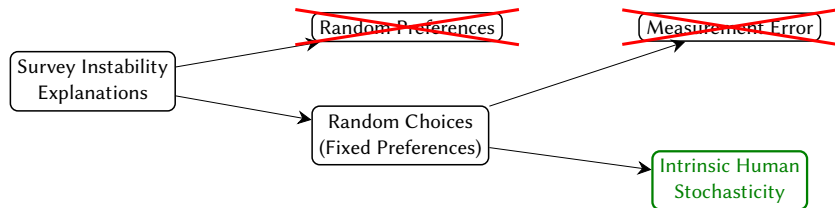
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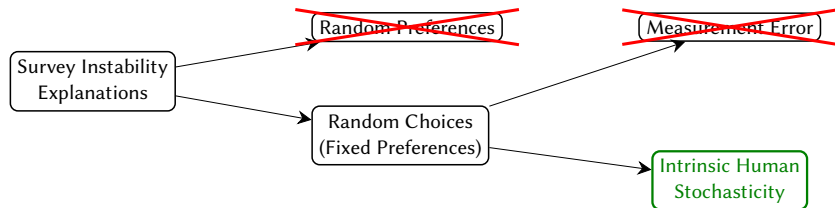
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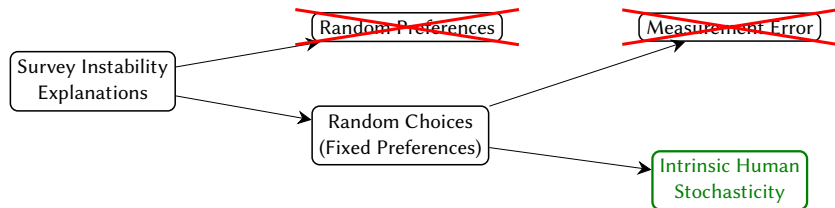
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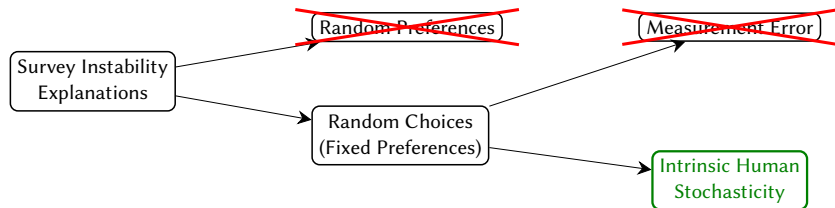
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Intrinsic Human Stochasticity

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Imagine: Two (error-free) CTs, taken moments apart

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- Omnipresent

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 - **But not:** with too much or little stochasticity

Introduction

Intrinsic Human Stochasticity

Sources of Stochasticity Leading to Survey Instability

Substantive Conclusions, Practical Implications

Sources of Stochasticity Leading to Survey Instability

Survey Instability

$C_1 \neq C_2$ (No memory,
material change, or
attrition)

Sources of Stochasticity Leading to Survey Instability

Survey Response Level

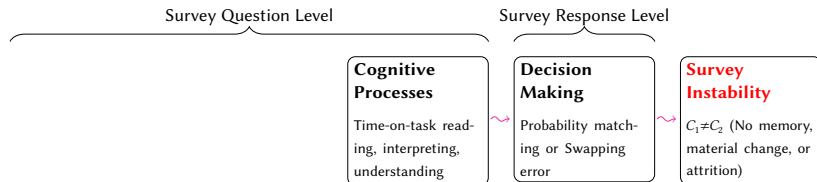
Decision Making

Probability matching or Swapping error

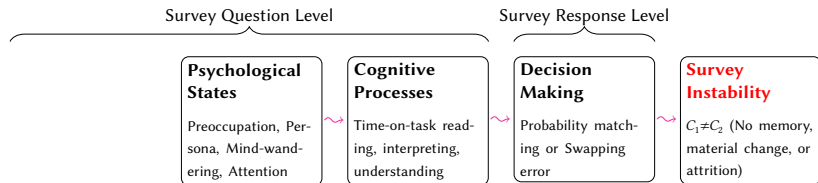
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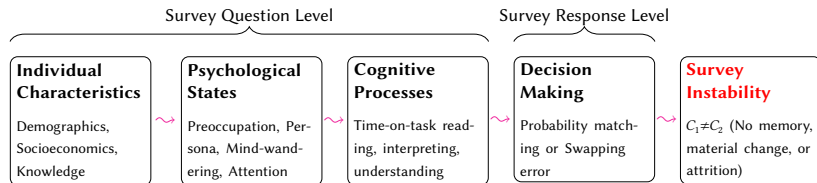
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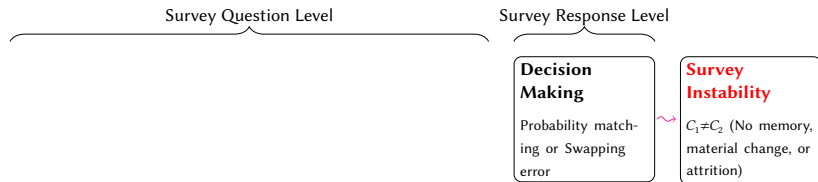
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Stochasticity Sources: Decision Making

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- Response categories: 0, 1

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Election Day

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- 10 offices, each with Party A & B candidates

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Election Day

- 10 offices, each with Party A & B candidates
- In 6/10, Party A is better for you than Party B.
- How many Party A candidates will you choose?

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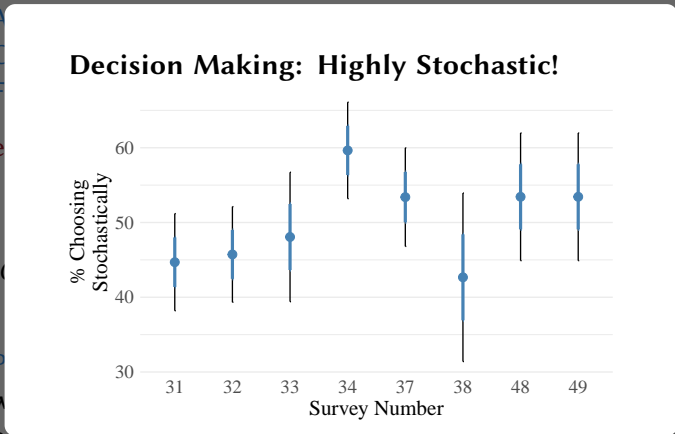
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Survey Instability

$C_1 \neq C_2$ (No memory,
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Stochasticity Sources: Cognitive Processing

