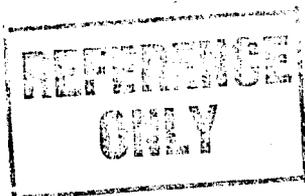


THE PREDICTION AND UNDERSTANDING OF CONSUMER PURCHASE DECISIONS:  
APPLYING THE FISHBEIN MODEL TO CERTAIN MARKETING ISSUES

by

Ute B. Bradley

October 1981



A thesis submitted to the Council for National Academic Awards in partial fulfilment of the requirements for the Degree of Doctor of Philosophy.

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ABSTRACT

The prediction and understanding of consumer purchase decisions:  
applying the Fishbein model to certain marketing issues

by Ute B. Bradley

In the fields of social psychology Martin Fishbein has developed the 'theory of reasoned action.' A literature search was undertaken in both social psychology and marketing which revealed that the theory has been widely tested in social psychology, but to a much lesser extent in its marketing application. In particular, the marketing applications indicated many gaps in methodology largely due to constraints imposed by time, money and the need for confidentiality of the results; all of which have provided few opportunities to evaluate the model consistently.

The present investigation therefore had four main aims:

(i) to apply the model to real marketing problems amongst large and representative groups of consumers, paying particular attention to the operational application of all elements of the model and making improvements to this methodology wherever possible.

(ii) To apply the model consistently over several markets. To achieve this, marketing companies were sought, which had problems for which Fishbein methodology was appropriate and three markets were covered.

(iii) To extend the model to seek improvements in predictability. Two measures of Behaviour and Confidence were added.

(iv) To explore the differences in marketing advice which would result from a comparison between

- the standard Fishbein analyses
- methods commonly used by marketing researchers today (e.g. mean scores and association data) and
- alternative analyses (e.g. stepwise regression and multi-variate techniques) applied to the data which had been collected for the standard Fishbein analyses.

The thesis is organised as follows: Chapter 1 covers the research design in relation to the four aims of the study; Chapter 2 deals with the theoretical basis of the research; Chapter 3 discusses the elicitation part of the model fully, particularly as advances in methodology were made here; Chapter 4 covers the analyses of the predictive power of the standard Fishbein model and Chapter 5 its diagnostic implications; Chapter 6 tests the alternative analyses taking the research beyond the standard Fishbein model and Chapter 7 draws conclusions and indicates further worthwhile areas of research.

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## CHAPTER 1

### RESEARCH DESIGN AND EXECUTION - THE MAIN PARAMETERS OF THE THESIS

#### 1.1. INTRODUCTION

The literature search of the UK and American experience of the Fishbein model in marketing (to be detailed in Chapter 2) indicated a basic need to extend experience with the model. Judged from published sources, little research had been undertaken in the UK on the model in an academic context and the research undertaken in a marketing context was usually not fully reported. The object of this research therefore was to improve knowledge of the Fishbein model in marketing, which would also give an opportunity to examine further the academic soundness of the model.

#### 1.2. IMPLICATIONS FOR RESEARCH DESIGN ARISING FROM LITERATURE SURVEY

##### 1.2.1. Alternative Theoretical Approaches

The literature shows that in commercial research, constraints of cost and time, normally require a consistent theoretical approach. It is seldom possible to explore alternative theoretical approaches

- either, by mounting identical studies in different markets
- or, by exploring alternative data analyses.

It was therefore desirable to include this in any new research in order to

- explore differences between markets rigorously and in depth
- and find out whether different marketing recommendations would result from considering the same data from alternative conceptual and analytical points of view.

A project of this kind would therefore have academic value as well as practical use, which is of course vital in an applied discipline like marketing.

##### 1.2.2. Specificity of Application

Tuck in the Journal of Marketing Research, indicated that there is a lot of ignorance and confusion about applying Fishbein to marketing and that in order to succeed, it is necessary to apply the model in a highly specific sense. This point is also made by Harrell and Bennett (Journal of Marketing Research, 1974). This highly specific application is aimed for in the present study. The details are given in the relevant chapters, but particularly in Chapter 4.

### 1.2.3. Marketing Considerations

Financial constraints have meant that much academic research has been based on small samples of students. For research to be convincing both academically and for marketing purposes, it needs to be based on a large representative sample of real consumers. To achieve this, financial help would be necessary from marketing companies, especially to cover data collection costs.

Two major UK marketing companies agreed to fund the project, because they believed it would be of practical value to them and in fact the results were applied in their marketing.

### 1.2.4. Confidentiality

Competitive commercial considerations normally prevent the publication of much market research data. Consequently it was necessary to seek companies, which not only had the sort of marketing problem for which the Fishbein model would be an appropriate methodology, but which would also allow the data to be reproduced in a thesis. This would make the work available to other researchers in similar fields, which would be valuable, because the literature search showed how indebted market researchers were to those who had investigated the Fishbein model in social psychology and other areas.

### 1.2.5. Value of this Research

There has been little research at the PhD level into marketing models and other marketing subjects and more is needed. As Mostyn (1978b) pointed out 'models are criticised by researchers because they are never replicated; the model builder tests out his/her model, constantly changes and adjusts it and finally puts it into print. The next researcher comes along with the new and improved version which has latched on to something 'essential' but not previously considered and so it snowballs. Few researchers are willing to accept the more scientific approach and attempt to replicate the existing models. However, as Kollat et al (1970) point out this problem is true with so many facets of consumer research; there is never enough replication.' Consequently a project which both replicates an existing model and seeks to develop some new approaches, should make a useful contribution to marketing and marketing education.

## 1.3. RESEARCH PLAN

A final research plan was developed which met the above considerations and the research parameters of this plan are shown in Chart 1.1. and described in the following sections:



### 1.3.1. Research Comparability

Much of the commercial and academic research carried out on the Fishbein model has been produced under different operational rules and consequently the data and the results are not often comparable, either within or between markets. Therefore three comparable data sets were collected, relating to the different markets of take-home beer and lagers and cigarettes.

### 1.3.2. Attitudinal vs. Normative Control

According to Fishbein, markets can be more under attitudinal or more under normative control; these being the major predictors of Behavioural Intention. These two types of control correspond to the two parts of the Fishbein formula, given in Appendix 1(i). Consequently of the three product fields, two were postulated to be under attitudinal control and one under normative control. The literature search suggested that a greater understanding of the relative importance of the attitudinal versus the normative components of the formula, could help determine the best advertising content for particular product groups or brands.

### 1.3.3. Scale of Research

The literature included very few studies of more than one or two brands within a single product field and therefore increasing the number of brands would extend knowledge beyond present boundaries (Tuck, Journal of Marketing Research, 1973). Further it would be necessary to test all brands in a particular market under exactly the same conditions. Seven brands were tested in the take-home beer and cigarette markets; and six brands in the take-home lager market. Consequently the consistent testing of 20 brands on large sample sizes makes this large and complex project unique in the marketing literature dealing with the Fishbein model.

### 1.3.4. Three Research Stages

As will be discussed in Chapter 2, the Fishbein model requires three research stages:

Stage 1 (on chart 1.1.). The main parameters of the Fishbein model are elicited from the population to be studied, particularly the salient attitudinal and normative beliefs. These must be tabulated and analysed, so that the decisions can be made about which to include in the final questionnaire.

Stage 2. The main data collection phase for all the Fishbein measures, except for Behaviour. Before this stage 2 can start, the questionnaire must be piloted to make sure that the measures work as intended. The data

obtained is then analysed, according to the model, with the help of summative regression analysis to test prediction and with the help of another type of analysis to test the diagnostic power of the model.

Stage 3. The collection of the Behaviour measure for the model. This may sometimes be collected at the same time as the main data (stage 2), but more usually is collected at some point thereafter.

Appendix 1(i) gives the Fishbein formula and Appendix 1(ii) all the symbols used in this research.

### 1.3.5. Analysis Methods

The main objective was to establish whether different techniques of analysis produced different marketing recommendations. This involved two approaches:

(i) In order to test both the predictive and diagnostic power of the Fishbein model compared with other methods of analysis, the quantitative stage 2 data was analysed both by the standard Fishbein summative regression analysis as well as by the disaggregated (stepwise multiple regression) model. This line of comparative analysis was fully developed during the course of the research with the help of multivariate statistical analysis techniques.

(ii) In order to compare the explanatory power of the Fishbein model for marketing purposes, the Fishbein data was compared with the type of data on which marketing decisions are usually based like mean score and association data. The former is already part of the normal Fishbein data and there was therefore no need to collect it separately.

### 1.4. RESEARCH HYPOTHESES

For the present study a number of hypotheses were set up for testing the data and these are given in Appendix 1(iii). They cover four major areas. The first three, examine the Fishbein model per se by testing whether

- the model predicts behaviour (Group A hypotheses, Chapter 4);
- the model is internally valid (Group B hypotheses, Chapter 4);
- the model provides good diagnostic explanations of the particular markets (Group C hypotheses, Chapter 5).

Some of these hypotheses explore the feasibility of using a reduced set of variables without reducing the predictive power of the model. For example,

- is Behavioural Intention (BI) necessary as an intermediary to Behaviour?

- Are all salient beliefs required to predict either overall attitude (Aact) or general norm (NB)?
- Is a generalised other (NB) sufficient, or are several others (SNB) necessary to increase prediction (Ryan and Bonfield, 1975)?

The fourth area of hypotheses (Group D, Chapter 6) explored whether the disaggregated model provided better prediction and/or diagnosis than the summative model. Also the additions to the model (two measures of behaviour and confidence) were covered (Group A and D hypotheses, Chapters 4 and 6).

### 1.5. AIMS OF THE RESEARCH

These were already stated in the Abstract, but will be repeated here. The main aims were:

(i) to apply the model to real marketing problems amongst large and representative groups of consumers, paying particular attention to the operational application of all elements of the model and making improvements to this methodology wherever possible.

(ii) To apply the model consistently over several markets. To achieve this, marketing companies were sought, which had problems for which Fishbein methodology was appropriate and three markets were covered.

(iii) To extend the model to seek improvements in predictability. Two measures of Behaviour and Confidence were added.

(iv) To explore the differences in marketing advice which would result from a comparison between

- the standard Fishbein analyses
- methods commonly used by marketing researchers today (e.g. mean score and association data) and
- alternative analyses (e.g. stepwise regression and multivariate techniques) applied to the data which has been collected for the standard Fishbein analyses.

### 1.6. CONCLUSION

The aim of the chapter has been to provide an overview of the research: how it arose and how it developed. The specific details are all given in the relevant chapters.

Chapter 2. The first section of Chapter 2 looks at the development of Fishbein's theory and its application in the field of marketing. Many areas requiring research were identified and several of these were

deliberately built into the final research design. The second part of the chapter briefly reviews other 'models' which attempt to help explain the behaviour of consumers and which have had an impact in the marketing field in the UK in the 1960's and 1970's: how they differ from Fishbein's model, the extent to which Fishbein has influenced them. Chapter 2 also considers some likely future developments in research models.

Chapter 3. This deals with the elicitation problem in the widest context as well as reporting on the methodology and data of the present research.

Chapter 4. The theory of reasoned action is restated in detail and in the chapter it is related stage by stage to both the methodology and results of this research.

Chapter 5. The Fishbein data is explored in more detail, by examining Fishbein's  $b_i a_i$  analysis which gives a great deal of diagnostic information.

Chapter 6 concerns itself with all the techniques which go beyond the traditional Fishbein analyses.

Each chapter relates the data obtained in the present research both to theory and to the data other researchers have generated. Conclusions are drawn and the possibilities for future research are indicated. The summing up for the whole thesis is given in Chapter 7.

## CHAPTER 2

### THE THEORETICAL BASIS OF THE RESEARCH: A REVIEW OF THE MODELS FOR UNDER- STANDING AND PREDICTING CONSUMER BEHAVIOUR USED FOR MARKETING IN THE 1960's AND 1970's

#### 2.1. INTRODUCTION

This chapter considers the development of Fishbein's latest model as used in this research. It is based on psychological theories of the expected value to individuals of particular choices; known as expectancy value theory. Competing theories of consumer choice, which were applied in marketing in the UK in the 1960's and 1970's are also considered briefly, to allow an assessment of Fishbein's contribution.

#### 2.2. THE DEVELOPMENT OF FISHBEIN'S MODEL

##### 2.2.1. The Theory of Reasoned Action

Fishbein (Ajzen & Fishbein, 1980) has recently presented his latest theory of consumer choice as the Theory of Reasoned Action. He explains 'the theory is based on the assumption that human beings are usually quite rational and make systematic use of the information available to them.' The details of the theory and their implications for its operational application, are discussed at the beginning of Chapters 3 and 4 and further at the beginning of Chapter 5. This arrangement enables the relevant theoretical details to precede the discussion of how the various elements of the theory were handled in this research. In this chapter, an overview of the Theory of Reasoned Action will be given and some of the broader issues raised will be discussed, particularly for marketing. Before this can be done, however, we need to consider how Fishbein's definition of attitudes developed and examine the initial formulation of his theory.

