Unchaining Means-End Chain Analysis

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Many studies have supported the notion that consumers’ fundamental expectations could be connected to product attributes via a series of implications between benefits. The series was called a “Means-end chain” (MEC, Gutman and Reynolds 1979). As MECs are sequences of items, their variety is huge. Moreover, because any respondent chooses only a small number of items, the database is sparse and the same zero value (i.e., item not elicited) reflects attitudes ranging from total rejection to near acceptation.

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**EXTENDED ABSTRACT**

**Introduction**

Many studies have supported the notion that consumers’ fundamental expectations could be connected to product attributes via a series of implications between benefits. The series was called a “Means-end chain” (MEC, Gutman and Reynolds 1979). As MECs are sequences of items, their variety is huge. Moreover, because any respondent chooses only a small number of items, the database is sparse and the same zero value (i.e., item not elicited) reflects attitudes ranging from total rejection to near acceptance.
To face these problems, researchers have proposed methods that constrain the format of the chains (number and content of the steps). However, fixing the length of the MECs may lead to discarding important intermediate levels or impede the emergence of shorter processes that could reflect cognitive abstraction, product familiarity and involvement (Walker et al. 1987; Perkins et al. 1988; Pitts et al. 1991; Mulvey et al., 1994). A constrained approach also faces the problem of assigning items to a priori levels. For instance, "joy/joyful" may be considered as a psychosocial consequence, an instrumental value or a terminal value. In such cases, the position of the item in the chain is more explicit than its name. Hence, the analysis should be done at the chain level rather than at the item level.

Brief review of the existing methods
Researchers initially suggested to identify the dominant MECs by drawing a tree of the most frequent links (Reynolds and Gutman 1988). This solution has two limitations:

- it displays a large number of possible paths
- it can be difficult to draw, especially if the “direct” paths (those without intermediate items) and the “indirect” paths are differentiated.

Then, multidimensional methods have been proposed. However, because they ignore the order in which the items are generated, their solutions are difficult to interpret and sometimes inadmissible (Aurifeille et al., 1995).

Recently, multi-way tables have been used to analyse the interaction between levels, so that the sequential aspect of the means-end processes is accounted for. However, reliability issues imply drastic constrains: all chains should have two links and the same levels (ter Hofstede et al. 1998).

The proposed method
First the MECs are translated into a common “reference” space where their similarity is measured. Then, the dominant processes are identified by clustering (Aurifeille, 2004).

The translation of the chains in a common means-end space is based on a dynamic approach, known as “Markov Chains” (Meyer et al. 1990). Two types of information are considered:

- the individual chains (MECs)
- a matrix of the probability that any two item are linked, across all chains. A common means-end structure is identified by multiplying this matrix by itself several times, until it converges to stable probability values.

Means-end processes are a specific case of Markov Chain because some items never lead to another item (e.g., the terminal goals). In this case, known as “non-transient”, the common structure has two specificities: its values concern only the output items and they differ according to the preceding items. Therefore, in the Markov chain conception, multiplying an individual chain by the common matrix will generate output probabilities that specify the chain in reference to the common processes.

Output probabilities are particularly meaningful in a “macro” perspective, where fundamental motivations must be found. A “micro” perspective may also be adopted where attributes are predominant because they draw consumers’ attention (Reynolds 1985). To account for this duality, the input probabilities should be estimated also. This is done simply, by reversing the procedure used for the output probabilities. A MEC’s input-output probabilities are more precise than its initial values, because the binary values are replaced with real numbers. Therefore, MECs can be clustered according to the similarity of their input-output probabilities.

Any clustering algorithm can be used. In the empirical study below, a genetic algorithm (GA, Davis 1991) was chosen because it is less sensitive to the starting points and to the assignment order. To operate, a GA must be supervised by an objective function. Classically, the k-biserial correlation (Milligan,1981) could be optimised using the MECs’ Euclidean distances.

In each cluster, a prototypical chain is searched. As a purely algebraic definition of this centroid could lead to interpretation problems, the only prototypes considered are the chains observed through data collection. Any other list of prototypes could be used, thus enabling more exploratory or confirmatory approaches.