Survey Response Level

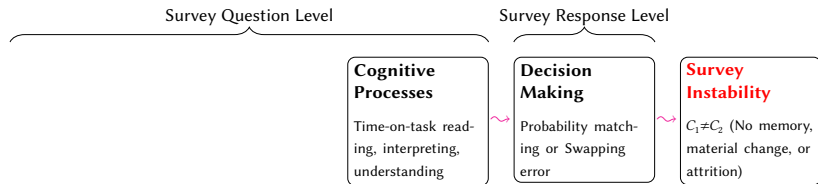
Decision Making

Probability matching or Swapping error

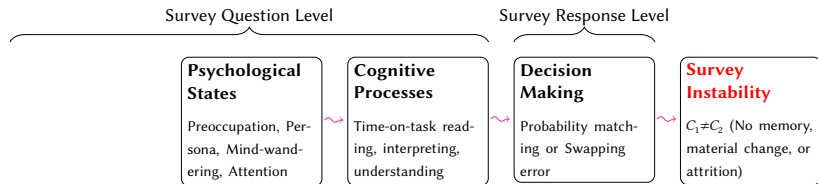
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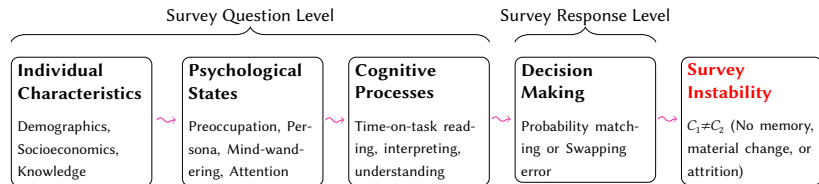
Stochasticity Sources: Cognitive Processing



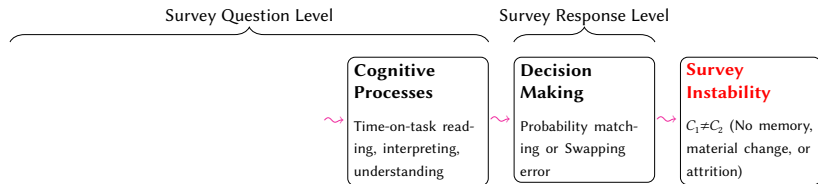
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Stochasticity Sources: Cognitive Processing

- Time-on-task

Stochasticity Sources: Cognitive Processing

- Time-on-task
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Stochasticity Sources: Cognitive Processing

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Stochasticity Sources: Cognitive Processing

Limited Time-on-task \rightsquigarrow Stochasticity



Stochasticity Sources: Cognitive Processing

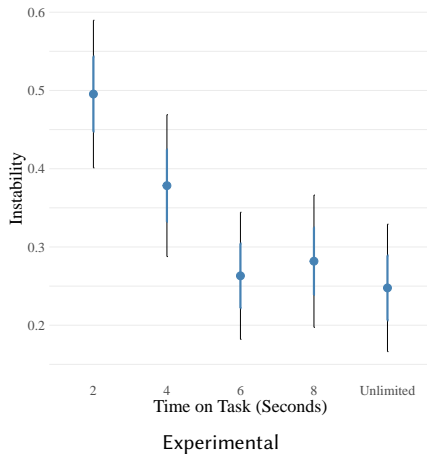
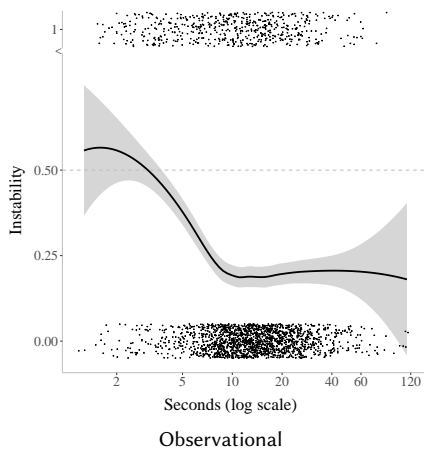
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Stochasticity Sources: Cognitive Processing

- Time-on-task
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Stochasticity Sources: Cognitive Processing

Limited time-on-task causes survey instability



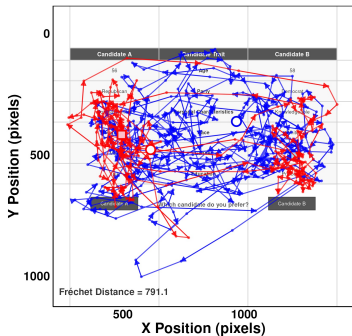
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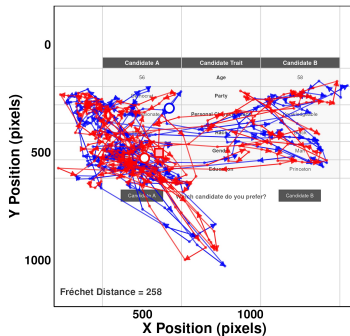
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Stochasticity in Gaze Behavior



Large difference



Small difference

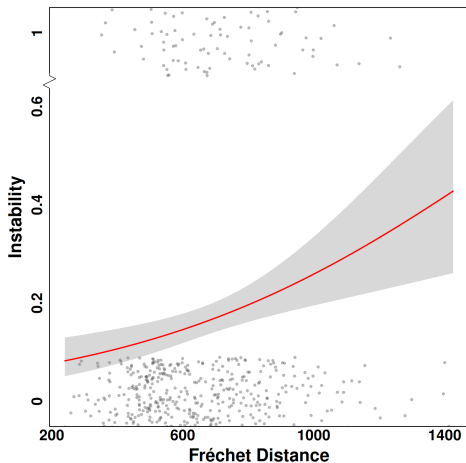
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 - predicts survey instability

Stochastic Distance \rightsquigarrow Survey Instability



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Stochasticity Sources: Psychological States

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Stochasticity Sources: Psychological States

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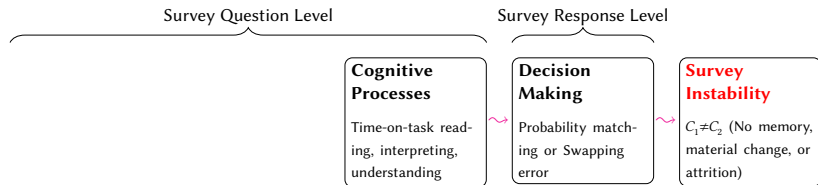
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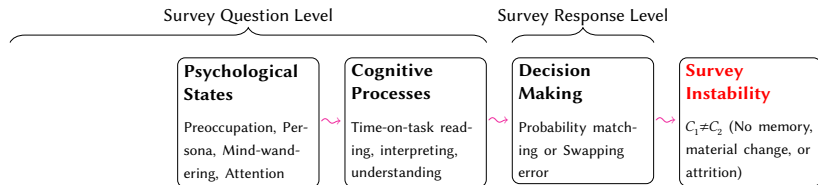
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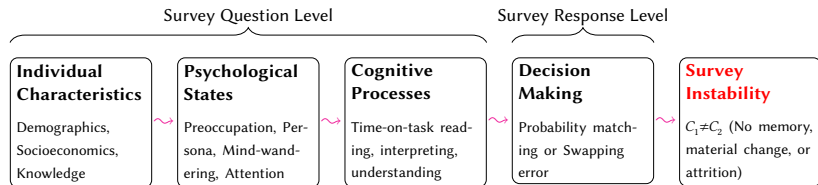
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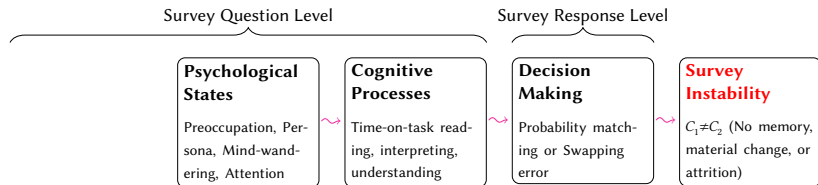
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Stochasticity Sources: Psychological States

