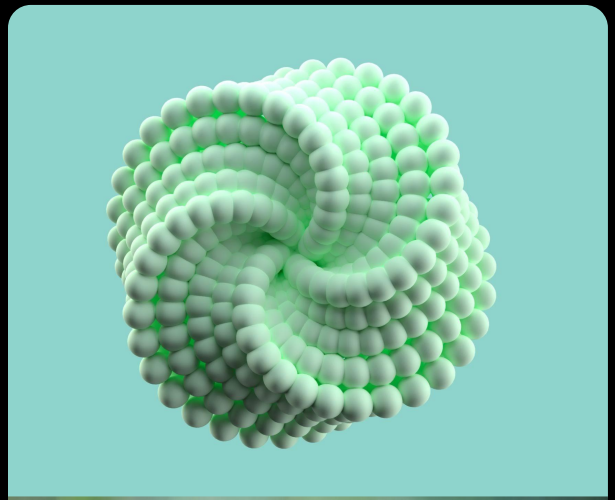
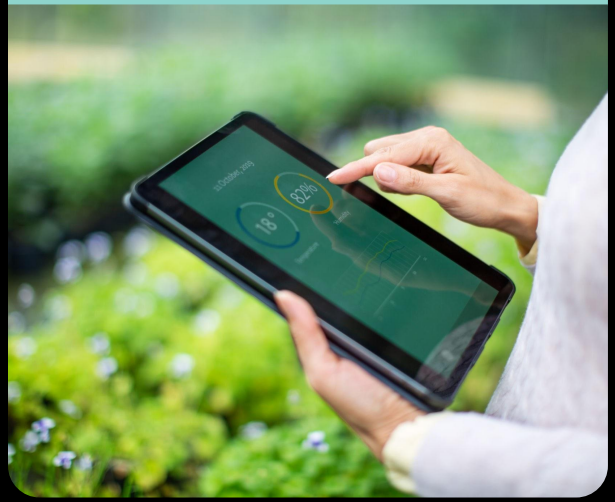




February 4th, 2025

Quantifying Context: Analytical Models of Consumer Choice

Exploring Models from *"50 Years of Context Effects"*

Journal of Consumer Research
Journal of Marketing Research

Attention Trajectories Capture Utility Accumulation and Predict Brand Choice

Course
Data 735

Contributor
Delroy Nichols

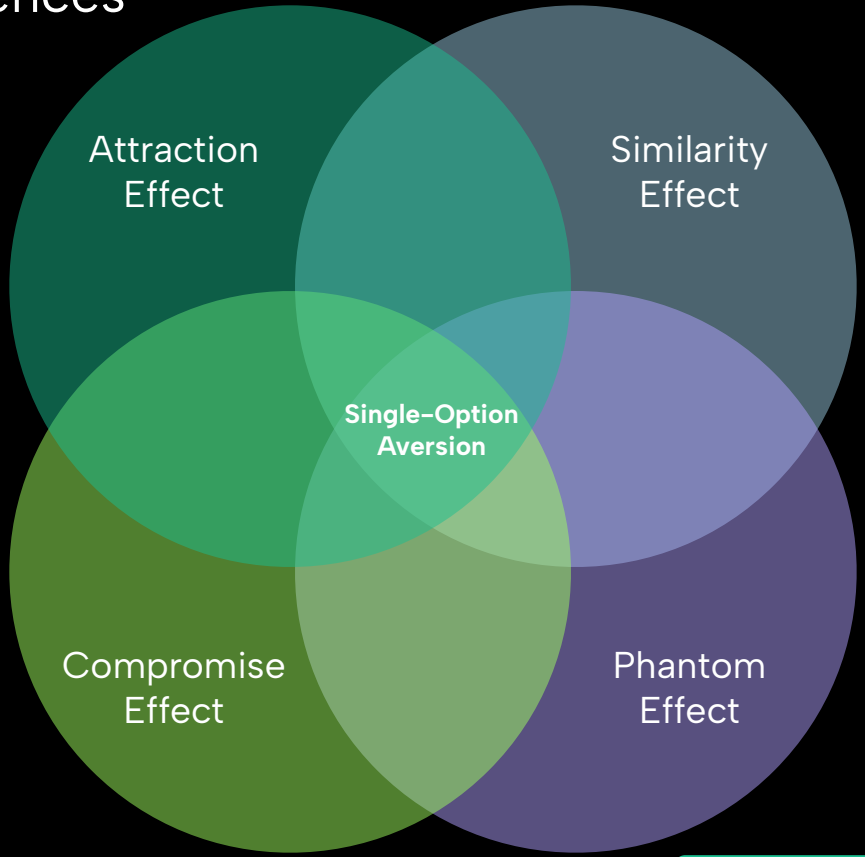
Why Context Matters

- Consumer choices are not made in isolation.
- The available options (the “context”) heavily influence preference.
- This effect is not limited to consumer behavior, it influences choices across social sciences and other disciplines.