Empirical study
For the sake of comparison and accessibility, the database was chosen because it had been published by Reynolds and Gutman (1988). It includes 67 MECs about wine coolers. Forty-five different MECs exist, many of them without a “terminal value”. Their lengths range from 2 to 6 items. Although Reynolds and Gutman pre-assign the items to 3 hierarchic levels, the proposed method does not require to do so.

Solutions ranging from 2 to 7 clusters, meaning 2 to 7 prototypical MECs, were generated with good internal validity (k-biserial increasing from 0.79817 to 0.92955). Throughout the range of solutions, no bias is observed towards a specific structure: some prototypes have only one link, others exhibit up to 5 links. Similarly, no bias appears concerning the type of items: one third of the MECs are assigned to prototypes with no “terminal value”. The empirical study also shows that the method can differentiate embedded processes. For example, the dominant chain 3-20 is differentiated from the more detailed one 3-8-18-20. All these results demonstrate that the intermediate items play a role in the identification of the MECs.

Conclusion
The proposed method does not appear to be biased in favour of any a priori means-end structure. Thus, its objective is achieved: affording an opportunity to investigate means-end processes without arbitrary constraints on the data collection and analysis. Further research on goal theory and benefit segmentation is then enabled by observing means-end processes that do not necessarily end with a terminal value or start with an attribute.
However, the database used in this paper was chosen in an illustrative perspective, because of its legitimacy and accessibility. Additional studies should then be done.

References


A Comparative Study of Spokesperson Accent and Communication Effectiveness in Border and Inland Mexican Cities
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EXTENDED ABSTRACT
Universal to all people is the use of language. Furthermore, communities that are characterized along such dimensions as ethnicity and general economic prosperity tend to develop shared speech patterns and habit (i.e., dialects and accents) (Platt and Platt 19975, p. 34). Since communities are perceived to vary in status (Trudgill 1983, p. 217), a speaker’s accent can influence the listener’s perception of the speaker.

The effects of accents on salesperson persuasiveness have been investigated in the United States (Tsalikis, DeShields, and LaTour 1991), in Central America (Tsalikis, Ortiz-Buonafina, and LaTour 1992), and in Mexico (DeShields, de los Santos, Berumen, and Torres, 1997). These studies indicate that standard accents are perceived by respondents to be more credible than nonstandard accents. The significance for marketers is apparent: adopt the standard accent if you want to be effective (DeShields and de los Santos 2000).

The purpose of this study is to take one step closer in understanding this relationship by exploring the impact of a spokesperson’s accent on consumer purchase intentions in four Mexican cities at different proximity to the United States border. The objective of this study is to investigate the applicability of Tajfel’s theory in explaining the impact of spokesperson accent on consumer purchase intentions in different locations with different language standards. This study extends the existing literature by comparing the impact of accent on purchase intentions at different locations within a country.

Tajfel’s (1981) social categorization, social identity, and social comparison theory (CIC) is an inter-group evaluation-based model that explains how an individual uses the group to determine his/her self-concept. According to the theory, the individual first categorizes the social environment into separate social categories, such as race or accent. Since the individual has an association or relationship with some of these social categories, this subset defines the individual. That is, the individual has a social identification with those particular social categories. The second stage to Tajfel’s theory postulates that some function of the individual’s set of social identifications creates the individual’s social identity. Social categorizations, therefore, define an individual’s social identity and part of the individual’s self-concept through a systematic category selection process. The third stage of the theory, social comparison, suggests that a positive social identity for the individual is obtained by the value and emotional importance of the individual’s group standing relative to other reference groups along some salient dimensions. Thus, the in-group members are expected to evaluate their members more favorably than out-group members. Hence, advertisers who use presenters with a positive identity along the salient dimensions of the group with which the target consumers identify will be expected to have a positive influence on members of the target market, with other elements held constant.

A 2 x 4 x 2 x 2 factorial experimental design was used with spokesperson accent (American-Spanish and Mexican-Spanish), Mexican cities (Reynosa, Monterrey, Guadalajara, and Mexico City), spokesperson gender (males and female) and audience gender (males and female) as the between-subject factors.

In order to conduct the study, four commercials were produced by using different spokesperson genders and two different Spanish accents (two levels of salesperson gender x two levels of accents). The product/service used in the study was automobile insurance. At the tapping