	Exogenous	Endogenous
Unintentional	Preoccupation	Mind-wandering
Intentional	Persona	Attention

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Q1: We would like to get a sense of your consumption of political news. To demonstrate that you've read this much, just go ahead and select both every day and never among the options below, no matter how often you watch political news.

Based on the text you read above, how often do you watch political news on TV? (1) Every day, (2) Once a week, (3) Once a month, (4) A few times a year, (5) Never

Stochasticity Sources: Psychological States

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Q2: Which of these is a vegetable?

(1) Ham, (2) Ice cream, (3) Carrot, (4) Bread, (5) Apple

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Q3: People are very busy these days and many do not have time to follow what goes on in the government. Some do pay attention to politics but do not read questions carefully. To show that you've read this much, please choose "very interested" and "extremely interested" as your two answers.

How interested are you in information about what's going on in government and politics? (1) Extremely interested, (2) very interested, (3) moderately interested, (4) slightly interested, (5) not at all interested

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Attention Checks:

Stochasticity Sources: Psychological States

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Attention Checks:

- **The Good:** Predicts TOT & survey instability

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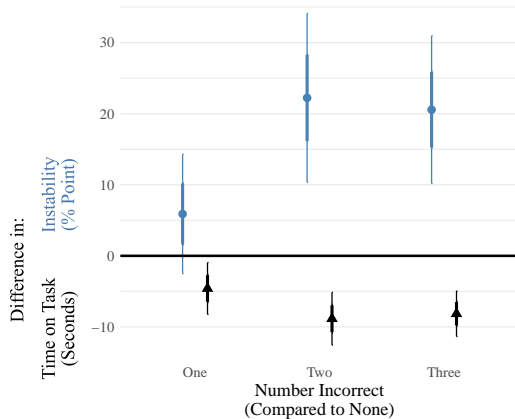
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Stochasticity Sources: Psychological States

Attention Checks Predict TOT & Survey Instability



Attention

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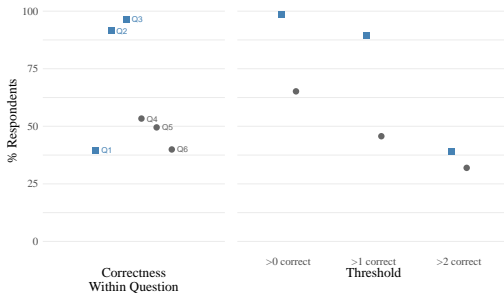
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 - **Massive differences across AC questions**

Stochasticity Sources: Psychological States

Unintentional Exogenous Endogenous
Preoccupation Mind-wandering

Huge Variation in Attention Check Thresholds



- Massive differences across AC questions

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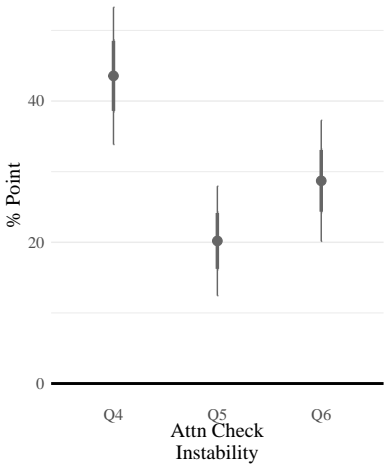
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Attention Checks

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Attention Checks are Highly Instable



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 - **Highly instable**, likely endogenous

Stochasticity Sources: Psychological States

	Exogenous	Endogenous
Unintentional	Preoccupation	Mind-wandering
Intentional	Persona	Attention

Attention Checks:

- **The Good:** Predicts TOT & survey instability
- **The Bad:** Ruin relationship with respondent
 - **Standard Qs:** follows Gricean maxims of mutual cooperation
 - **Attention checks reduce attention:** Trick questions \rightsquigarrow surveys become games \rightsquigarrow less TOT \rightsquigarrow less attention to other questions
- **The Ugly:** Unacceptable statistical properties
 - **Massive differences across AC questions**
 - **Highly instable**, likely endogenous
 - \Rightarrow Not usable as a filter

Stochasticity Sources: Psychological States

	Exogenous	Endogenous
Unintentional	Preoccupation	Mind-wandering
Intentional	Persona	Attention

Stochasticity Sources: Psychological States

	Exogenous	Endogenous
Unintentional	Preoccupation	Mind-wandering
Intentional	Persona	Attention

Stochasticity Sources: Psychological States

	Exogenous	Endogenous
Unintentional	Preoccupation	Mind-wandering
Intentional	Persona	Attention

Everyone comes to a new task (like this survey) with things on their minds. How preoccupied were you, just before you started this survey, with thoughts or worries about your partner, job, health, children, friends, money, or other concerns?

(1) Very preoccupied, (2) Fairly preoccupied, (3) Slightly preoccupied, or (4) Not at all preoccupied.