##### 2.2.2. The Nature of Attitudes

In 1935 Gordon Allport wrote 'attitude is probably the most distinctive and indispensable concept in contemporary American social psychology. No other term appears more frequently in experimental and theoretical literature.' Yet for many years it proved to be one of the most ambiguous and confusing concepts in the whole of psychology. In a review of research published between 1968 and 1970, Fishbein and Ajzen (1972), found more than 500 different operations designed to measure attitude! It is therefore not surprising that the correlations between attitudes and behaviour found by researchers are on the low side e.g. Wicker (1969).

Many factors accounted for this state of affairs, but some of the most relevant ones to Fishbein's work were as follows -

(i) A definition of attitude reasonably widely accepted was that attitude was a learned predisposition to respond in a consistently favourable or unfavourable manner with respect to a given object. When attitude research was examined by Fishbein and Ajzen (1972), however, there were no clear definitions

- of the nature of a predisposition
- the learning process involved
- and of consistency of response.

With these different definitions attitude research as a whole could not advance.

(ii) Multi-dimensional vs. unidimensional definitions of attitude: attitude, it was believed for a long time, had three components - affect, cognition and conation. Affect refers to a person's feeling towards and evaluation of some object, person, issue, or event; cognition, relates to his knowledge, opinions, beliefs and thoughts about the object; and conation denotes his behavioural intentions and his actions with respect to or in the presence of the object. This type of multi-dimensional definition was supported by e.g. Rosenberg and Hovland (1960) and Krech and Crutchfield (1948) and Krech, Crutchfield and Ballanchey (1962). Fishbein and Ajzen (1975) state 'we have reserved the term 'attitude' for one of the categories, namely affect. The term 'belief' will be used for ...cognition, and the term 'intention' for...conation...Since, when dealing with attitudes, we are concerned with predispositions to behave rather than with behaviour itself, it seems desirable to make a distinction between behavioral intention and actual behavior.' Conceptually we therefore have

- Behaviour (B)
- Behavioural Intention (BI)
- (Overall) Attitude ( $A_o$  = attitude towards an object;  
Aact = attitude towards an act).
- Overall Attitude has two components: beliefs  
: evaluation of these beliefs.

A uni-dimensional definition of attitude, as adopted by Fishbein, has the major advantage of being more clearly understood and more amenable to implementation than a multi-dimensional concept. Others (e.g. Thurstone, 1931; Osgood, Suci and Tannenbaum, 1957; Likert and Guttman) have also

followed this line of reasoning. Thurstone (1931) for example, defined attitude as 'the affect for and against a psychological object.' Fishbein made an important contribution to psychology by making these clear-cut definitions and he himself argued cogently that such 'distinctions are an essential prerequisite for systematic....research.'

(iii) The great number of attitude theories which exist in modern psychology: many of which were summarised by Fishbein (1975) and are presented in Table 2(i). Contemporary attitude theories fall into four main groups: learning theories, expectancy-value theories, consistency theories and attribution theories. Learning theories are concerned with the process whereby a given response becomes associated with (or conditioned to) a given stimulus. Expectancy-value theories rest on the assumption that people learn 'expectations' ie beliefs that a given response will be followed by some event. As the event can have both favourable and unfavourable consequences for the individual, it is 'expected' that the probability of performing events which have favourable outcomes for the individual will be increased. Consistency theories are concerned with the relationship between two objects of judgement such as brand X is strong. The relationship can be stated in terms of positive and negative balances, etc. Attribution theories are concerned to establish the degree to which a given event or action could be attributed to some person or object. All of these theories

- do not use the same variables
- for a given theory, there can be a difference between the conceptual variables and the operational variables
- some are based on information-processing models, others are dynamic models. In the former information leads to the formation of beliefs, etc; in the latter the focus is on the change the information has on beliefs, etc without reference to their formation.

Psychologists tended to work within the context of a particular attitude theory and attempted to develop evidence for or against it. They were therefore less concerned with the fundamental issue of what are attitudes and how to measure them with validity and reliability. Fishbein concerned himself with all these issues.

### 2.2.3. Fishbein's first expectancy value theory: A<sub>0</sub> theory

In this he concentrated on establishing overall attitude towards an object. This equals the summed total of each belief ( $b_i$ ) about the object multiplied by its respective evaluation ( $a_i$ ). For example, a person's

TABLE 2(i)

COMPARISON OF CONTEMPORARY ATTITUDE THEORIES (adapted from Fishbein & Ajzen, 1975)

THEORIES	CONCEPTUAL VARIABLES	TYPE OF THEORY	OPERATIONAL VARIABLES
LEARNING THEORIES			
Staats and Staats	A	I*	A
Lott	b,A,B	I*	b,A,I,B
Doob	b,A,B	I*	-
EXPECTANCY-VALUE THEORIES			
Fishbein	b,A	I*	b,A
Edwards	b,A,B	I*	B
Rosenberg	b,A	D	b,A
CONSISTENCY THEORIES			
Balance (Heider)	b,A	D	b,A,I,B
Congruity (Osgood & Tannenbaum)	b,A	D	A
Dissonance (Festinger)	b	D	b,A,I,B
ATTRIBUTION THEORIES			
Self-attribution (Bem)	b	I*	b,A,I
Attribution to others	b	I*	b,A,I

KEY: b = belief                      I\* = Informational  
 A = attitude                            D = Dynamic  
 I = Intention  
 B = Behaviour

overall attitude towards brand X may consist of the belief that brand X is strong ( $b_i$ ) and he evaluates or likes strength in cigarettes ( $a_i$ ) and also of other  $b_i a_i$  combinations, all summed. In algebraic form Fishbein presented the theory thus -

$$A_o = \sum_{i=1}^n b_i a_i$$

with  $A_o$  = attitude towards the object o

$b_i$  = the strength of belief  $i$  about Object  $o$

$a_i$  = the evaluative aspect of  $b_i$  i.e. the evaluation of the beliefs

$n$  = the number of beliefs about the Object

In this theory Fishbein views an individual's beliefs about any given object in terms of the probability (or strength) of a stimulus-response association. Further, he regards the belief system (i.e. the totality of an individual's beliefs about any given object) as a habit-family-hierarchy of responses. According to Kaplan and Fishbein (1969) and also Fishbein (1963, 1967) this means, for example, that attitudes will change either because an individual's beliefs about the object change, or the evaluative aspects of beliefs about an object change. Beliefs may change in two ways according to the theory: new beliefs may be learned or the strength of beliefs may change; that is, their relative position in the belief hierarchy may change.

The theory therefore postulates an informational basis for the formation of attitudes and this was indicated above. A person is viewed as processing the information he has about an object in arriving at his evaluation of the object. Research evidence (Miller, 1956) suggests that there may be limits to an individual's information processing capabilities and while an individual may hold a large number of beliefs about an object, his overall attitude at any specific time may be determined by only a limited number of these beliefs.

This type of expectancy-value theory has had an influence on marketing thought and on consumer attitude research; perhaps not least because of the way marketing theorists have defined products e.g. Kotler (1967):

'(A product is) a bundle of physical, service, and symbolic particulars expected to yield satisfactions or benefits to the buyer....'

#### 2.2.4. Rosenberg's Expectancy Value Model

Rosenberg (1956) had produced an expectancy value model which in algebraic form is very similar to Fishbein's formulation, yet the two models have very different antecedents. Rosenberg's formulation draws on consistency theory which stems from the work of Heider (1946) and others, whereas Fishbein's model accounts for the relationship between beliefs and attitudes in terms of learning processes.

Theorists and practitioners of marketing have argued about the

interpretation of these two models. Two major questions have been debated

- how different are these two theories?
- is the definition of the components of the two models the same or not?

Major contributions to this debate have been made by Sheth (1972), Bass (1972), Bass and Talarzyk (1972), Tuck (1973), Sheth and Whan Park (1973), Klippel (1971) and Mazis, Ahtola and Klippel (1975). One of the items in this controversy, is the strength with which beliefs are held. This concerns us particularly in Chapter 5. Briefly, several researchers have wrongly equated belief strength with importance in Fishbein's formulation (see Chapter 3) and this was criticized by Fishbein and Ajzen (1975) and by Cohen, Fishbein and Ahtola (1972). Hackman and Anderson (1968) and Wyer (1970) suggested that the formula should include a weight for the importance or salience (Fishbein's term) of each belief item. However, the research evidence suggests that this is not a fruitful line of enquiry (Anderson, 1970; Hackman and Anderson, 1968; Kaplan and Fishbein, 1969; and Wyer, 1970).

#### 2.2.5. Fishbein's second expectancy value theory: Aact theory

Fishbein (1975) argued that 'the attitude is viewed as a general predisposition that does not predispose the person to perform any specific behavior.' Therefore, it follows that the expectancy value model which tries to predict attitude towards an object ( $A_o$ ) cannot be expected to predict specific behaviours.

Dulany (1961, 1964) approached this problem; he was concerned with predicting the probability that an individual would make a particular verbal response or class of verbal responses. His theory was that an individual's Response was a function of his Behavioural Intention and that Behavioural Intention could be broken down into two components: a reward expectation and the influence of other people; each with their respective weights.

$$R \sim BI = (RHd)(Rsv)W_0 + (BH)(MC)W_1$$

With R = Response

BI = The subject's Behavioural Intention to make a particular response or class of responses

RHd = The subject's hypothesis that the occurrence of a particular response will lead to a reinforcement/reward (ie hypothesis of the distribution of reinforcement)

Rsv = The subjective value the individual places on the reward.  
 BH = the extent to which the individual believes a particular behaviour is expected of him by another person (ie behavioural hypothesis)  
 MC = motivation to comply; the extent to which the individual wishes to conform to BH  
 $w_0$  &  $w_1$  = empirically determined weights.

Two major points emerge from Dulany's work:

(i) His model, does not predict behaviour as such, but concentrates on behavioural intention. However, Dulany (1968) found intentions to be good predictors of behaviour; as much as 88% of variation in behaviour was accounted for by variation in intention.

(ii) The theory postulates two major components as determinants of behavioural intention: first, the subject's expectation that a given response will lead to a certain event and second, the individual will comply with perceived demands in the research situation.

Dulany's theory was adapted by Fishbein to become the Aact theory or the theory of reasoned action. This is the theory applied in this research and the formula and the definitions are given in full in an appendix to Chapter 1; they are briefly repeated here.

$$B \sim BI = w_0 [Aact] + w_1 [NB]$$

$$\begin{array}{l} | \qquad \qquad \qquad \backslash \\ Aact = \sum b_i a_i \qquad NB = \sum SNB_j mc_j \end{array}$$

With B = Behaviour

BI = Behavioural Intention

Aact = Overall attitude

NB = General Norm

$b_i$  = individual attitudinal belief

$a_i$  = evaluations of these individual attitudinal beliefs

$SNB_j$  = individual normative beliefs

$mc_j$  = motivation to comply

$n$  = number of salient beliefs/ number of relevant referents

$w_0$  and  $w_1$  = regression weights.

Throughout the rest of this research  $SNB_j mc_j$  will be written without  $j$  as  $SNBmc$ ; this is the shorter more conventional version.

Before dealing with the main characteristics of this theory it is necessary to point out that the Aact model was a considerable improvement on the  $A_o$  model, particularly for marketing. Marketing researchers had concentrated on measuring attitudes towards brands not on attitudes towards buying a particular brand in a specific situation. This practice was congruent with the psychological research on attitudes towards objects ( $A_o$  theory). The Aact theory shifts the emphasis towards behaviour. Moreover, Fishbein was able to demonstrate that his Aact model was a much better predictor of behavioural intention (1967) and behaviour, than his  $A_o$  model had been (1963).

The main characteristics of the Aact model are:

(i) A person's intention (BI) to perform a particular behaviour (B) is determined by his overall attitude (Aact) towards performing the behaviour and by his general norm (NB). Aact breaks down into beliefs and their evaluations; NB into specific normative beliefs and motivation to comply. Behavioural Intention in its turn determines Behaviour.

(ii) Overall attitude (Aact) is determined by individual beliefs ( $b_i$ ) multiplied by their evaluations ( $a_i$ ) and in this sense the theory is similar to other expectancy value models (e.g. Tolman, 1932; Edwards, 1954 and Vroom, 1964). The products of the beliefs x evaluations are summed. This, of course, is not to say that there is a mental summative process at work. But for measurement purposes, summing produces adequate correlations. The theory is therefore more useful in terms of prediction than understanding.

