Action-Driven Evolution of General and Enduring Preference Hierarchies

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How can 'mere' actions and choices, independent of their expected or actual outcomes, shape preferences and choice rationales themselves? A difficulty-varying-alpha model is constructed to investigate the effects on preferences of making cross-domain product choices in attribute trade-off conflicts. Employing principles of persistence and generality, the model inspires a set of hypotheses regarding the evolution of stable and generalized attribute importance hierarchies, as well as preference amplification and switching behaviors. Supporting simulation results are described, which form the basis for behavioral experiments in development to test model predictions. Implications for taste acquisition, "lifestyle marketing", and personality are also currently under study.

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H1: When consumers in happy mood and can’t aware of it (backdrop mood), their preference and recall to brand extension will be higher than the bad mood one.

On the other hand, in motivational mood (conscious) situation, mood will influence consumers’ attitude via biasing information process. Good mood leads to pay attention to heuristic cues, for example, the brand image. Therefore, when facing brand extension, consumers prefer the brand concept similarity extension to the product characteristic similarity extension. It leads to the hypothesis 2:

H2: When consumer in a happy mood and can aware of it (motivational mood), their preference and recall to brand concept similarity extension will be higher than to product characteristic similarity extension.

On the contrary, bad mood leads to the systematic thinking style, and the consumers will pay more attention to the attributes that related to the product itself. Hence, bad mood consumers incline to accept the product characteristic similarity extension more. It leads to hypothesis 3:

H3: When consumer in a sad mood and can aware of it (motivational mood), their preference and recall to brand concept similarity extension will be lower than to product characteristic similarity extension.

A 2 (mood level: good vs. bad)*2 (mood awareness: motivational vs. backdrop)*2 (brand extension type: product similarity vs. brand concept similarity) experiment was designed to examined the hypotheses, and there were 160 respondents random assigned in one of the above conditions.

The result of this study can be discussed in two parts. First, in the backdrop mood (unconscious) situation, it is hypothesized mood influences attitude directly. The results supported H1, and show that good mood leads to higher acceptance to brand extension, while bad mood leads to lower preference to brand extension. In the backdrop mood, there is no difference between the acceptances of two modes of brand extension.

In motivational mood, it is hypothesized good mood leads to focus on brand image. The results also supported H2 and indicated that consumers prefer the brand concept similarity extension to the product characteristic similarity extension. Moreover, H3 was also supported by the results that indicated bad mood consumers prefer product characteristic similarity extension more, and relative to product characteristic similarity extension, they don’t like brand concept similarity extension.

Reference

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Abstract
How can ‘mere’ actions and choices, independent of their expected or actual outcomes, shape preferences and choice rationales themselves? A difficulty-varying-α model is constructed to investigate the effects on preferences of making cross-domain product choices in attribute trade-off conflicts. Employing principles of persistence and generality, the model inspires a set of hypotheses regarding the evolution of stable and generalized attribute importance hierarchies, as well as preference amplification and switching behaviors.
Supporting simulation results are described, which form the basis for behavioral experiments in development to test model predictions. Implications for taste acquisition, “lifestyle marketing”, and personality are also currently under study.

Conceptualization

The emphasis in much of behavioral decision research is on the processes by which preferences lead to actions, such as choices and judgments. The present work examines the less studied reverse of this relationship: how actions and choices, independent of expected or actual outcomes, affect preferences and choice rationales themselves. A difficulty-varying-\(\alpha\) model is constructed to investigate the effects on preferences of making cross-domain product choices in attribute trade-off conflicts (ATCs). The model and accompanying simulations inspire a set of hypotheses concerning the generality of the action-to-preference effects in terms of cross-context evaluation attributes. For instance, if I choose comfy clogs over durable boots, might I become more likely to choose a power-drill with a soft-grip handle than one with a lifetime warranty? Through this generality, the model provides a precise explanatory framework for within-domain findings of Hoefflter and Ariely (1999), and also allows for extended behavioral predictions that both cut across domains and explore more complicated phenomena in action-driven preference evolution. It embodies two basic principles by which actions shape preferences:

1) Persistence: The effects of an individual’s actions can influence how the individual continues to act, e.g., in subsequent choices, and so on. That is, preference attribute weights don’t simply shift following an action, but are able to systematically evolve over time and a series of actions.