Stochasticity Sources: Psychological States

	Exogenous	Endogenous
Unintentional	Preoccupation	Mind-wandering
Intentional	Persona	Attention

Stochasticity Sources: Psychological States

	Exogenous	Endogenous
Unintentional	Preoccupation	Mind-wandering
Intentional	Persona	Attention

Preoccupation:

Stochasticity Sources: Psychological States

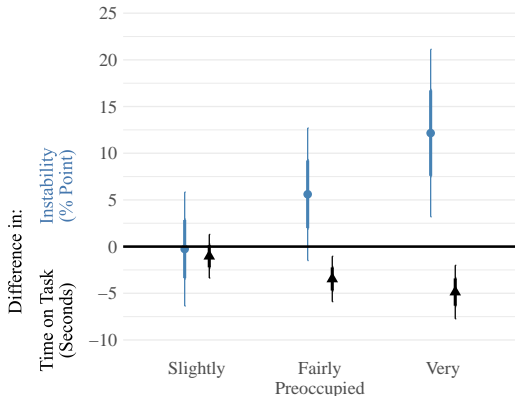
	Exogenous	Endogenous
Unintentional	Preoccupation	Mind-wandering
Intentional	Persona	Attention

Preoccupation:

- Reduces time-on-task; Increases survey instability

Stochasticity Sources: Psychological States

Preoccupation: reduces TOT & Survey Instability



Stochasticity Sources: Psychological States

	Exogenous	Endogenous
Unintentional	Preoccupation	Mind-wandering
Intentional	Persona	Attention

Preoccupation:

- Reduces time-on-task; Increases survey instability

Stochasticity Sources: Psychological States

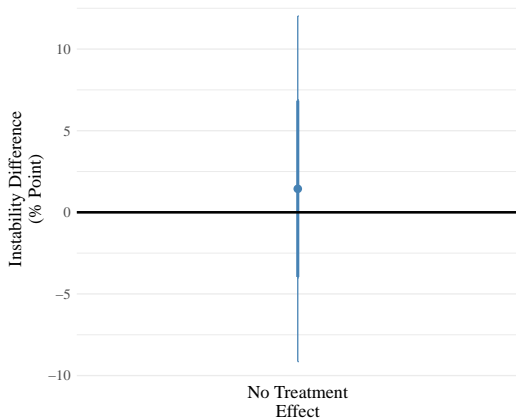
	Exogenous	Endogenous
Unintentional	Preoccupation	Mind-wandering
Intentional	Persona	Attention

Preoccupation:

- **Reduces** time-on-task; **Increases** survey instability
- Has **no effect** on other questions

Stochasticity Sources: Psychological States

Preoccupation: no effect on other questions



Stochasticity Sources: Psychological States

	Exogenous	Endogenous
Unintentional	Preoccupation	Mind-wandering
Intentional	Persona	Attention

Preoccupation:

- **Reduces** time-on-task; **Increases** survey instability
- Has **no effect** on other questions

Stochasticity Sources: Psychological States

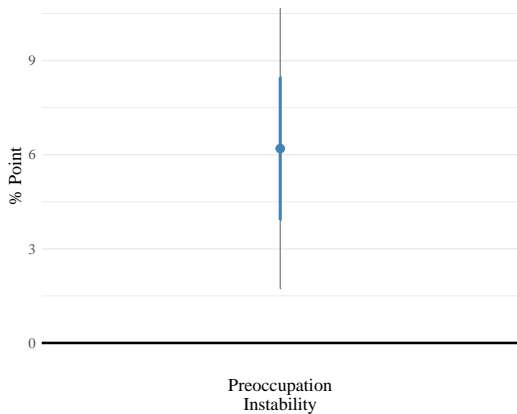
	Exogenous	Endogenous
Unintentional	Preoccupation	Mind-wandering
Intentional	Persona	Attention

Preoccupation:

- **Reduces** time-on-task; **Increases** survey instability
- Has **no effect** on other questions
- Highly **stable** ($6\% \ll 25\%$)

Stochasticity Sources: Psychological States

Preoccupation: highly stable



Stochasticity Sources: Psychological States

	Exogenous	Endogenous
Unintentional	Preoccupation	Mind-wandering
Intentional	Persona	Attention

Preoccupation:

- **Reduces** time-on-task; **Increases** survey instability
- Has **no effect** on other questions
- Highly **stable** ($6\% \ll 25\%$)

Stochasticity Sources: Psychological States

	Exogenous	Endogenous
Unintentional	Preoccupation	Mind-wandering
Intentional	Persona	Attention

Preoccupation:

- Reduces time-on-task; Increases survey instability
- Has no effect on other questions
- Highly stable (6% \ll 25%)
- \Rightarrow Great for understanding (and filtering) respondents

Stochasticity Sources: Individual Characteristics

Survey Instability

$C_1 \neq C_2$ (No memory,
material change, or
attrition)

Stochasticity Sources: Individual Characteristics

Survey Response Level

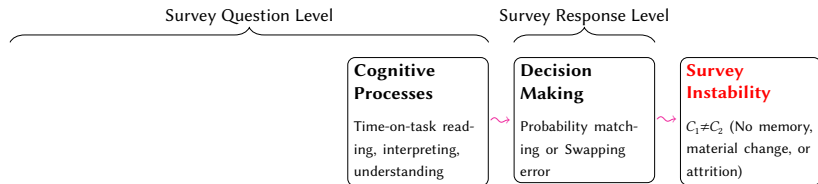
Decision Making

Probability matching or Swapping error

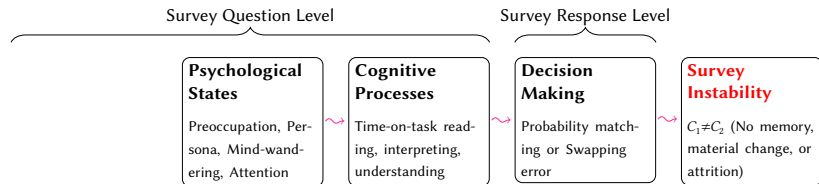
Survey Instability

$C_1 \neq C_2$ (No memory, material change, or attrition)

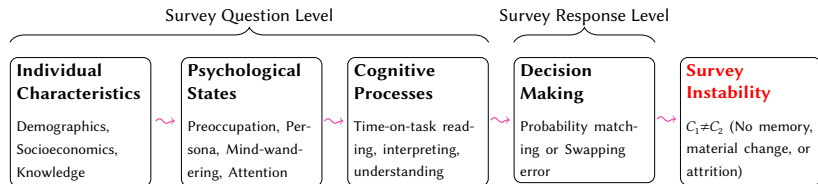
Stochasticity Sources: Individual Characteristics



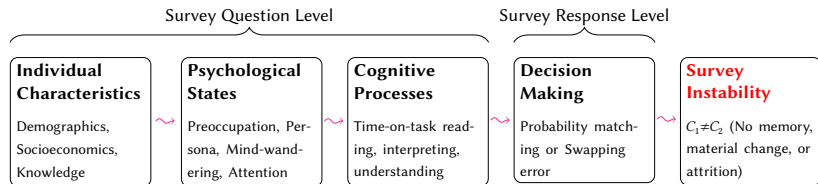
Stochasticity Sources: Individual Characteristics



Stochasticity Sources: Individual Characteristics

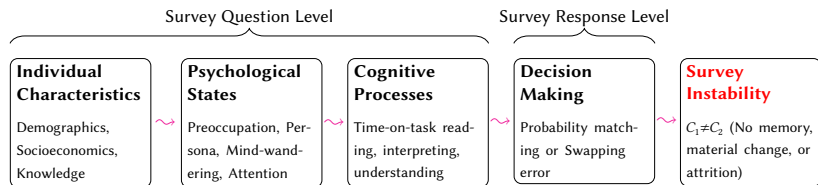


Stochasticity Sources: Individual Characteristics



e.g., Older folks:

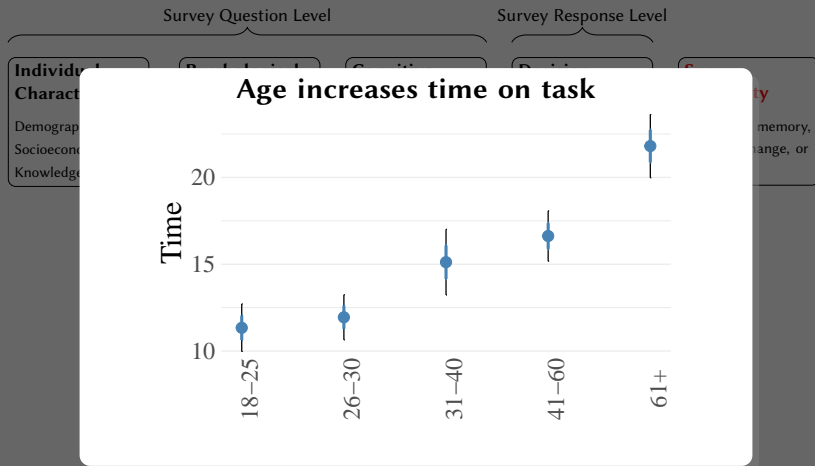
Stochasticity Sources: Individual Characteristics



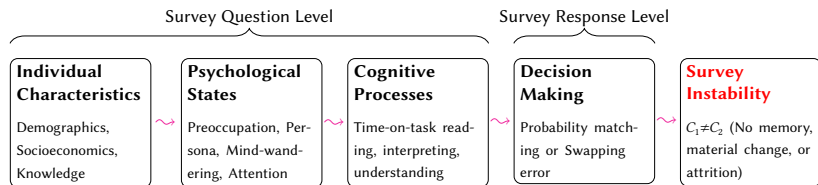
e.g., Older folks:

- spend **more** time on task

Stochasticity Sources: Individual Characteristics



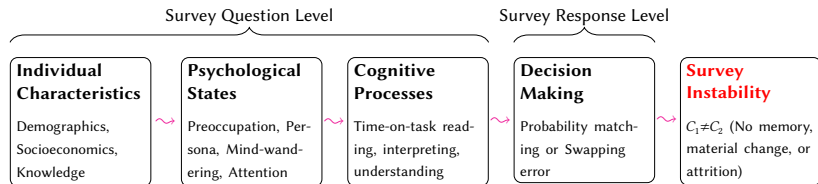
Stochasticity Sources: Individual Characteristics



e.g., Older folks:

- spend **more** time on task

Stochasticity Sources: Individual Characteristics



e.g., Older folks:

- spend **more** time on task
- are **less** preoccupied

Stochasticity Sources: Individual Characteristics

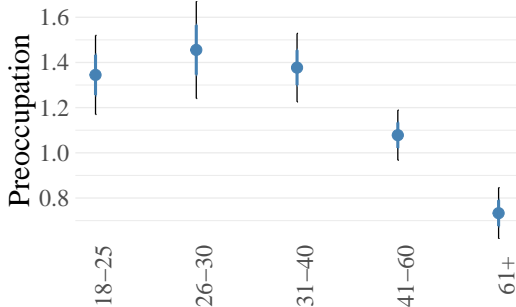
Survey Question Level

Survey Response Level

Individual
Characteristics

Demographic
Socioeconomic
Knowledge

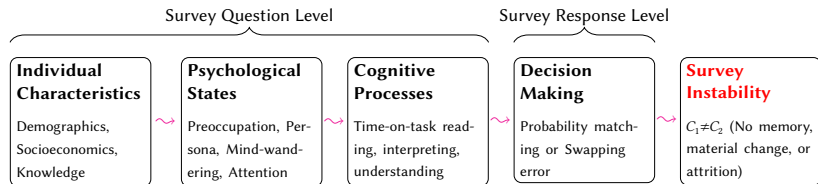
Age decreases preoccupation



Stability

Memory, change, or

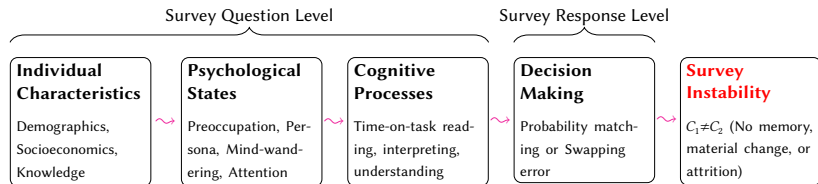
Stochasticity Sources: Individual Characteristics



e.g., Older folks:

- spend **more** time on task
- are **less** preoccupied

Stochasticity Sources: Individual Characteristics



e.g., Older folks:

- spend **more** time on task
- are **less** preoccupied
- mind-wander **less**

Stochasticity Sources: Individual Characteristics

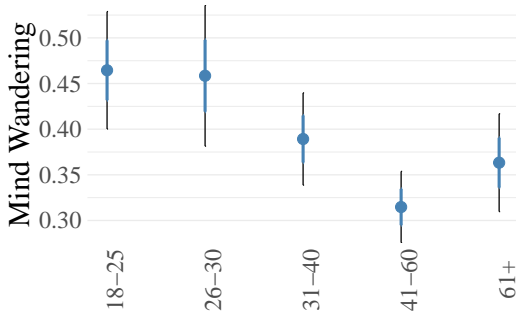
Survey Question Level

Survey Response Level

Individual
Character

Demograph
Socioecon
Knowledge

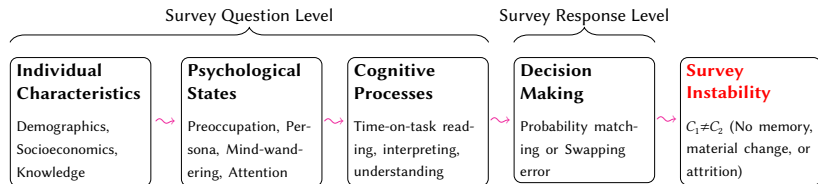
Age decreases mind-wandering



ty

memory,
change, or

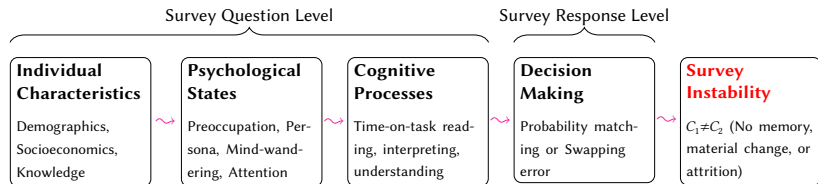
Stochasticity Sources: Individual Characteristics



e.g., Older folks:

- spend **more** time on task
- are **less** preoccupied
- mind-wander **less**

Stochasticity Sources: Individual Characteristics



e.g., Older folks:

- spend **more** time on task
- are **less** preoccupied
- mind-wander **less**
- have **lower** survey instability

Stochasticity Sources: Individual Characteristics

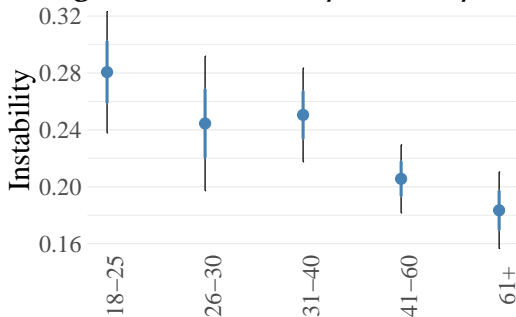
Survey Question Level

Survey Response Level

Individual
Characteristics

Demographic
Socioeconomic
Knowledge

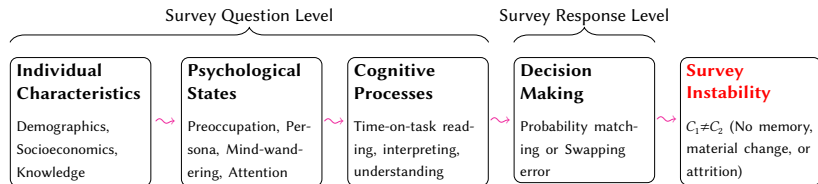
Age decreases survey instability



Stability

memory,
change, or

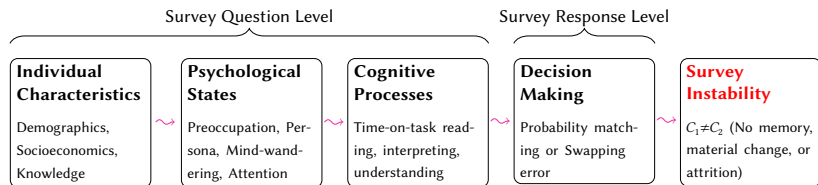
Stochasticity Sources: Individual Characteristics



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- are **less** preoccupied
- mind-wander **less**
- have **lower** survey instability

Stochasticity Sources: Individual Characteristics



e.g., Older folks:

- spend **more** time on task
- are **less** preoccupied
- mind-wander **less**
- have **lower** survey instability

Future research:

What else predicts survey instability?

Introduction

Intrinsic Human Stochasticity

Sources of Stochasticity Leading to Survey Instability

Substantive Conclusions, Practical Implications

Implications for Survey Practice

Implications for Survey Practice

- Measure preoccupation (drop attention checks)

Implications for Survey Practice

- Measure preoccupation (drop attention checks)
- Measure Time-on-task
- Measure Survey Instability

Implications for Survey Practice

- Measure preoccupation (drop attention checks)
 - Single question: good statistical properties
 - Filter out preoccupied
 - Some can't provide the attention needed
- Measure Time-on-task
- Measure Survey Instability

Implications for Survey Practice

- Measure preoccupation (drop attention checks)
 - Single question: good statistical properties
 - Filter out preoccupied
 - Some can't provide the attention needed
 - Identify who's preoccupied
- Measure Time-on-task
- Measure Survey Instability

Implications for Survey Practice

- **Measure preoccupation** (drop attention checks)
 - **Single question:** good statistical properties
 - **Filter out preoccupied**
 - Some can't provide the attention needed
 - Identify who's preoccupied
 - (1) change QOI, (2) oversample filtered groups, or (3) impute
- **Measure Time-on-task**

- **Measure Survey Instability**

Implications for Survey Practice

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 - **Easy, free, unobtrusive**

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- **Measure Time-on-task**
 - **Easy, free, unobtrusive**
 - **Good statistical properties**
 - **Avoid endogeneity:** measure TOT for burn in questions
- **Measure Survey Instability**

Implications for Survey Practice

- **Measure preoccupation** (drop attention checks)
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 - **Filter:** TOT below threshold
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Implications for Survey Practice

- **Measure preoccupation** (drop attention checks)
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- **Measure Time-on-task**
 - **Easy, free, unobtrusive**
 - **Good statistical properties**
 - **Avoid endogeneity:** measure TOT for burn in questions
 - **Filter:** TOT below threshold
- **Measure Survey Instability**
 - **Only 1 extra question:** for most important topic

Implications for Survey Practice

- **Measure preoccupation** (drop attention checks)
 - **Single question:** good statistical properties
 - **Filter out preoccupied**
 - Some can't provide the attention needed
 - Identify who's preoccupied
 - (1) change QOI, (2) oversample filtered groups, or (3) impute
- **Measure Time-on-task**
 - **Easy, free, unobtrusive**
 - **Good statistical properties**
 - **Avoid endogeneity:** measure TOT for burn in questions
 - **Filter:** TOT below threshold
- **Measure Survey Instability**
 - **Only 1 extra question:** for most important topic
 - **Correct statistically:** for biasing effect of stochasticity

So Who's to Blame for Survey Instability?

So Who's to Blame for Survey Instability?

Explanations:

So Who's to Blame for Survey Instability?

Explanations:

Survey Instability:

~25%

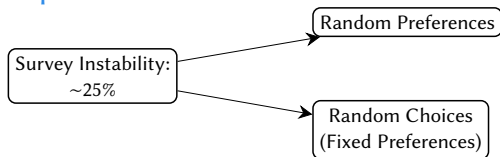
So Who's to Blame for Survey Instability?

Explanations:



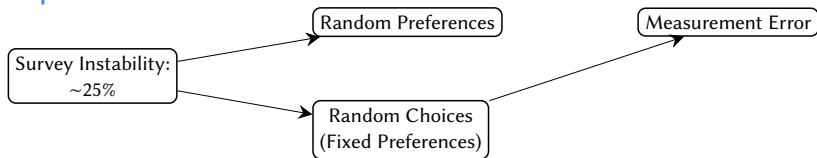
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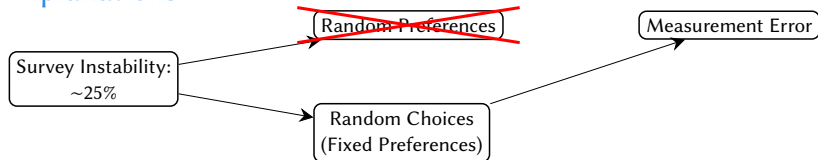
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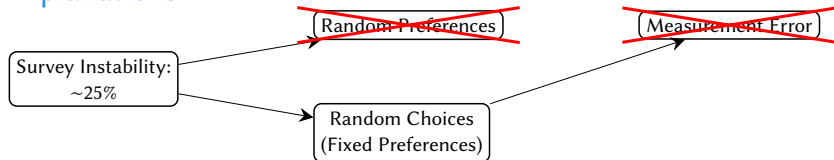
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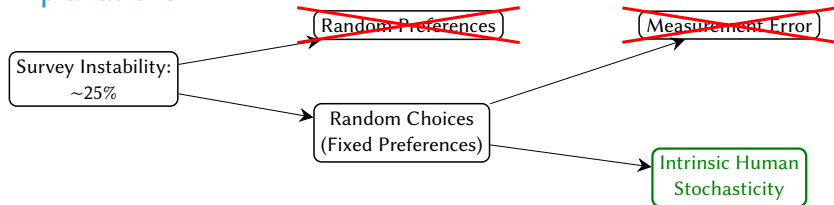
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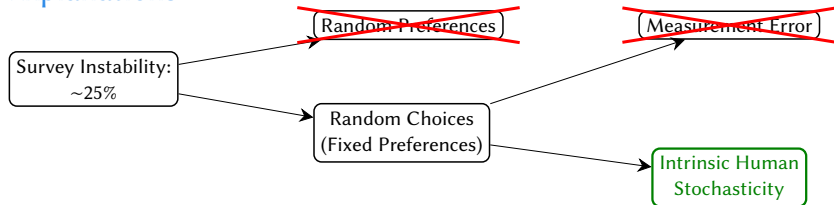
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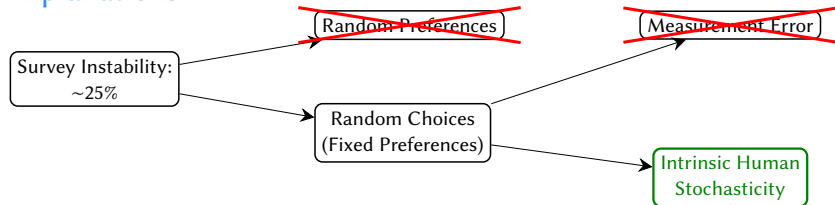
Explanations:



Sources:

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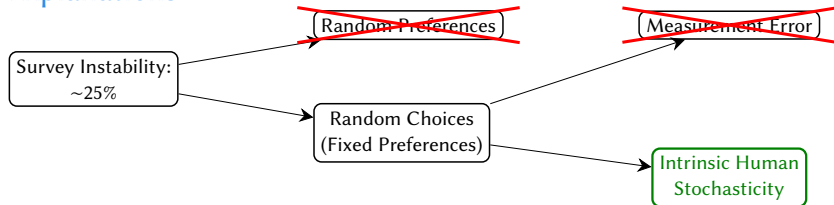


Sources:

Survey Instability
 $C_1 \neq C_2$ (No memory, material change, or attrition)

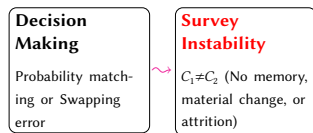
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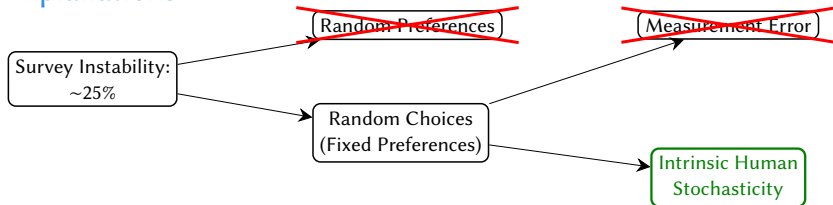
Sources:

Survey Response Level

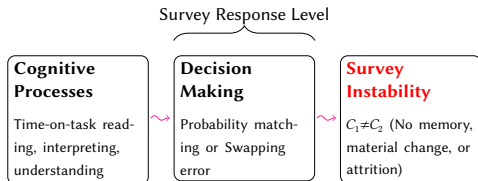


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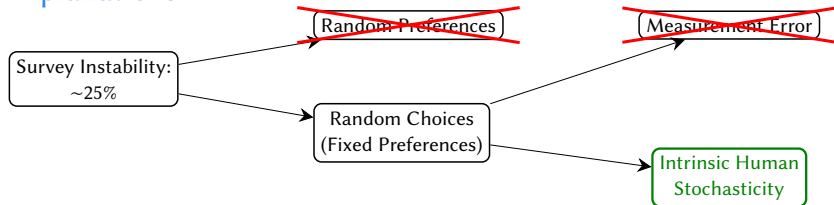


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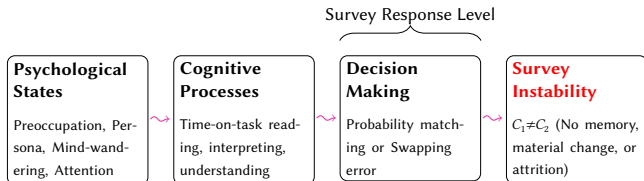


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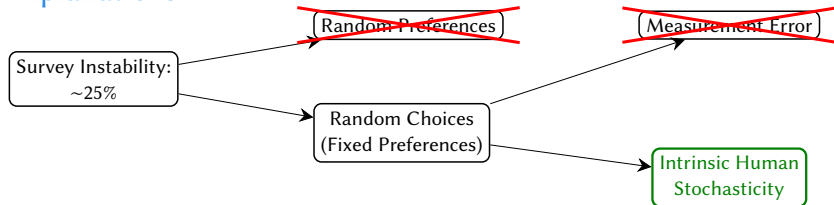


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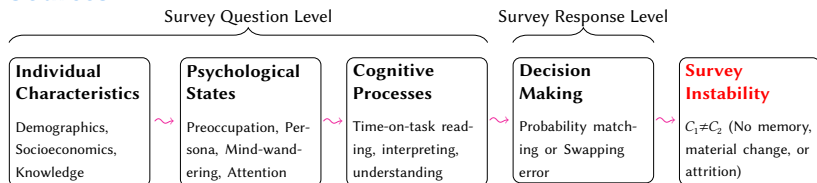


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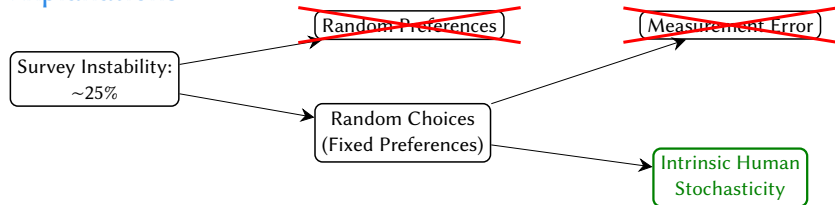


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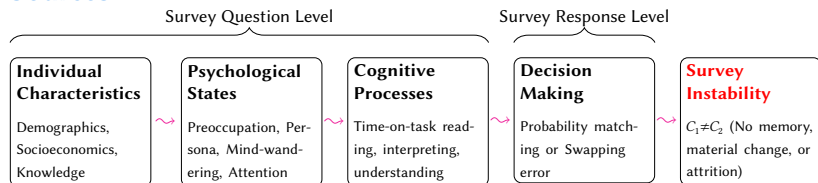


So Who's to Blame for Survey Instability?