(iii) The overall normative component (NB) of the theory stresses the fact that the social environment may have an influence on behaviour as well as attitudinal beliefs. This component is determined by the perceived expectations of specific referent individuals or groups (SNB) and the individual's motivation to comply (mc) with those expectations. Fishbein and Ajzen (1975) believe that these normative beliefs may be formed as the result of an inference process; normative beliefs may be inferred from the referent's perceived attitude towards performing the behaviour. Motivation to comply has proved an elusive concept. Fishbein and Ajzen (1975) have interpreted it as the individual's general acceptance of the 'lead' given by a referent individual or group.

Just as in the attitudinal part of the formula individual beliefs ( $b_i$ ) were multiplied with their evaluations ( $a_i$ ) and their product summed so for the normative side of the formula the individual normative Beliefs (SNB) are multiplied by their respective motivations to comply

(mc) and the product summed.

(iv) The empirically derived weights ( $w_0$  and  $w_1$ ) are obtained by regressing both attitudinal and normative components of the formula against Behavioural Intention (BI:Aact+NB). The resultant standardized regression coefficients are taken as a measure of the extent to which Overall Attitude (Aact) and General Norm (NB) determine Behavioural Intention (BI).

(v) The attitudinal ( $b_i$ ) and the normative beliefs (SNB) are clearly the key elements of the theory; they do NOT influence Behaviour(B) directly but via Overall Attitude (Aact) and General Norm (NB). Aact and NB in their turn feed into Behavioural Intention (BI) and this helps predict Behaviour (B). The theory is therefore not just an additive one, but also a linear one. The detailed relationships between all elements of the theory are fully discussed at the beginning of Chapter 4.

(vi) All elements of the theory (B - BI - Aact - [individual  $b_i$ 's and  $a_i$ 's] - NB - [individual SNB's and mc's]) must be applied in a highly specific sense. The Aact theory incorporates reinforcement contingencies or outcomes of performance of the act in a specific situation. It is therefore more likely to be a better predictor of Behaviour than the  $A_0$  theory. Fishbein (1971) put forward the following argument in favour of the Aact formulation:

"I think this distinction between attitude towards an object and attitude towards a behavior is a very important one, and one that has often been ignored..Even though I may think some product has all kinds of good characteristics, qualities and attributes, I may not believe buying or using that product will lead to valued outcomes...For example, a woman might believe that 'high pile carpeting' is 'warm', 'comfortable', 'luxurious', and 'prestigious', and since she positively evaluates those attributes, she is likely to have a positive attitude toward 'high pile carpeting.' However, what do you think the consequences of 'buying high pile carpeting' are for that woman if she has two dogs, a cat and three children under nine?"

The highly specific application of the theory, sometimes referred to as 'the specificity argument', is fully discussed in Chapter 4.

(vii) The variables included in Fishbein's theory (and listed in (vi) above) are those which he claims are sufficient by themselves to provide good prediction; others disagree. For example, Doob (1947) believes that these variables are not the sole determinants of behaviour and that various situational factors also need to be taken into account.

(viii) Fishbein and Ajzen (1975) devote a substantial part of their book to the measurement of the variables of the theory and their validity and reliability. The main points they make are that

- all measurement ultimately rests on responses to simple statements of belief or intention

- measurement is undertaken on bipolar (usually 7 point) scales.

Their research evidence indicates that reliable and valid measures of each of the variables in the formulation can be obtained.

#### 2.2.6. Empirical tests of Fishbein's Aact model

A detailed review of the empirical tests undertaken on the model in social psychology have been provided by Fishbein et al in numerous papers and in Ajzen and Fishbein (1973). Multiple correlation co-efficients obtained in such studies are given in Table 2(ii). These studies have ranged widely over many topics and indicate that the model has proven relatively successful in terms of explaining variations in behavioural intention.

Applications and tests undertaken on the model in the marketing field and related areas, which were largely reviewed before the present research was set up, show more variable results. Much of the marketing application has been concerned with the measurement of brand preference or brand choice prediction. Within the context of expectancy value theory three major application areas can be distinguished:

(i) Based on the Rosenberg model

E.G. Hansen (1969); Bither & Miller (1969); Klippel (1971); Klippel & Bither (1972).

(ii) Based on the Dulany/Rosenberg/Fishbein models, some including an 'importance' element

E.G. Scott & Bennett (1971); Moinpoir & MacLachlan (1971); Moinpoir & Wiley (1972b); Wilkie & Weinreich (1972); Wilkie & McCann (1972); Bass (1972); Bass & Talarzyk (1972); Bass & Wilkie (1972); Bass, Pessemier & Lehmann (1972); Sheth & Talarzyk (1972), preceded by Sheth (1969, 1971).

Reviews of the 'importance' models are given by Lutz & Howard (1971), Pessemier & Wilkie (1972) and Bither and Stuart (1972).

(iii) Fishbein (A<sub>o</sub> and Aact) models and extensions

E.G. Tuck (1969, 1970, 1971, 1972, 1973, 1976, 1979); Chapman (1970); Sampson & Harris (1970, etc); ESOMAR papers (1971);

TABLE 2(ii)

MULTIPLE CORRELATION COEFFICIENTS FOR THE PREDICTION OF BEHAVIOURAL INTENTIONS (references above the line adapted from Fishbein & Ajzen, 1975).

STUDY	INTENTION	MULTIPLE CORRELATION
Fishbein, 1966	Engage in premarital sexual intercourse	0.85
Carlson, 1968	Perform 30 behaviours towards an African Negro	0.84
Ajzen & Fishbein, 1969	Perform 8 leisure time activities	0.77
Fishbein et al, 1970	Send/Follow communications of co workers	0.70/0.61
Hornik, 1970	Maintain missiles in a game	0.81
Ajzen & Fishbein, 1970, 1971	Choose alternative X or Y in 2 PD games	0.71/0.72
De Vries & Ajzen, 1971	Cheating at college (various behaviours)	0.87/0.82/ 0.57
Darroch, 1971	Sign 2 interracial photo releases	0.65
Ajzen & Fishbein, 1972	Perform 4 behaviours involving risk	0.79
Jaccard & Davidson, 1972	Use birth control pills	0.84
McArdle, 1972	Sign up for alcoholic treatment	0.74
Glassman, 1971	Buy 8 products	0.67
Schwartz & Tessler, 1972	Transplant donor	0.77
Thomas, 1975b	Off Peak Bus Patronage	0.77
Bowman, Fishbein et al, 1978	Voting behaviour in a nuclear power referendum	0.92

Bright & Stammers (1971); Cowling (1971, 1972, 1973); Wilson, Mathews & Monoky (1972); Glassman (1970); Bonfield (1972/1974); Harrell (1972); Lutz (1973); Weddle & Eettman (1973); Resnik (1974); Ryan (1974); Ryan & Bonfield (1975);

Durand (1975); Wilson, Mathews & Harvey (1975); Thomas & Tuck (1975); Thomas (1975); Ahtola (1975); Milord & Perry (1976); Bhagat, Raju & Sheth (1979).

In this section extensions to the model refer to those developed by Fishbein himself and by other workers and also to the addition of variables e.g. situational variables e.g. Wicker (1969), Songer (1973), etc.

Despite the number of studies listed, there has been considerable variability in the results achieved with Fishbein's model(s) in the marketing context; regression coefficients ranging from poor to acceptable. This can be briefly illustrated by the work of one worker in this field (Table 2(iii)).

TABLE 2(iii)  
RESULTS OF FISHBEIN ANALYSES (Cowling, 1971)

	$\Sigma b_{i,a_i}$	$\Sigma SNB_{j,mc_j}$	Multiple Correlation
1. Buying an alcoholic drink	.17	.10	.23
2. Buying a health food	.46	.28	.56
3. Prescribing a drug	.36	.60	.61
4. Pursuing a leisure activity	.49	-	.49
5. Response to ad approach	.42	.20	.50
6. Purchasing a luxury product	.08	.04	.10

The main reasons for this variability were outlined in Chapter 1 (covering constraints relating to research approaches and techniques used, time and money) and this determined the way the present research project was set up. The marketing value of many of these studies is also limited by the fact that the criterion variable often used is behavioural intention and not behaviour.

### 2.3. LINEAR ADDITIVE MODELS

So far the discussion has concentrated on one of these models, that developed by Fishbein. Linear Additive Models should perhaps be regarded as a class of model rather than as a single model. Pessemier and Wilkie (1973) describe 42 variants of the model, each of which has its own

distinctive features. In Europe, the best known version of this type of model is the St. James model (Hendrickson 1967,1970,1972) and this has often been incorporated into market segmentation studies to assess the importance of beliefs in relation to an ideal brand. Fishbein's model and St. James' have generated much heated debate (McDonald 1970; Twyman, 1972, etc). The main questions that have arisen according to Westwood, Lunn and Beazley (1974b) are -

1. Is the linear additive format itself correct in terms of the cognitive processes involved?
2. Should the researcher ascertain how important the respondent feels an aspect of a product is or alternatively how much he likes it?
3. Should a direct or indirect measure of importance (or evaluation) of the attribute be used?
4. Should the concept of the ideal brand (or ideal point e.g. Lehmann, 1971) be incorporated into the model or not?

These questions will be discussed in Chapter 4, in the concluding section of this chapter and again in the final chapter (Chapter 7). They are important questions when considering the marketing application of these models.

## 2.4. COMPETING THEORIES USED IN THE UK IN THE 1960's AND 1970's

### 2.4.1. Introduction

Sampson and Harris (1970) pointed out that 'looking retrospectively at the field of marketing research in the 1960's, the concept of attitude was both distinctive and indispensable.' However, there were problems in eliciting attitudes, measuring attitudes and interpreting results. Two problems in particular stood out

- the inability to relate attitudes to subsequent behaviour
- to influence and measure attitude change

and both of these are crucial if marketing research is to be used meaningfully in marketing strategy because the goal of marketing communication, it can be argued, is to persuade the consumer to take a particular action. This persuasion often takes the form of an attempt to change attitudes. It would be useless if behaviour change did not follow attitude change; although it has been demonstrated that behaviour change can precede attitude change. The understanding of such basic cognitive relationships is a necessary foundation for the more complex interrelationships involved in consumer buying behaviour, some of which will be examined in the

context of competing theory.

For the marketing manager attitude has also fulfilled three functions during this period. Lunn (1971a) stated that they were predictive, diagnostic and surrogate functions.

- The predictive function enables the manager to predict sales, etc of his product in the short run based on consumer attitudes or preferences. This has been the traditional focus of attitude research in marketing and it is in attempting to fulfill this function that the controversy surrounding the attitude-behaviour relationship has arisen. In some cases, variables which are more easily understood and measured than attitude, e.g. age, social class, etc. have been used instead.
- The diagnostic function provides some explanation of why a product performs in the market. This function rests firmly on the assumption that there is a relationship between attitudes and behaviour: ie information received by the consumer through advertising for example, is translated into purchase behaviour through some cognitive process and attitude is an important stage in this process.
- The surrogate function, regards attitude as a variable which intervenes between external information and subsequent purchase behaviour. Attitude measurement provides a surrogate measure of sales, where manipulations of the marketing mix cannot be measured directly in sales change. The proposed change in the marketing variable can be tested in the behavioural laboratory and it has been most frequently used in this sense when attempts have been made to measure advertising effectiveness.

Models used by marketing researchers have concentrated on one or other of these functions of attitude; Fishbein's model has been essentially a predictive model. These points will be taken up again in the concluding section of this chapter.

#### 2.4.2. Buyer Behaviour Theory

The need for theory in marketing to explain choice behaviour was stressed by Lunn (1970, 1971a) and he has described buyer behaviour theory under three approaches - the empirical approach, the a priori and the eclectic approach.

##### The Empirical Approach

The main exponent of this approach in the UK is Ehrenberg (1969, 1972, 1974, 1977). His starting point was extensive panel data relating to fast moving consumer goods. He was particularly interested in stationary markets, where little or no change occurs in the total market size over successive time periods. He has attempted to derive laws from the

the patterns and regularities which can be observed in this data. He has succeeded, in so far as he can predict, the number of repeat buyers and average number of purchases of any brand which are to be expected in a given time period, if nothing has happened to the 'stationary' market. This gives a useful benchmark, against which to assess the effects of advertising, promotions, seasonal trends, etc.

This work has had considerable influence on marketing thinking about repeat purchase and in much, unpublished, consultancy work, detailed marketing applications have been worked out. One of these, on evaluating a consumer deal, was published in *Admap* by Goodhardt and Ehrenberg (1969). The work has also been applied in a very interesting way to advertising (Ehrenberg, 1974). But much more work is required to understand the reasons for the purchasing patterns which have been found.

