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Explainability and Preference Manipulation of Algorithmic Nudge

Yuxiao “Rain” Luo
PhD Candidate in Information Systems
Yuxiao.Luo@baruch.cuny.edu

Motivation

Amazon's Choice has become controversial and drawn public concerns since 2019

More than 10 social medias published articles questioning this:

- *"Amazon's Choice" Does Not Necessarily Mean A Product Is Good* (BuzzFeed, Jun 2019)
- *"Amazon's Choice" Isn't the Endorsement It Appears (*WSJ, Dec 2019)
- *What Does "Amazon's Choice" Actually Mean?* (Reader's Digest, Apr 2021)
- *Amazon Puts Its Own "Brands" First* (The Markup, Oct 2021)
- *Amazon copied products and rigged search results to promote its own brands, documents show* (Reuters, Oct 2021)

Recommendation Badge -- Nudge

Nudge: a choice architecture (Thaler and Sunstein 2009)

- Alters individual's behavior in a predictable way
- Preserves all the available options
- Keep the same economic incentive

Nudge people to use stairs (anchoring and reminding)

The Decoy Effect:

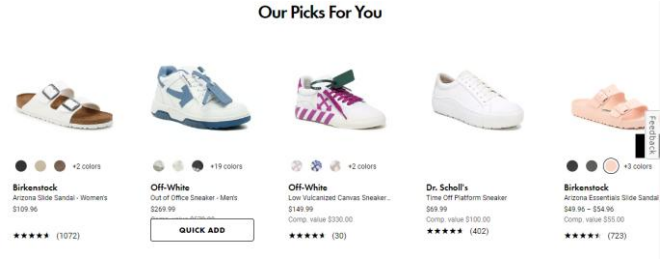
Introduction of a third option into the choice set that helps to "nudge" customers toward selecting a particular product by making one option look better than the others.

Large: $7.99

Medium: $6.99

Small: $3.99

- “Best Seller” on Amazon.com
- “Amazon Choice” on Amazon.com
- “Our Picks For You” on Dsw.com
- “Best Delivery” on Yelp.com
- “Top pick” on Bestbuy.com
- “Only @Best Buy” on Bestbuy.com
- …



Ambiguous vs. Specific Recommendation Badge

Ambiguous badge is generated by AI/ML algorithms. (i.e., *Amazon's Choice*)

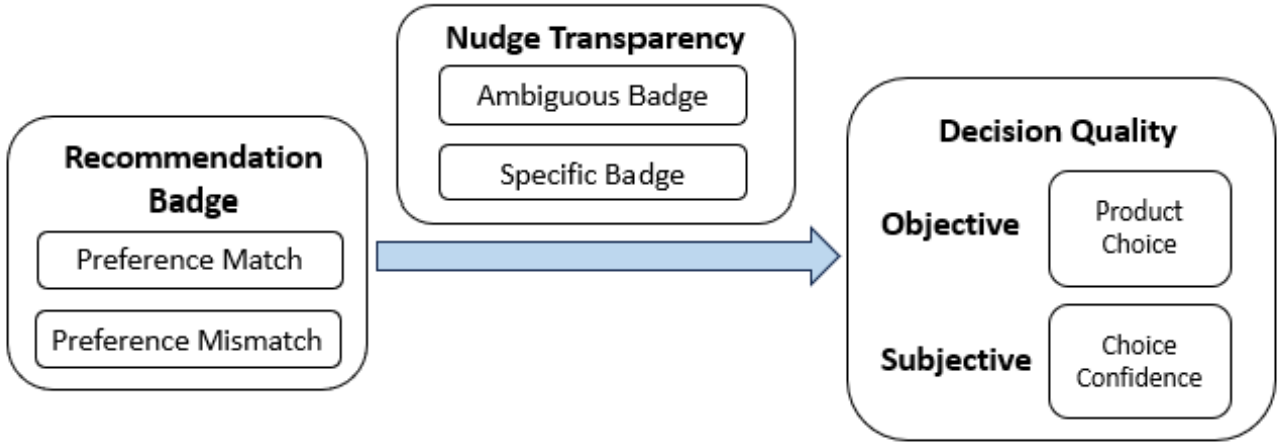
- inner workings are NOT fully transparent and explainable; consumers don't know the features driving the placement of the badge.
- can be adjusted in real-time
- placement is unpredictable

Specific badge is generated with specified and traceable attributes. (i.e., *Best Seller*)

- Inner workings are fully explainable; consumers can fully understand the generation process and trace the information source.
- even though it can be adjusted in real-time, the placement is predictable.

Research Model and Method

Between-subject randomized experiment with survey instrument

Fixed-effect logit & OLS model

Bootstrapping mediation model (Hayes 2009)