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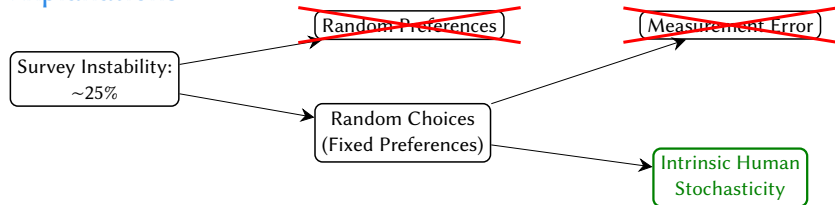
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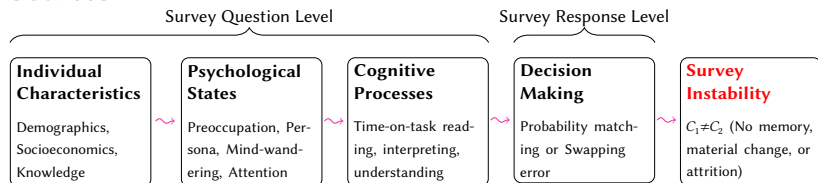
Implications:

So Who's to Blame for Survey Instability?

Explanations:



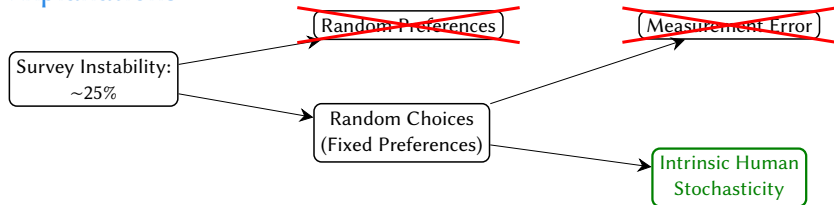
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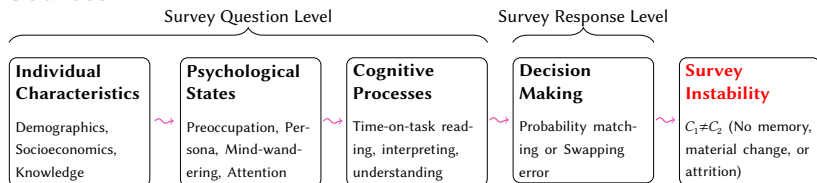
Implications: Measure Preoccupation,

So Who's to Blame for Survey Instability?

Explanations:



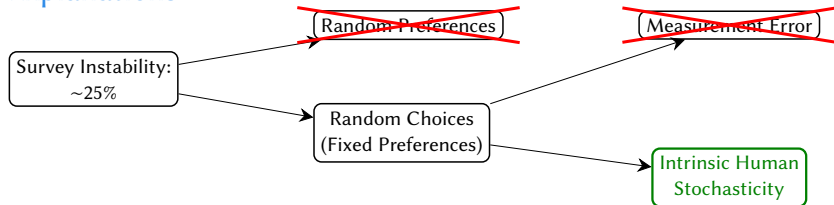
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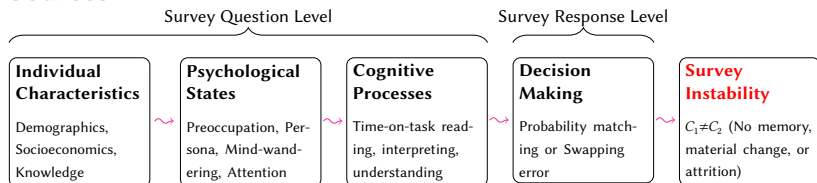
Implications: Measure Preoccupation, Time-on-task,

So Who's to Blame for Survey Instability?

Explanations:



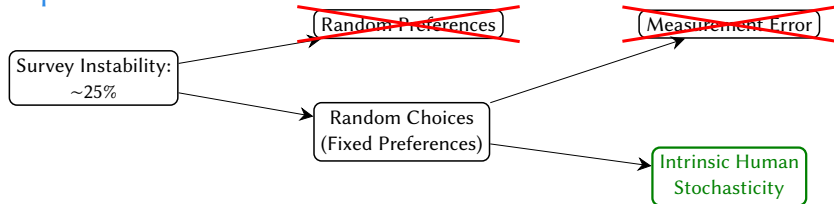
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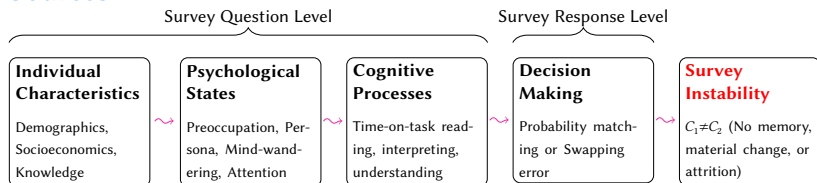
Implications: Measure Preoccupation, Time-on-task, Instability

So Who's to Blame for Survey Instability?

Explanations:



Sources:



Implications: Measure Preoccupation, Time-on-task, Instability

Slides, data, paper:

GaryKing.org

Appendix

A Binary Choice Conjoint Question

(Ono and Burden, 2018) [◀ Back](#)

Please carefully review the two potential candidates running for election to the U.S. House of Representatives, detailed below.

	Candidate 0	Candidate 1
Race/Ethnicity	Hispanic	Asian American
Age	52	60
Favorability rating among the public	70%	34%
Position on immigrants	Favors giving citizenship or guest worker status to undocumented immigrants	Opposes giving citizenship or guest worker status to undocumented immigrants
Party affiliation	Republican Party	Democratic Party
Position on abortion	Abortion is not a private matter (pro-life)	Abortion is a private matter (pro-choice)
Position on government deficit	Wants to reduce the deficit through tax increase	Wants to reduce the deficit through tax increase
Salient personal characteristics	Really cares about people like you	Really cares about people like you
Position on national security	Wants to cut military budget and keep the U.S. out of war	Wants to maintain strong defense and increase U.S. influence
Gender	Female	Female
Policy area of expertise	Education	Foreign policy
Family	Single (divorced)	Married (no child)
Experience in public office	12 years	4 years

If you had to choose between them, which of these candidates would you vote to be a member of the U.S. House of Representatives? [◀ Back](#)