Another expression of the empirical approach in the 1960's and 1970's in the UK was the extensive work undertaken by many workers (Sampson, 1971; Lunn, 1971b, 1971c; Falconer, 1981; etc) applying multivariate techniques (like principal component and factor analysis, cluster analysis, multiple regression analysis, discriminant analysis, canonical analysis, etc) to market research data. The applications of these techniques were often conducted within the context of market segmentation studies and researchers had to work out a rationale for the application of the various multivariate techniques to their data.

All this work led to considerable debate, and as was pointed out above, not least in relation to one of the major problems researchers had encountered: how to assess the importance of beliefs (Chapter 3). Fishbein had emphasized saliency, others emphasized importance (Wilkie & Pessemier, 1973; Hendrickson, 1967, 1972). Different types of importance models were developed and applied more frequently in the UK. The threshold and the trade-off models (conjoint analysis) are the most interesting examples. Much of this work was done by Westwood (Esomar, 1973), Westwood, Lunn and Beazley (1974a, 1974b) and Lunn (1981). In the States there were also researchers working on these problems, for example Green and Wind (1975).

A parallel development took place at this time relating to the presentation of data by mapping and some of the details of this work are given by Sampson (1980).

The work with multivariate techniques lead to some further interesting developments: developments in market modelling and simulation. Rather than apply 'ready made theories' (reviewed by Day, 1972) of the linear

additive type for example, this new approach relied on the investigation of the structure of a particular market, attempting to understand its dynamics and simulating future behaviour in it. Market models and simulation exercises began to appear frequently in the market research literature (Marchant, 1972; Palmer, 1971, 1973; Palmer and Faivre, 1973; Sampson, 1974; Westwood, Lunn and Beazley, 1974b; Westwood, 1974; Lunn and Blackstone, 1978; Barjanski and Faivre, 1979). This approach relies upon information theory and it too has not been without its problems.

#### The A Priori Approach

This approach relies on harnessing the knowledge and insights gained by researchers, working on the problems of understanding and predicting consumer behaviour. Most of these researchers work in the behavioural sciences and that contributions have come from many disciplines is obvious from such review articles, as provided by Slovic, Fischhoff and Lichtenstein (1977). Psychology has offered many theories: for example, Freud's work has been applied in motivational research; Gestalt psychology and Festinger's theory of cognitive dissonance have found application in advertising. For a review of the psychological theories used in advertising see Kennedy & Corkindale (1976). Fishbein's contribution clearly belongs under this approach.

Many of the concepts that marketing researchers have adopted are still somewhat experimental, were developed in laboratory situations and not in the market place and their explanatory or predictive power has usually been exaggerated. In many instances, they have been presented as opposing theories, rather than as alternative explanations of the same phenomena. This point will again be taken up in the concluding section of this chapter.

#### The Eclectic Approach

This approach tries to integrate consumer behaviour theories (emanating from psychology, sociology, economics, etc) with what is known from actual market data. 'Its strength,' says Lunn (1971), 'lies in the comprehensiveness of its perspective.....There is...a danger...of having too many variables and interrelationships.' This comment echoes the feelings of many marketing researchers when examining these models.

The first major attempt in this field was made by Nicosia (1966). He identified four major variables which mostly account for the decision process (B- the buying of a brand; M- motivation; A- attitude and C- communication sent by the business firm). He incorporated these into four major linear equations, which could be simulated by computer. There

were further elaborations to this work, but essentially it was too naive a representation of the processes involved. Yet it has proven to be a valuable pioneering contribution in this field.

Engel, Blackwell & Kollat (1978) also produced their theory in terms of a complex flow chart, which also includes post-purchase behaviour. The decision processes involved are represented as being highly rational and the approach lacks a detailed discussion of how the model and its variables are to be applied in a practical marketing situation.

The most interesting and ambitious of the 'big' theories is that produced by Howard and Sheth (1969). This has been much updated, even incorporating now some of the thinking which can be traced to Fishbein (see Engel, Blackwell & Kollat, 1978). It has proven very useful in indicating to researchers and marketing people the complexity of buyer behaviour and stating some of the major variables and processes involved in buying decisions. Many attempts have been made to test the model (e.g. Columbia Buyer Behaviour panel projects). However, as Farley and Ring (1970) pointed out, this model too suffers from the same major deficiency as the Engel, Blackwell and Kollat model suffers from - the measuring instruments to be used in actual applications of the model have not been well enough developed. The model has also proven useful in stimulating new research in the area of attitude-behaviour relationships (Sheth, 1970) and family decision processes (Sheth, 1970b).

These are the main eclectic models, there are others. Although they all have been developed and tested over time, they have proven too complex to apply well in practical marketing research - but they have influenced thought and stimulated useful research into decision processes.

## 2.5. CONCLUSIONS AND FUTURE DEVELOPMENTS

The review provided above indicates that marketing researchers in the UK have approached the problems of describing, explaining and predicting buyer behaviour from many different points of view and with the help of many different theories. Much of lasting value has been learned from this; but the most important conclusion that has probably been reached by many researchers, with the help of the perspective gained over a number of years, is that each approach provides only a partial explanation of the marketing phenomena involved. Each theory illuminates only certain elements of it. McGuire in a review article in 1970, came to a similar conclusion in relation to the ability of psychological theories to explain psychological phenomena.

Fishbein's major contribution to the work of marketing research has been in terms of

- (i) defining 'attitude' in an operational sense
- (ii) setting up the concept of salience
- (iii) establishing a predictive model of choice behaviour.

There are problems even with his Aact model and in detail these will be dealt with in the last chapter of this thesis. In overall terms they relate to

- the application of the model to an area (marketing) for which it was not developed and
- to the formulation of the model and associated methods of implementation.

In terms of the applicability of the model to marketing, the major problem (Chapter 4) lies in the relationship between behavioural intention and behaviour. In a laboratory situation the two are usually very close in time and in social-psychological experiments motivation can also be very high. In marketing, there are many intervening variables (Songer, 1973; Wicker, 1969, etc) which blur this relationship. For marketing it is also important to remember that the Fishbein model is essentially a predictive model and that its linear nature and 'arithmetic' (multiplication and addition of beliefs, etc) do not really represent the cognitive processes involved; it therefore provides little explanation.

The other main theories reviewed here, market models and simulation studies have promised much to the marketing man and delivered less. In the case of the former, this is largely because it has been difficult to work out the operational implications of the models, perhaps because they were so complex. This problem also applies to the latter, as Sheth (1976) commented 'both management and model builders should lower their aspirations...shift the emphasis from building optimisation to building problem input models.' The more successful applications of models are those where objectives have been deliberately restricted (Lunn and Morgan, 1981, using the trade-off model for studying pricing problems).

In the future progress is most likely to be made by

1. a questioning approach to all our working assumptions and by attempting to test them in a rigorous fashion. For example, questioning the definitions of attitude, the assumption that there is a relationship between attitude and behaviour, etc.

2. Developing 'theoretical approaches' and testing them so that they can be falsified in the sort of way outlined for the development of good

theory by Popper (1972).

3. Establishing methods to test how all the elements interrelate in a given theory and that they are a true representation of the cognitive processes involved. In the search for better prediction, many models use what is mathematically convenient but how is information processed? Is it linear and additive (e.g.  $\sum b_i a_i$ ), does it depend on decision protocols (Bettman, 1970) or are the rules put forward by Einhorn (1970) or Russ (1971) nearer the truth, or does the process work differently altogether?

4. Researchers should not work solely within the confines of a particular theory and become prisoners of it, just looking for arguments to defend it. But instead they should take the most appropriate elements of various theories and relate them to a particular marketing problem. One approach could be to look at real buying data, like Ehrenberg did, derive laws and then go further and try to 'fit explanations' of why buying behaviour takes this particular form. Or test a particular theory against real buyer data and see if it 'fits.' Whichever of the two approaches proves right, it does seem important to relate the two; and to do this with the useful developmental work done by practicing marketing researchers. In this way it might be possible to end up with a good theory which would

- describe a particular market
- explain what is going on
- and predict future developments in it.

5. This would then make it possible for marketing men not only to be working with assumptions such as that attitudes are in some way important, but they would better understand what they are, how attitude and behaviour change are related and how marketing variables can be manipulated. Marchant (1972) for example, indicated that the approach used in his choice model 'implies a real shift in emphasis in the way in which attitude studies are approached. The aim becomes to investigate how products compete for their franchise rather than with how the average evaluation of products can be lifted. The implications for a more realistic approach to brand and market management are very exciting.' This line of enquiry should be more rigorously and widely tested.

6. As implied, future work must be based on marketing reality - it must understand and take account of the nature of brand competition, it must look at repertoires of brand choice and not single brand choice, if the former operates in the market and it must take account of the

risk involved in choice behaviour (Tuck, 1971), etc.

7. It is also necessary to look hard at the actual measuring instruments used - the research is no better than the answers which respondents provide. Marchant (1972) proposes to use simple rank correlation techniques. This, for example, reduces the amount of work the respondent has to do and with it the likelihood of the respondent providing stereotyped answers as fatigue sets in. The lengthy ratings required by a Fishbein study could run such a risk. Another technique, which makes fewer demands on the respondent than ratings might make, is the association grid. This will be discussed in a later chapter. These alternative approaches should all be investigated more fully, as they would aid practicing marketing researchers very much indeed.

In relation to some of the questions raised in this chapter important developmental work has been done, but much more is required. With systematic research effort improvements should be possible in the future.

## CHAPTER 3

### ELICITATION OF INPUT DATA

#### 3.1. INTRODUCTION

The first part of this chapter reviews the techniques available for eliciting or obtaining the attitude dimensions etc. to be applied in research, both in the social sciences and marketing. The second part of this chapter presents the elicitation data for this research.

When eliciting variables for marketing studies several points need to be considered. The variables should be

- (i) relevant for the consumers in a particular market;
- (ii) specific to the behaviour to be studied;
- (iii) expressed in the consumers' own language and
- (iv) made into appropriate measuring instruments.

If these points are covered in marketing studies, it will increase the chance to predict, explain and ultimately influence marketing behaviour.

In the 1960's marketing researchers working on both sides of the Atlantic, often found a lack of correlation between attitudes and behaviour. They realised that a critical factor for improving behaviour predictability was the quality of the input data (Sampson 1977, 1980; Myers and Alpert, 1968). It had become so obvious 'that garbage in is garbage out.' High quality input data was clearly important because attitude data was being widely applied to marketing problems in the UK, as Lunn (1969) pointed out, e.g. especially in

- (i) the identification of target groups in market segmentation (e.g. Skelly and Nelson, 1966);
- (ii) brand image research and in
- (iii) defining market structures (e.g. Golby, 1968 and Stefflre, 1968) according to consumer perceptions.

In the USA also a great deal of attitude research was carried out and according to Klippel (1971) it took the following three forms -

- (i) 'Research concerned with predicting buyer purchase or buyer choice behavior based on knowledge of relevant attitudes and/or their component elements' (e.g. Sheth, 1970).
- (ii) 'Research concerned with predicting brand preference or brand appeal based on the knowledge of relevant attitudes and/or their component elements' (e.g. Bass, Feb. 1972).
- (iii) 'Research concerned with predicting change in brand preference or brand appeal based on a knowledge of change in relevant attitudes and/or their component elements' (e.g. Bither & Miller,

### 3.2. TECHNIQUES FOR ELICITATION

To obtain the best input data, it almost invariably meant that researchers undertook two-stage research designs: first, for elicitation and second, for the marketing study. Some exceptions to this are to be found in the literature.

Many techniques have been used for elicitation and the most important ones are reviewed below viz. subjective judgement, existing research/literature review, group discussions/extended interviews, experimental techniques (Nolan), elicitation of salient beliefs and information processing.

#### 3.2.1. Subjective Judgement

Researchers or their clients (e.g marketing people) may feel that they know their market and produce a list of what they believe to be the relevant attitude dimensions in their market. However, intuition and experience alone cannot be enough. This approach is no doubt a good reflection of their own perceptions of the market, but it may have little to do with the way consumers see it.

#### 3.2.2. Existing Research/Literature Review

The quality of existing research clearly depends on how well it was conducted; while literature reviews have been used especially by academics with limited funds to conduct their own research (e.g. Klippel, 1971).