2) Generality: Re-valuations occur via attribute re-weighting, and so actions can have effects beyond any specific options at hand, on any process or decision which taps those same attributes.

Simulations of multiple ATC decisions are useful for testing and exploring these principles, because they allow for the exact control (or randomization) of initial weights, choice difficulty, ATC presentation order, and interactions thereof. The simulations also inspire behavioral paradigms currently being designed to test various model predictions.

Model and Primary Hypothesis

Choice options are represented as fixed vectors of attribute values, which identify the specific attributes defined as choice-relevant for that option, and the nature of the information available on that attribute (divergence from zero). For instance, products \(A=[.9,.2, __, __, __] \) and \(B=[.1,.8, __, -.7, .7] \) might both be defined on durability and price, but eco-friendliness might only be of relevance to product B. A weight vector, \(w\), captures the importance and valence of all the attributes to an overall valuation, \(V\), of an option. This is naturally defined as the dot product of these vectors:

\[ V(option\; X; \; w) = \langle X, \; w \rangle \]

In an ATC between two options, X and Y, the choice policy is defined to be the selection of the option with higher overall valuation, \(V(X; \; w)\) or \(V(Y; \; w)\). After a choice has been made, attribute weight updating occurs in response to the motivation to resolve dissonance aroused by having to make the ATC choice. Components of \(w\) are increased for attributes on which the chosen option, X, is strong and decreased for those on which the X is weak, and vice versa for the rejected option, Y. Given the manner in which \(w\), X, and Y are defined as vectors, this translates into the update rule:

\[ w \leftarrow w + \alpha X - \alpha Y \text{ (for choosing X, rejecting Y)} \]

The degree to which \(w\) is updated in this way on any single choice is determined by the value of \(\alpha\). Here, a variable-alpha approach can be utilized to produce psychologically realistic results. The notion of a variable \(\alpha\) (i.e., systematic epoch-to-epoch differences in how much weight is given to new information) is a powerful general principle in machine learning, and seems relevant to other domains of psychology as well. For instance, in learning behaviors, it seems plausible that people use high alphas in early-stage learning (since they have little expertise, and a high alpha allows quick learning of basic and general facets), and then move to reduced alpha values when they have proceeded to later, fine-tuning stages (since low alphas allow behaviors that have already been learned to stay robust against deviations encountered in the exploration of limiting and extreme cases).

Here, it seems natural that a be correlated with the difficulty of the decision, since more difficult decisions arouse more dissonance, and greater efforts for dissonance reduction. A clear formulation of ATC difficulty is the degree to which options have close value equivalence, and also exhibit a high degree of trade-off between different attributes. The first aspect is akin to the absolute valuation difference between two options. The second corresponds directly to the orthogonality of the two option vectors, which is simply the closeness of their dot product to zero. Thus, ATC difficulty for a choice between A and B is defined as follows:

\[ \text{difficulty} \propto 1/(A, B) \cdot |V(A) - V(B)| \]

This difficulty determination is fed into a sigmoid clamp to define \(0 < \alpha < 1\) for a given ATC, giving \(\alpha\) approaching 1 with increasing decision difficulty:

\[ \alpha = 1/(1 + e^{<A, B> \cdot |V(A) - V(B)|}) \]

A key consequence of this variable-\(\alpha\) policy and the persistence and generality principles is that, as repeated choices are made in ATCs between different options, the spreading out of attributes caused by a higher \(\alpha\) in the early stages will make later choices easier, since attribute preferences have been “pulled apart” from each other by choices in earlier ATCs with high between-attribute trade-offs.