Consumer Preferences

Compromise Effect (Extremeness Aversion): Adding an extreme option makes an intermediate option more attractive.

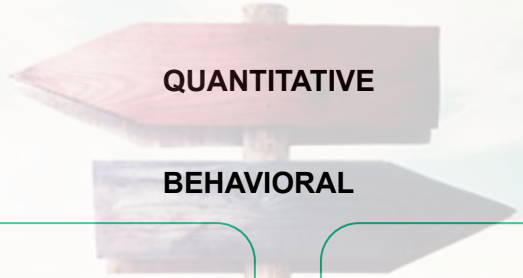
Single-Option Aversion: The same option may be chosen more frequently when competing options are present than when it is the sole option.



Similarity Effect: The introduction of a new alternative disproportionately reduces the probability of choosing a similar alternative.

Attraction Effect (Asymmetric Dominance): Adding a decoy option that is asymmetrically dominated by a target option increases the choice share of the target.

Two Paths, One Goal: Understanding Context Effects



Behavioral Research

- Theories in behavioral research often emphasize how consumers use reasons or justifications to make choices, or how emotions influence their decisions.

Behavioral Research Limitations:

- Lack of formal mathematical models that limit the ability to make market share predictions.
- Disjointed theoretical accounts with no unifying explanation of context effects.

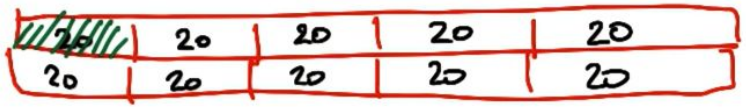
Quantitative Modeling

Utility-maximization models propose that people make pairwise comparisons between the attributes of choice options, with disadvantageous comparisons having a larger impact. These models calculate context-dependent utilities and select the option with the highest utility

Computational cognitive models describe how decision-makers acquire and integrate information over the time course of the decision process. These models often involve an accumulation-to-threshold process, in which preferences for options evolve dynamically until a threshold is reached, at which point an option is selected..

Bridging the Gap

k-fold CROSS VALIDATION



The advantages of K-fold cross validation is that if you have a limited amount of data to train your model but still want to to have increased accuracy to predict outcomes. This can help with that.

Disadvantages are the time it takes to complete training and the time the model takes to run.

Roadmap for the Future

Table 4. Attention Trajectories Predict Brand Choice.

	Brand Choice Predictors Available					Brand Choice Predictive Performance (Random-Split K-fold Cross-Validation)		
	Before the Task			During the Task				
Model	Market-Level Preferences, Spatial position	Brand Ownership	Brand Knowledge	Attention Trajectories	No. of Pars.	ELPD	Hit Rate	95% PI
M0	x				8	−504	27%	[24, 30]
M1	x	x			9	−458	44%	[42, 45]
M2	x	x	x		10	−431	45%	[43, 47]
M3				x	12	−126	85%	[83, 87]
Our model	x	x	x	x	22	−125	85%	[82, 87]

Notes: "No. of Pars." is the number of model parameters. ELPD = expected log predictive density. Hit rate, with 95% prediction interval (PI) in brackets, is the percentage of participants for whom the model correctly predicts brand choice. The hit rate for random brand choice predictions is 20% (1 out of 5).

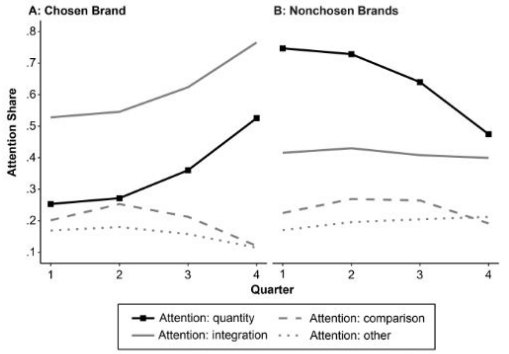


Figure 3. A Double Attention Lift for the Chosen Brand.
Notes: Estimated attention quantity shares sum to 1 for chosen and nonchosen brands combined. Parity share of attention quantity for the chosen brand is .20 per quarter (1/5). Estimated integration, comparison, and other attention shares sum to 1 for chosen brand and nonchosen brands separately. Parity share is .33 for each attention type per quarter (1/3).

Future Uses

Incorporating Accumulation-to-Threshold Models into Consumer Research: Exploring how consumers establish and use thresholds in decision-making, whether they are fixed, and if thresholds vary across options and choice sets.

Future Uses

Integrating Behavioral Insights into Quantitative Models: Developing models that incorporate factors such as reasons for choice, emotional responses to decision conflict, and inferences about ideal attribute values, potentially using decision model parameters to modulate the impact of these variables.

Future Uses

Studying Attention and Memory: Insights from attention trajectory data can inform advertising placement, website design, and in-store display strategies.