#### 3.2.3. Group Discussions/Extended Interviews

Group discussions and extended interviews (also known as depth interviews) are the two major techniques used in marketing studies in the UK to elicit attitude material. As techniques they have been described extensively (e.g. Sampson 1967, 1969, 1978; Mostyn 1977, 1978). The group discussion technique may be used on its own, or brainstorming and synectics may be applied as well within a group context. Similarly extended interviews may be used on their own or projective techniques may be introduced (e.g. Sampson, 1967) or Kelly's repertory grids (Kelly, 1953; Frost and Braine, 1967; Sampson, 1970). The repertory grid technique can be applied in an interview situation other than that of an extended interview, but as Lunn pointed out in 1969: 'It is, however, best administered within the context of an extended interview, where responses are probed by free association.' In this kind of interview the respondent can explain in what ways any two products are the same and different from the third in the triad. The essence of the repertory grid technique is the presentation of all brand

or product stimuli in triads' until the respondent has entirely exhausted his or her repertoire of constructs relating to the field... Respondents normally provide between ten and thirty responses and the average response level is about eighteen constructs per interview' (Frost and Braine, 1967). Variations in triads can also be used e.g. keeping one element fixed (e.g. abc, abd, abe, etc) or even using pairs; but these variations have not been frequently used in marketing research. For e.g. Durand (1975) applied a modification of Kelly's technique developed by Bieri, in a Fishbein study.

Whether the material is produced by the basic group discussion or extended interview or with the help of additional techniques (like synectics to raise the creative content), the end result is a wealth of material which is of a qualitative nature only (ie most of the dimensions elicited may have been mentioned by only a handful of people and some by only one). Also there is the danger, especially in a group situation, that dimensions which are socially less acceptable, are suppressed, or that socially acceptable words are used to describe them. Also in groups respondents may have ideas put into their heads by other members or not be allowed sufficient time to produce all their dimensions, causing further distortion. The extended interview (like the Kelly technique) may give the respondent too much time so that dimensions are invented or their importance exaggerated. Another problem encountered in the interview situation itself, is the language which respondents can command. When they have said 'it smells nice' that may be all they can say about smell; for other dimensions there may be a large number of synonyms. If factor analysed, such data would give a one item factor for smell, compared with factors consisting of several items for the other dimensions. These subjective elements in the interview situation can be minimised somewhat by the moderator using indirect techniques. Yet as Sampson (1978) pointed out, this does not apply to Kelly grids 'with the Kelly grid the interview situation resembles more a test than an interview.'

All the material obtained from groups discussions or extended interviews must be carefully analysed (see section 3.3.), which may introduce further subjective elements into the material by the researcher. For example, Kelly grids require a considerable amount of editing because they produce responses which

- tend to be too descriptive or irrelevant (e.g. I don't like these two; I like that one);
- are not true constructs. According to Kelly a response 'Is liked

' by children - is not liked by children' is not a proper construct, whereas 'Is liked by children - is liked by adults' is a construct. Each individual's grids have to be sorted, classified and listed with those of other consumers. This all increases the problems of subjectivity and distortion creeping into the data. Many researchers, including the present writer, who have worked with Kelly material would echo Sampson's (1978) conclusions: 'As far as scale item construction is concerned, the repertory grid has been criticised for 'dredging up' irrelevant and non-salient dimensionality, making further refining essential.' For this reason and others given by Cowling (1973 e.g. the Kelly technique 'for many respondents is not a meaningful and relevant task; it is not the way they usually consider and make judgements between brands...it can produce constructs which are not relevant to the choice decision, but simply relevant to discriminating between three objects presented.') The use of Kelly triads has been largely superseded by the Elicitation Interview.

#### 3.2.4. Experimental Techniques (Nolan)

In his 1971 paper, Nolan reviewed the situation in the UK. He experimented with five item elicitation techniques:

- (i) 'Free Association.' For each brand, respondents were asked: 'Can you tell me what comes into your mind when you think of..? Anything at all just anything that comes into your head..? Anything else?'
- (ii) 'Evaluative.' This method was based on the 'consumer-orientated grid' reported by Haymes and Bickers (1970). Respondents were asked what they liked about each product, and then what they disliked about each product.
- (iii) 'One Versus the Rest.' Each brand was dealt with one at a time as in method (ii) but on this occasion respondents were asked how it differed from the other brands which made up the set. Follow-up questions asked how it was better and how it was worse than the other brands.
- (iv) 'Repertory Grids.' Respondents were shown a set of three brands and asked 'Can you tell me a way in which two of the brands are like each other, but different from the third?' This continued with different triads being shown according to a pre-determined random order with respondents being asked to produce for each triad a 'construct' they had not previously mentioned, until they were unable to do so for three consecutive triads.

(v) 'Paired Comparisons.' This method had some similarity to the repertory grid approach, but differed from it in that respondents were shown pairs of brands rather than triads, and were asked for each pair not for one 'construct' but for as many ways as they could think of in which the two differed. When no new dimensions were forthcoming on one pair, another was presented, up to a maximum of six. Nolan points out that pilot work had shown that beyond this point hardly any new dimensions were likely to be produced. Pairs were presented in a predetermined random order.

Nolan applied his experiment to two product fields and obtained most items from the 'one versus the rest method:'

	BOTTLED SAUCES	TOOTH- PASTE
Number of dimensions elicited by:		
10 'Free Association' Interviews	24	19
10 'Evaluative' Interviews	26	19
10 'One Versus the Rest' Interviews	29	21
10 'Repertory Grid' Interviews	19	20

He further examined the yield of each technique in terms of the meaning of the dimensions he elicited. Subsequently Cowling (1973) pointed out that Nolan's techniques, like those of most researchers at the time, produced dimensions relating to the product ('the Object') and not to behaviour ('the purchase or usage decision'). Nor did he feel that the number of items elicited need be the best measure of success, but the relevance of the items. This will be discussed further when we look at Cowling's work.

### 3.2.5. Elicitation of Salient Beliefs

In the early 1970's elicitation work in marketing studies developed in a new direction. This was due to the work of researchers active in the US. Alpert (1971) and Myers (1968), worked on the identification of determinant attributes. Alpert wrote: 'Those attributes projected by the product's image which lead to the choice of that product may be called determinant, since they determine preference and purchase behaviour.' As a concept this is clearly akin to saliency. He experimented with different research methods to obtain determinant attributes and suggested that 'direct questioning' might be the most effective method. Although his results related to students with one product and could therefore not be

generalized, he pointed the way for comparing possible methods for identifying determinant attributes.

Although, other workers (like Nolan above) had been experimenting with elicitation, the most interesting work was undertaken by Fishbein and his co-workers. Recalling his formula, as used in this research, we need to note two points:

$$B \sim BI = w_0 \left[ \underset{\substack{| \\ \sum b_i a_i}}{Aact} \right] + w_1 \left[ \underset{\substack{| \\ \sum SNBmc}}{NB} \right]$$

- (i) Elicitation is required for attitudinal ( $b_i$ ) as well as for normative beliefs (SNB). As Sampson (1980) pointed out 'Fishbein had drawn attention to two different types or components of attitude. They were (descriptive) beliefs ( $b_i$ ) and (affective) evaluations ( $a_i$ ). The former are statements about what an object (or behaviour, present author) is held to be; the latter represent the degree to which descriptors of objects are regarded as good or bad.' Normative beliefs represent 'relevant Others' who can influence our decisions. A review of the literature suggests that several 'relevant Others' may frequently be involved in a given situation.
- (ii) Sampson (1980) continues 'Fishbein's other major contribution was to focus on saliency. Previously it was commonly assumed that all product attributes/attitude scale items were relevant for all respondents, although their relative 'importances' might differ.'

The problem then became how to translate this into a marketing context and work out a detailed methodology for elicitation. This first required an understanding of Fishbein's formulation and the concepts behind it. There are eight important points to be considered-

- (i) For all elements of the formula, the focus in elicitation has to be on the purchase 'act' and not on the 'object' (brand or product). This is because we are trying to predict purchase intention and ultimately purchase behaviour and 'within our conceptual framework', Fishbein (1975) states, 'we assume that behavioral intentions are the immediate determinants of the corresponding overt behaviors' (ie purchase).
- (ii) The focus must be identical for all elements of the formula, or

at the same level of 'specificity' or correspondence. As Tuck (1976) says: 'this point is of particular importance to marketing. Overall attitudes to 'beer' will not necessarily have any relationship to the behaviour of 'ordering a Double Diamond in the pub on the corner when I go out for a drink tonight'.... Fishbein's theory can deal with both sorts of intentions; but only if all subsidiary measures are taken at precisely the same level of specificity as the behaviour it is wished to predict... This is extremely important in the application of the theory and can often be overlooked.' Indeed it must be one of the first problems to be sorted out in any survey because elicitation has to be related to the appropriate specific behaviour. This may not be an easy problem and may require some exploratory work as Keenan (1976) found. Quoting from Tuck (1976) Keenan's elicitation questionnaire was as follows:

1. 'Can you tell me what you think about joining the WRAC? Just any ideas or views you have about joining the WRAC?
2. What do you think about making the WRAC your career?
3. Do you know anyone who thought you should join the WRAC?
4. Do you know anyone who thought you should not?'

Tuck continues 'Some explanation of the above questionnaire is needed. I have stressed that beliefs, attitudes etc. should be measured on precisely the same level of specificity as the behaviour one wishes to predict. Why, then, did the questionnaire ask about 'joining the WRAC' and 'making the WRAC your career' when the action it was wished to predict was 'leaving the WRAC'? The reason shows the hazards of applied research.' The sponsors of the research (the Womens' Royal Army Corps) felt that it would not be right to ask girls who had just joined the Army to consider 'leaving the Army.' They were not willing to allow the question 'what do you think about leaving the Army?' to be asked. After some pilot work Keenan found that the actions of 'leaving the Army' or 'joining the Army' were very close within the first six weeks of entrance to the Army. She therefore decided to specify the behaviour in which she was interested as 'joining the Army' or 'not joining the Army'. However, she was not entirely sure that this would be the best wording, so a second concept 'making the WRAC your career' was included to see if this elicited a different set of salient beliefs, or if the set of salient beliefs

it elicited would differ over time. As Tuck says, 'Keenan's procedure here is a good example of how a researcher cannot always proceed by rule of thumb... The essentials are to elicit beliefs about the act to which one is later going to measure attitudes and monitor behaviour, and to elicit on the same level of specificity throughout any study.'

- (iii) As mentioned previously both the attitudinal and the normative beliefs have to be elicited to be salient to the 'act.'
- Fishbein defines a salient belief as one that is a primary determinant of attitude. As Fishbein (Esomar, 1971) says, 'if we really wish to know the determinants of attitude we have to know the person's salient beliefs...Saliency refers to the fact that the respondent is aware of or conscious of the attribute, that it is on the 'tip of his tongue.' In other words, it has a high probability of being elicited by the respondent. Notice this is similar to what is meant by belief strength. That is, the strength of a belief refers to the strength of the association between the product and the attribute. If something has a high probability of being elicited, there is a strong relationship. The problem is that not all 'strong' beliefs are salient. More specifically, if I consider only the first five to nine responses a person makes, there is almost perfect correlation between the order in which these responses are elicited and some independent measure of the strength of these beliefs. However, a person may hold other 'strong' beliefs which are not salient. For example, I may strongly agree with the statement that 'Brand X is nutritious' even though I don't normally think 'nutritious' when I think about Brand X. Thus, belief strength per se will not serve as an indicant of salience.'

There are several important points in this quote:

- one, an indication that salience is quite a complex concept;
- two, that there is probably a hierarchy of beliefs from the least to the most accessible for retrieval and the latter are more likely to be the salient beliefs;
- three, that salient beliefs are likely to be found within the first five to nine to be elicited and
- four, that belief strength is not necessarily an indicant of salience. This point is very important because

it means that salience is something other than a measure of importance and that belief strength cannot be an external criteria for validating whether a given set of beliefs are salient or not. This argument will be further explored later in this chapter.

Point three above, relates to research done on attention span and information processing by Miller (1956) and others. This suggests that an individual is only able to process 'seven, plus or minus two' items at a given time. On the basis of this it has been argued that at a given time no more than 9 beliefs determine a person's attitude; or at least a smaller rather than a larger number.

- (iv) Fishbein further argued at Esomar (1971) that salient beliefs should be elicited in a 'free-response format' by which he meant 'asking the subject to describe the attitude object..he could be asked to list 'the characteristics qualified, and attributes (Zajonc, 1954) of an object...or he could be asked to list the consequences of performing some behaviour.' He also felt that elicitation should probably stop after the first 5-9 items, on the assumption that any further items might not be salient. He had to admit that 'recommending the use of the first five to nine items is .. merely a rule of thumb', as it is impossible to determine when salient beliefs stop and non-salient beliefs are produced. The problem is further complicated by the fact that the elicitation procedure itself may elicit a dormant belief which now becomes salient. As working methods Fishbein suggests using:
- the first few (5-9) beliefs of an individual, or in the case of a sample the use of
  - 'modal salient beliefs' which could be
    - the 10 - 12 most frequently mentioned beliefs,
    - those beliefs which exceed a certain frequency,
    - or use as many beliefs as necessary to account for a certain percentage of all beliefs.
- (v) At the Madrid Esomar seminar (1971) the problems of obtaining an operational definition of saliency and the correct phrasing for the elicitation questions in marketing research were examined in further depth by marketing researchers. Tuck stated that 'for purposes of mass survey work...it is necessary to establish...

'modal salient beliefs' ie those beliefs which are most frequently present, across time and across different people, for any given attitude object.' She continues 'for most attitude objects, to which a great number of people relate, there is surprisingly little difficulty in establishing modal salient beliefs which account for at least sixty per cent of all beliefs elicited.' The Horlicks study presented by Bruce (1971) at the seminar, used as its elicitation technique free response to the simple question 'can you tell me anything that comes into your mind when thinking about drinking Horlicks?' This simple question seems to have worked, for the answers produced differences between user groups which were acceptable to those with experience of this market. Fishbein's own comments relating to saliency at the seminar made the following points:

- there is no known way of obtaining salient beliefs apart from direct elicitation;
- he prefers a simple elicitation procedure; both Kelly Grids and group discussions can make things salient that may not have been salient before as well as reveal non-salient items.

Cowling in 1973<sup>b</sup> addressed himself to the problem of the correct phrasing of elicitation questions in marketing studies. He called his method 'Elicitation Procedure' and it took the following format: 'Brief check questions are asked to ensure the respondent falls within the target group, and to determine that she is a buyer of the relevant product/brand. Then she is encouraged to put herself into the situation of buying that brand (ideally this should be done as near to the purchase decision as possible, and if possible the question should be asked at the buying point). Next he/she is asked a series of non-directive questions, such as:

- Q. What comes into mind when you think about buying...?
- Q. When I say to you buying...what does it make you think of?
- Q. Is there anyone you know who might like or dislike you to buy...?'

In the light of experience this has been amended by Cowling and he claims five basic advantages for the technique:

1. 'For similar expenditures, one can obtain quantitative assessment of the proportion of consumers for whom the attribute is relevant, ie it allows more objective decisions on what attributes to validate.
2. It concentrates on the purchase or the usage decision rather

than overall brand image; hence the attributes elicited are likely to be those relevant to the reasons for choosing the product or brand. We believe this reduces the risk of including irrelevant attributes in the validation questionnaire.

3. It avoids the problem of asking respondents what is important to them - and so hopefully minimises the elicitation of attributes to 'justify' or 'rationalise' purchase behaviour.

4. It gives assessment of the importance of brand image to the buyers, ie is the purchaser's attitude towards the brand particularly important to the decision, or is it influenced by social normative factors (ie the perceived attitudes of other people)?

5. It yields differences between brands even at the preliminary stage. It has done this in markets, where quantitative techniques have failed, suggesting it is a more subtle method of eliciting brand choice factors.'

Tuck summarised the position reached in 1976: 'Salience is given a precise operational definition. Salient beliefs are the first beliefs which a respondent produces in answer to an open-ended question such as 'Tell me what you think about (the act in question).' The respondent is thought of as being his own best reporter on what beliefs are important to him, or what beliefs he ought to take into account in a given decision. He is simply asked to list the first beliefs and associations that come to mind about a given act, in a 'top-of-the-head' unconsidered way.' She illustrates this from Keenan's (1976) study: 'But for survey research purposes we cannot easily deal with a set of widely differing individual salient beliefs. Hence it is usually necessary to see if there is a set of 'modal salient beliefs', ie salient beliefs common to all likely respondents. This is done by administering and analysing an 'elicitation questionnaire' to a population similar in structure to the population on which the research proper is to be carried out.'

The problems associated with the sample to be used for elicitation research pointed out by Tuck will be returned to below.

(vi) It is clear from the above that Fishbein and those concerned with marketing studies (Cowling, Tuck, etc) favour the use of modal salient beliefs. This method of analysis has also been employed in social research studies (e.g. Keenan, 1976; Ryan, 1974; Hackman and Anderson, 1969). The basic premise underlying this

technique is consistent with the argument presented by Mitchell (1971) that the appropriate unit for analysis for determining needs and wants of groups are those individuals comprising the groups in question. This implies a certain amount of homogeneity in the groups and in marketing terms this means individual usership groups have to be examined. This was done by Bruce, for example, in his Horlicks study (Esomar, 1971). This is clearly in line with marketing thinking as brands or products are marketed to groups and not individuals.

- (vii) However, others (Towriss, 1979; Durand, 1975; Wilkie and Weinreich, 1972; Bass, Pessemier and Lehmann, 1972; Hansen, 1969) have argued for the use of the salient beliefs of individuals, even within a marketing context. Wilkie and Weinreich (1972) tested two situations; one, where both the type and the number of attributes was permitted to differ from respondent to respondent and two, where both type and number were the same for all individuals. They inferred that the two approaches could make a difference in terms of cost, predictive efficiency, diagnosis of attitudinal structure and perhaps the assessment of saliency. And reviewing the wider research evidence to date, they conclude 'complex problems remain... in the sense that hard theory on attributes in the consumer context is incomplete. Empirical potential is limited because of the necessity of trading off theoretical gains (e.g. allowing for individual differences through removal of structure in measuring instruments and/or allowing differing number and types of attribute inclusion in the model) against practical losses (e.g. difficulties in coding and assembling data and/or summarising the results). In addition, all results and conclusions with the (Fishbein-type, present author) model are interdependent. Empirical study of issues such as salience or number of attributes are forced to rely upon predictive tests which assume control of all other issues of the model. As these other issues are discussed it should become apparent that theoretical development is preferable.'
- (viii) Most of the academic research using the Fishbein model has probably been carried out on relatively homogeneous groups like students. This reason, plus the high interest of most of the subject matter to the individuals concerned, are probably

two major reasons, according to some workers in the field (e.g. Sampson and Harris, 1970), why the model has worked well in this context. In marketing studies the use of relatively homogeneous samples and subgroups should help towards greater internal consistency and overcome some of the problems which users of individual salient beliefs have seen. Moreover, whilst consideration of brands may not always be a high interest area to consumers, advertising does produce a certain amount of stereotyping of beliefs and this may make the use of modal salient beliefs much less of a problem. As Tuck (1976) points out: 'It is worth mentioning here that if an elicitation study does not throw up a clearly dominant set of modal salient beliefs, then further studies must be carried out before continuing to Stage II. The usual cut-off point taken is that the beliefs selected for the final questionnaire must account for at least sixty per cent of all recorded responses. If this is not happening, the spread of 'individual salients' is so wide and idiosyncratic that the topic is not suited to survey research techniques without further breakdown into sub-samples with more similar salients. In research on the usage of any advertised product, salient beliefs are almost always more stereotyped than on research into non-advertised products. Usually five to seven modal beliefs will account for seventy per cent of all recorded responses. Advertising in all probability works through controlling respondents salient beliefs about using a product.'

### 3.2.6. Information Processing

Bettman (1970, 1979), Palmer (1973) and Palmer and Faivre (1973), Palmer and Sampson (1972) and others have investigated an information processing approach to consumer behaviour. McGuire (1970) in a review article on 'The guiding theories behind attitude change research' described this as 'a theory for the 1970's.' These researchers use the words 'decision protocols' instead of elicitation. Bettman (1979), after reviewing a number of familiar techniques used in the decision protocol interview (including observation by video, following by detailed 'why' questioning), stipulated only that 'it would seem that the processing required by the questioning method should be maximally congruent with the processing used by consumers in the actual choice task one wishes to study.' Palmer and Faivre (1973) explain that (a) the individual is the

unit of analysis at this stage and only later on may data from similar individuals be aggregated; and (b) 'a functional approach will focus on the limited set of variables that are relevant to the particular behaviour under study.' These would represent a basic, essential list to be separated from elaborations based on such a list: 'For example, one may be asked the extent to which 'Harold Wilson is kind to his family' - but nobody really knows whether Harold Wilson is kind to his family or not. Our attitude to this statement will be derived from what we associate with the term Harold Wilson. Such attitude is constructed from essential list elements which we would do better to measure directly.' Similarly, these researchers suggest that highly evaluative attitude items (e.g. good taste) represent a processing of such basic list information and that information processing theory could help distinguish between basic and processed items. However, it is clear that data input methodology is still being developed (e.g. Sampson, 1980) and that many different methods are being used. As Palmer (1973) states: 'I sometime use a free response technique which simply asks the respondent to describe the brand to me. However, too many respondents appear to answer in evaluative terms - it's good, it's bad, etc. These answers are the result of certain list processing; they are not the lists themselves. An alternative set of questions has been suggested by Antony Cowling, he suggests we ask, 'What comes to mind when you think about buying..? And, when I say to you buying..., what does it make you think of?' It seems to me these sorts of non-directive questions should get at the raw content of these lists.' And he continues, 'I do not know to what extent we will be successful in retrieving the content of very subconscious lists. If we cannot we will have to rely on the output processes which can access and operate on these lists. Lists governing what we believe and what we want may well fall into this category. I have tried to measure what people want from a product by getting them to do certain list processing in response to the question, If (the product) had...characteristic, would this be a good or a bad thing?' These quotes have been given in full and although the language is new, after studying the Fishbein approach, the basic method does not sound altogether unfamiliar.

### 3.3. ANALYSIS OF DATA

Most writers agree that the elicitation techniques reviewed above, require careful content analysis. Frequently this is undertaken by one or more people who helped conduct the elicitation interviews as they

already have a good understanding of the issues involved. If one person does the analysis there is consistency, if more than one, a particular person's perception of the material may be balanced by the input of the others (Towriss, 1979). More complex methods of analysis, like linguistic coding (McDonald, 1973), have not been widely used in this context. One reason for this can be attributed to Fishbeinian type of elicitation; this produces material which is easier to handle than the vast amount produced by conventional methods, also the data is recorded for each brand separately and the items are also listed in the order in which they occur to respondents. It is therefore easy, for Fishbein data, to simply draw up frequency lists for the sample to obtain modal salient beliefs.

#### 3.4. PREPARATION OF ELICITATION DATA FOR SURVEY USE

Lists of items may be generated by various techniques (section 3.2.), but all lists are edited, so that the items are expressed in the most meaningful ways possible as well as appropriate for either bi-polar semantic differential scales (Osgood et al, 1958) or agree-disagree scales, on which these items can be endorsed in subsequent stages of the research. Prior to the elicitation of salient beliefs, these lists could be fairly exhaustive as each of the hypothesised belief dimensions could be represented by several belief items. This was necessary in those cases where a single item could have meant different things to different people and also because more items could be needed when attempting to measure an attitude dimension indirectly. As Lunn (1969) stated 'we cannot ask a housewife directly if she is economy minded, but we can obtain information indirectly through her endorsement of such items as 'A good housewife always buys the least expensive kinds of food' and 'You should always use up leftovers.' Ajzen and Fishbein (1980) also suggest that the traditional belief items produced in marketing studies were usually 'evaluative criteria,' which consumers employed in their purchase decisions. They related to the extent to 'which the different brands are satisfactory with respect to each criterion and to choose the brand they believe best meets their criteria.' These evaluative items they felt were usually of a general nature, applicable to all brands within a product class. By contrast, the Fishbein method, as it elicits by brand can point out that different salient beliefs attach themselves to different brands. They concluded, 'interestingly, however, the measure of satisfaction with respect to a given attribute appears to tap much the same information as the belief strength and attribute evaluation measures within an expectancy-value model.'

The next stage in the traditional approach, was to reduce the total list and confirm or reject the groupings of items under the dimensions, which had been hypothesised by the researchers at the elicitation stage. This was done usually with the help of factor analysis (factor analysis with rotation rather than principal component analysis). Ajzen and Fishbein (1980) indicate that a second method of reduction was also used. This consisted of attempting to identify those beliefs which best discriminate between buyers and non-buyers. As in their view, the traditional lists included both salient and non-salient items, both reduction methods could eliminate either of the two types of belief. They say 'not all salient beliefs discriminate between people who perform a given behavior and people who do not..two of the most salient beliefs about the Rolls Royce are that the car is both expensive and prestigious. However, those attributes would not distinguish between buyers and non-buyers, since both groups of consumers would agree that the Rolls Royce is expensive and prestigious.'

With the Fishbein approach the elicitation data are obtained from each individual by brand and subsequent analysis consists of a frequency count by brand for a relatively homogeneous sample. All the individual data are aggregated. A few researchers (Towriss, 1979; Wilkie and Weinreich, 1972; Thomas and Tuck, 1975) have, however, worked on individual data. Some editing is then usually required, as two individuals can express the same idea in slightly different words. Clearly the judgement of the 'interviewers' comes into play here and great care needs to be taken. Ajzen and Fishbein (1980) concern themselves with the problems of editing and provide some common sense rules. Firstly, they suggest that when two belief items appear in a modal set, which possibly differ in semantics only, the researcher can go back to the individual raw data. If both items are listed by individuals, the chance is that they are different; if not, not. Similarly, they have grouped together relatively minor beliefs into a more general category and used the latter as a belief statement (e.g. 'when taken together they suggest a salient belief in the population concerning the side effects of using birth control pills. In order to capture this belief, a statement such as 'my using birth control pills leads to minor side effects' can be included in the modal set.') Further editing is then called for in the case of the  $b_i$  and  $a_i$  statements so that:

- they are appropriately phrased for the rating scales on which they are to be endorsed at the next stage of the survey and
- the  $a_i$  scales are a true reflection of the  $b_i$  scales from the point

of view of correspondence between all items of the formula to be predicted. For e.g. in the beer sample of this research some of the specific items were expressed identically both as  $b_i$  and  $a_i$  items: 'buying the beer which says 'what we want is Watneys.' In another instance the  $b_i$  statement took the form 'buying the beer with the red barrel' the  $a_i$  statement 'buying the beer which reminds me of a red barrel.' This small change in the  $a_i$  wording made it correspond better to a final scale, which read, 'like very much-dislike very much' and also, of course, the beer does not come in a red barrel. The red barrel is purely a symbol.

As the total number of items produced by Fishbein elicitation is smaller than that produced by more traditional methods, Fishbein would also claim that no reduction with factor analysis is necessary. Indeed it would remove salient items from a list believed to consist only of salient items.

### 3.5. THE IMPORTANCE OF BELIEF ITEMS

When presented with a list of belief items marketing men always ask one question: 'which are the important ones?' perhaps with a view to majoring on them in their advertising. As we have seen the traditional approach tried to obtain an answer with factor analysis and other methods (to be reviewed); Fishbein has stressed that importance is not a relevant concept in his theory. As Cowling (1973) says 'the questions do not ask for 'reasons for purchase' or for 'importance dimensions.' The respondent has no reason for thinking that we wish to discover 'why he buys a brand' - no pressure is placed on him to justify or rationalise his behaviour.'

Sampson and Palmer (1973) and Sampson (1977) have looked at the importance issue and how it has been dealt with. Their conclusions are briefly reviewed here, as they will be referred to in subsequent chapters. Also reviewed will be the work of other researchers.

#### 3.5.1. Multivariate Techniques

Reviewing multivariate analysis techniques for reducing lists of beliefs Sampson and Palmer conclude that:

- (i) beta weights in multiple regression analysis 'are not measures of importance';
- (ii) a variable in discriminant analysis 'may be shown to 'discriminate' but this is not to say that the variable is important;'
- (iii) using the automatic interaction detection (AID) technique 'as a means of inferring the importance of an attitude dimension or an attribute is dangerous.'

(iv) In other contexts (Boss, 1971) multiple classificatory analysis (MCA) had worked in terms of importance, but Sampson and Palmer conclude 'we do not think that it is able to solve the problem.'

(v) The most popular technique, factor analysis, has three drawbacks in their view:

- 'the order of obtaining factors (ie factor I, factor II etc) according to the amount of variance accounted for is not a measure of importance;
- for any one factor, factor loadings - the correlations of test variables with factor vectors, are not measures of the importance of the items constituting that factor;
- factor scores - the actual scores of people obtained from a linear combination of variables have nothing to do with importance.'

These authors have considerable experience in this field within a marketing context and so their views are worthy of some attention.

### 3.5.2. Fishbein's model

Fishbein does not speak of the importance of beliefs in his model, although many have been mistaken on this point (e.g. Joyce, Esomar 1971; Glassman, 1971). In 1971 Fishbein observed: 'The model, however, does not consider importance judgements...importance judgements are unrelated to attitudes and intentions...indirect attempts to assess importance by looking at correlation or regression weights..are not inappropriate but misleading...if a product has a positive characteristic I consider important, shouldn't this make me like the product more than if it has a positive characteristic I consider unimportant? The answer to this question is essentially 'yes', but in an indirect sense. First, it should be noted that whenever attempts have been made to include importance judgements in the model (ie to change the model from  $\sum B_i a_i$  to  $\sum B_i I_i a_i$ ), the predictive power of the model actually decreases. However, people will tend to have strong beliefs about (more knowledge of?) attributes they consider important than those they consider unimportant and/or their evaluation of important attributes will tend to be more polarised (either positively or negatively) than their evaluation of unimportant attributes. Thus, in a sense, the  $\sum B_i a_i$  model does pick up 'importance.' Since the  $B_i$  and  $a_i$  scores will tend to be more polarised for an important attribute than an unimportant attribute, that  $B_i a_i$  score will tend to be large and thus it does contribute more to the total attitude. However, the absolute magnitude of a given  $B_i a_i$  score cannot be considered as a 'true' indicant of importance, since the  $B_i a_i$  score associated with some 'important' attributes

may be relatively low, while the  $B_{i,a_i}$  score associated with some 'unimportant' attributes may be high...I do think that this approach is much more reasonable than procedures that use correlations or regression coefficients as indicants of importance.'

Wilkie and Pessemier (1973) reviewing the evidence to date, say that Day (1972) gives 'five reasons why importance ratings may not represent salience..Sampson and Harris (1970) tested the rank order of fourteen attributes' actual correlations with affect against stated importance ranks and report a Spearman rho correlation of  $-.06$ ...Wilkie and Weinreich (1972) (also) report empirical model results supportive of this contention.'

Cohen, Fishbein and Ahtola (1972) comment that an importance weight was never part of a Fishbein equation and that if importance was defined as prominence (Zajonc, 1954) or incorporated as an additional variable into the model, its predictive validity is lowered (e.g. Fishbein and Ajzen, 1972; Kaplan and Fishbein, 1969). Research which made an attempt to incorporate importance weights into additive utility models (WAU) was reviewed by Moinpour and Wiley (1972b) and they came to a similar conclusion (e.g. Cohen and Houston, 1971; Moinpour and MacLachlan, 1971; Sheth and Talarzyk, 1970/1972).

### 3.5.3. St. James Model

A model frequently applied in the UK to deal with importance was the St. James model (Hendrickson, 1967 and 1970; Hendrickson and Willson, 1972). Importance in this model is calculated in terms of a brand's particular score and its distance from the ideal brand. In practice, the author has found, that an ideal brand is a very difficult concept for consumers although Marchant (1972) disagrees. According to Sampson and Palmer (1973) the assumptions behind the model for estimating the importance weights are as follows:

- 'That as 'dissatisfaction' with any brand in respect of an important characteristic varies, so will probability of purchase. The relationship itself will, of course, be inverse.
- That any persons's 'dissatisfaction' with any brand in respect of any characteristic may be estimated by the absolute difference between that person's rating of the brand and of the ideal of the characteristic.
- That probability of purchase may be represented as a linear function of the ranked preference for the brand as measured by a series of paired preference questions.
- That the importance of any particular characteristic may be represented

- as the proportion of variation in probability of purchase that can be explained by variation in 'dissatisfaction' over all brands.
- That we may realistically assume the strength of the relationship above may be assessed as the square of the product moment correlation between the variables.'

They continue, 'thus for each person we have

- $x_{ij}$  = rating of the  $j$ th brand along the  $i$ th scale
- $i$  = 1, ...,  $n$  scales
- $j$  = 1, ...,  $m$  brands
- $x_i^*$  = rating of the ideal brand along the  $i$ th scale
- $y_j$  = preference rank order of the  $j$ th brand (Derived from an ( $m \times m$ ) preference rank order matrix  $\underline{Y}$ )
- $D_{ij}$  = person's dissatisfaction with the  $j$ th brand along the  $i$ th scale (defined as  $|x_i^* - x_{ij}|$ ).
- $e$  = error term

The model itself is:

$$Y_j = (1 / \sum_{i=1}^n I_i D_{ij}) + e$$

and the importance weights  $I_i$  are the squares of the average correlation coefficients between  $Y_j$  and  $D_{ij}$  for all brands and all consumers. The squares of the correlations are then scaled to an average of 1.0 for easy interpretation. These standardised values are called 'importance weights' and although no more than fairly weak ordinal measures (ie 1.6, 0.8, 0.4) they are often used as ratio scale measures (ie  $1.6 = 2 \times 0.8 = 4 \times 0.4$  and so on). It is wrong to do this.'

And they conclude 'The St. James' model method of deriving importance is an indirect approach based on correlation...it is, we believe, quite wrong to impute importance on the basis of correlation coefficients.'

#### 3.5.4. Other Importance Measures

Sampson and Palmer (1973) recommend inferential analysis as a possible contribution towards estimating importance. As an example they state 'the greater the difference between regular brand rating and ratings for other brands, so the more the attribute contributes to brand choice.' They also believe information theory has something to contribute to the importance issue. This leads us to consider micro-behaviour modelling and trade-off analysis (Westwood, 1973) where according to Sampson (1977) 'the utilities themselves, so it is claimed, provide an accurate reflection of what is 'important' in attribute terms.'

Importance has been a great problem for researchers; Fishbein regards

it as extraneous to his model. Yet as Chapters 5 and 6 will indicate it is not an issue which has been solved.

### 3.6. PROBLEMS HIGHLIGHTED IN LITERATURE REVIEW

The main problems highlighted in this literature review are summarized below, together with the ways in which they were dealt with in this research.

#### 3.6.1. Elicitation Techniques

Techniques used for eliciting beliefs prior to the application of Fishbein's method did have considerable problems and these were outlined above. Fishbein's method, by contrast, has a lot to recommend it, both conceptually and in practical terms. Conceptually, the technique goes beyond others in a way useful to marketing studies; it picks up determinant beliefs within the limits of current understanding and these relate to the behaviour we are trying to predict. In addition, by eliciting beliefs at the level of specificity we wish to predict, Fishbein regards the importance issue as irrelevant to his model. As the number of belief items produced by Fishbein's technique is smaller than with other techniques, it is certainly less critical. In practical terms, Fishbein's technique is relatively cheap and quick to apply and it has therefore been used and extended in this research. A major problem remains in the lack of suitable outside criteria against which to measure the salient beliefs obtained in a particular study.

#### 3.6.2. Specific Wording Of Elicitation Technique

Many studies reviewed (both in this chapter and chapter 2) do not enter into the problems of elicitation, nor do they give many details about the method used. This lack of interest is regrettable for as was pointed out earlier, elicitation is of fundamental importance in determining the quality of the input data. Also usually little is said about the wording of the elicitation technique used; the details of the wording used in this research are given in full, later on in this chapter. It cannot be argued, that this is a great improvement on what has been found in the literature; but it is hoped that a specific aspect of it (e.g. the element of game) is a small improvement. However, the research has applied the wording consistently and virtually simultaneously to three markets and 20 brands; a level of complexity almost unique in thereported marketing studies using Fishbein. Moreover, in the literature review the point was made that elicitation has to be carried out at the same level of specificity and this has again been achieved in this research, by emphasising the next purchase occasion.

### 3.6.3. Moderator for Elicitation

The elicitation 'interview' may be carried out by the researcher alone, by the researcher and interviewers or only by interviewers. Many studies reviewed do not pay great attention to this point and the methods vary considerably. In this study elicitation was undertaken solely by the researcher (in the cigarette study and with some help, trained by the researcher, in the studies relating to drink) and this must aid consistency across the results.

### 3.6.4. Individual Interviews vs. Groups

Most of the studies in the literature employ individual interviews for eliciting belief dimensions; some use groups. In this research a technique called 'individuals in a group setting' was developed. This is new, attempts to utilise the advantages of both individual interviews and groups, appears to be viable and has important economic implications.

### 3.6.5. Classifying and Editing Elicitation Data

Most writers do not give details of the ways they classified or edited beliefs. For example, in editing it is sometimes argued that 'several heads are better than one' (Towriss, 1979), but in a situation where semantic difficulties have to be resolved, it is argued here, that a single person doing both the elicitation and editing is more satisfactory. This person understands what took place during elicitation and can therefore resolve semantic differences more easily. It is believed that this method was another small advantage for the total technique used in this research.

### 3.6.6. Analysis of Elicitation Data

The literature review indicated that for marketing studies modal salient beliefs were more appropriate than salient beliefs analysed by individuals. In fact this study went further and established market modal beliefs; these will be defined in section 3.7. A pre-requisite for the development of modal or market modal beliefs is that the groups on which the research has been carried out have something in common. This makes sampling for elicitation work very important.

### 3.6.7. Sampling for Elicitation

Most of the academic literature employs student samples and not consumers; this makes their work of limited use in marketing (e.g. Resnik, 1974; Ryan, 1974; Mazis, Ahtola and Klippel, 1975). In this research real consumers were sampled; they represent homogeneous groups (e.g. smokers of a particular type of cigarette and respondents who bought both beer and lager for drinking at home); and the samples used were large.

This gives better validity than with some of the small samples encountered in the literature.

### 3.6.8. 'Importance' issue

Ajzen and Fishbein (1980) point out that traditionally marketing studies produced

- evaluative criteria relating to the satisfaction with the brand, not salient beliefs; and
- so many evaluative criteria, that they searched for an importance measure, to reduce the total list.

They comment: 'the measure of attribute importance is extraneous to an expectancy-value model.' This point will be more fully discussed in Chapters 5 and 6.

The second part of this chapter examines in detail the elicitation methods used in this research into three markets (subsector of the cigarette market, take-home markets for brewers' beers and lagers), reports on the main conclusions, as well as on the problems remaining for future research.

## 3.7. FIRST DATA SET - SUB-SECTOR OF CIGARETTE MARKET

### 3.7.1. Data Collection

The sponsoring company indicated that the market sector should be defined by 10 brands: brands A-G which are included in the validation stage of this research and three minor brands. Knowledge of the market suggested that for elicitation, the sample to be contacted should consist of

- about 200 people who smoked any of the 10 brands 'most frequently' or as a second brand
- approximately 50% men and 50% women
- include smokers from both the north and south of the country in the right proportions and
- consist of a good sample of adult smokers of this type of cigarette by interviewing throughout the day.

The 200 respondents were interviewed in approximately 12 groups of sixteen people at a time: using the 'individuals in a group setting' method. Together as a group respondents were taken through the elicitation form question by question and they filled in the answers themselves without reference to their neighbours. This method ensured that the instructions on the form were easily understood and followed, so that many individuals could, on their own, complete the task simultaneously and in a relatively

short time. This approach was fully piloted, was economical and there was no reason to suspect that the data obtained was different from that obtained from respondents 'interviewed' on an individual basis.

As can be seen from the elicitation form, Appendix 3(i), smokers' attitudinal beliefs were elicited first and their normative beliefs second. Respondents were asked first for their beliefs about their own one or two brands (for which salient beliefs, it was thought, might be better established) and then for the remaining brands. The order of asking was alternated between the groups, with each order clearly displayed in front of respondents. For this purpose large mock ups of the packs of the ten brands were used and respondents worked through the order displayed from their left to right. This explains why on the elicitation form part of Question 7 reads "Now, going from left to right, pick out the first brand about which you have not written anything as yet." Normative beliefs were elicited in general (NB) and specific norms (SNB) were elicited for all the company's brands, with the questions about the remaining brands being asked according to the design shown in Appendix 3(ii).

This elicitation method was the result of careful pilot work and it produced many features that were interesting and new:

- (i) The research showed that respondents from a fairly wide age and social class distribution, spread over two contrasting regions, could produce beliefs by answering the simplest of questions. For brand beliefs 'what comes into your mind when you think of (next) buying ...brand?' For normative beliefs, 'please imagine for me what sort of people would think that you should (next) buy...?'
- (ii) It was also felt that their task was made easier because it was presented to them in the form of a game. For example, Question 5 read 'could you help me by doing a bit of imagining. Imagine you are going out to buy your next packet of..(subsection of cigarette market). Imagine that you are buying the brand which you buy most often (which is...) Thinking of this brand, what comes into your mind when buying it?' Also, their co-operation was obtained, by asking for their help. Respondents were all interested in this product field and this helped to motivate them to undertake the research task, as well as the other features just mentioned.
- (iii) The task was undertaken in a group setting; this was an important factor in establishing the right atmosphere for a 'game'. There

were 16 members to a 'group' and this number was used largely because it produced an efficient and economical fieldwork situation: 200 individuals made approximately 12 groups; each group was large enough for the 'game' to be played and yet small enough for each individual to see the brand mock ups and to produce beliefs for each brand within a very short time span of the other individuals in the 'group.'

- (iv) This last point is important because it suggests that salient beliefs were obtained which were 'top of the head.' Also as Fishbein had suggested, the technique pursued should be a free response situation, and this was the case in this research. Added to this a timing which even in a group setting was 'top of the head', would suggest that the beliefs obtained in this study were salient.
- (v) In the pilot another question was explored. To make the behaviour specific the elicitation questions could be made to relate to the next purchase occasion or, the Company suggested, to smoking the brand in the company of other people. At the time it could have been possible that cheaper cigarettes were smoked in private, rather than the more expensive cigarettes from this market sector. This proved not to be the case and the next purchase situation was majored on.

### 3.7.2. Analysis and Results: Attitudinal Beliefs

Respondents were asked to record beliefs in the order in which they thought of them. In almost all cases, less than seven items were produced per brand, per individual. This would support that the elicited beliefs lie within the tolerance defined as salience.

For the total sample frequency lists were prepared separately for each brand. The area differences for both attitudinal and normative beliefs were small. Therefore the results for the north and south were combined. The same was true of male/female differences.

Next, the frequency lists for the brands were combined to produce salient beliefs for the total sample: called market modal beliefs in this research. This goes beyond Fishbein's method. Fishbein would have taken the modal beliefs for each brand and applied them in subsequent research and each brand might have had the same type and number of beliefs, or not. Market modal beliefs used in this research were developed as follows -

One, as stated, the individual brand beliefs (e.g. strong, strong and harsh, etc) were added together across all the brands;

Two, in the total column beliefs of similar meaning were grouped together into 'dimensions' (e.g. strong, strong and harsh, etc. were grouped together under strength. This gave 8 dimensions:

1. strength
2. price/value/bargain
3. taste/flavour
4. satisfaction/pleasure to be obtained from cigarette
5. packaging
6. physical characteristics of cigarette (e.g. length, tobacco, etc) helping to increase its reputation and/or increase its popularity, social acceptability
7. promotion incl. sponsorship
8. some lesser categories.

The first six 'dimensions' represent at least 60% of all beliefs mentioned by the total sample; this was the definition of saliency used in this research. Looking at Ajzen and Fishbein (1980) this is quite a stringent definition; they comment 'perhaps the least arbitrary decision rule is to choose as many beliefs as necessary to account for a certain percentage (e.g. 75%) of all beliefs emitted.' The 'dimensions' were in line with company thinking and the rank order was most interesting to them; it confirmed that area 2. above, was becoming very dominant in this market sector.

This grouping of beliefs under 'dimensions' was largely undertaken because using real consumers, each belief 'dimension' was expressed in a wide variety of ways (e.g. strength: strong, strong and harsh, etc), both negatively (e.g. weak) and positively (e.g. strong, the right strength).

Three, within each 'dimension' the dominant beliefs (in terms of frequency of mentions) were picked out to represent the beliefs for this sub-sector of the market:

1. strength: too strong and harsh
2. price/value/bargain: reasonably priced  
buy it only when on offer
3. taste/flavour: taste/flavour
4. satisfaction/pleasure to be obtained from cigarette:  
a pleasant cigarette  
a satisfying, sustaining cigarette
5. packaging: attractive pack
6. physical characteristics etc: OK to offer around

reliable name and reputation  
a cigarette to be seen with  
increasing in popularity.

Four, this list of 11 salient beliefs appeared to be a true reflection of the meaning of the elicited material. This list was compared with the lists produced by each brand (Fishbein's method) to check if any particular brand had a salient belief (60%+of all mentions) that was not included. This analysis suggested that the salient beliefs for the brands were similar and only one brand (Brand G) produced an important item of its own: sports sponsorship. This belief was not included for this brand only, as it was of little interest to the company.

Therefore THE MARKET MODAL BELIEFS FOR A GIVEN BRAND consist of

1. the beliefs salient for the total market sector to which it belongs &
2. the salient beliefs which are 'relevant' to it alone.

The reasons for developing market modal beliefs for this research were as follows -

- (i) at the elicitation stage the marketing man could obtain a quantitative assessment of the beliefs that were operating in the total market segment. Fishbein's method gives the information only by brand. It was therefore argued at the time, that this could be an appropriate development for marketing studies in NEW markets. All 3 markets investigated here were new markets.
- (ii) These beliefs would allow all brands to be compared over time on an identical core set of beliefs. This was considered most important by the sponsoring companies, as in new markets images are still being developed.
- (iii) In addition they made allowance, for individual salient beliefs to be included for specific brands.

The development of market modal beliefs, like modal beliefs, is accompanied by problems of classification and editing:

Question One: did the market modal beliefs chosen represent different strands of meaning or was there duplication/redundancy between the belief items?

When choosing the dominant belief(s) for each 'dimension' some judgement had to be applied whether similar sounding/phrased belief did or did not mean the same thing. Eiser (1975) noted this problem as well. Fishbein's elicitation method gave no further clue, as no additional

questions are asked of respondents. Ajzen and Fishbein's rule of thumb stated in 1980, of checking the individual respondent's data to see if nearly duplicating items were frequently mentioned by individuals or not and if they were to include them as separate items, proved inconclusive here. It was not possible to check this with a small pilot, but as a result of the lessons learned, a clarification section was added to the elicitation interviews for the other data sets. Also a more rigorous test was carried out and this is reported in Chapter 6.

Question Two: why do evaluative items appear in market modal beliefs?

A number of likely reasons were investigated:

- (i) the market was relatively underdeveloped by advertising and so beliefs might not yet have become strongly stereotyped; or
- (ii) the nature of advertising was such that it did not provide strong beliefs for the brands; or
- (iii) there was considerable variability between the brands in terms of the salient beliefs produced; in other words, each brand had a host of items peculiar to itself apart from the evaluative items which were common to all and in aggregating the data across the brands, the more individualistic items did not show up; or
- (iv) the difference between determinant and indicant beliefs (explanation to follow), would have to be examined within the context of this research (Thomas and Tuck, 1975; Kaplan and Fishbein, 1969; Cronen and Conville, 1975).

Examining the frequency lists for the beliefs, it was found that there was little evidence for (iii) above. As has been explained before, highly salient items for individual brands were included in the market modal beliefs. The marketing companies confirmed there was evidence for both (i) and (ii) above. In the case of (iv) the literature review indicated that determinant beliefs are salient beliefs, indicant beliefs can best be explained with the help of an example. In marketing terms, it is possible

(if people know little that is specific about a given brand, but on the whole think it is a good brand) that they will elicit beliefs about it which are evaluative in nature. E.g. beliefs like good taste; after all a cigarette brand could not be a good brand, if it did not taste good. In other words, they use their overall assessment of the brand to infer beliefs about it. This is a hypothesis which might fit a young market in which brand profiles are not strongly developed.

However, evaluative beliefs may not be as unhelpful as some researchers have suggested; arguing even for cutting them out altogether from research projects. They might equate with Osgood's general factor (factor analysis: Chapter 6) and that is not necessarily a 'rubbish bin', but a real fact of consumer brand assessment.

### 3.7.3. Analysis and Results: Normative Beliefs

The normative beliefs were analysed in an identical fashion to the attitudinal beliefs. The total sample gave two general norms (NB): they were family (ie parents and general family) and friends and neighbours. The two general norms were expressed in many variations e.g. wife, husband/ friend at work, etc, but they were subsumed in the above two categories; otherwise a market survey would have been unmanagable. Moreover, quite often more than one member of the family was mentioned by a particular individual.

Specific Norms (SNB) for the brands which were salient are: family, friends and neighbours and smokers who want to impress people. As in the case of the attitudinal beliefs, it was felt that brand profiles would vary on these specific norms, especially with regard to the third item.

There were other specific norms (accounting for less than 60% of all mentions), like other people (unspecified) who buy/smoke the brand; beliefs akin to the attitudinal beliefs e.g. people who like a satisfying smoke. These were not very informative.

## 3.8. SECOND AND THIRD DATA SETS - BREWERS' BEERS AND LAGERS

### 3.8.1. Data Collection

The take-home markets for brewers' beers and lager brands were researched and this research produced the second and third data sets. As the number of beers was too large for a survey, all the beers made by a particular

brewer were considered together, rather than individual brands of beers; but for lagers, it was brands which were researched. A small pilot was undertaken to test if respondents could cope with brewers' beers rather than brands. Brewers had different images and partly because of the large number of beers each brewer made and partly because the beers for the take-home market did not have strong images, it was the brewer's image which tended to support the brands rather than the other way round. It was therefore concluded, that aggregates such as brewers' beers, could be incorporated into a Fishbein study.

The beers of the following brewers were considered -

Watneys  
Whitbread  
Truman  
Courage  
Charrington  
Ind Coope.

The lager brands for the take-home market which were considered were -

Heineken  
Carlsberg  
Holsten  
Skol  
Harp  
Kronenbourg.

The details of the elicitation method were the same as for the cigarette data set. Elicitation forms used are given in Appendices 3(iii) and 3(iv). The names of the brewers and lagers were rotated; the whole approach was piloted. The pilot suggested that beliefs were less easily forthcoming in the beer field, therefore elicitation was tried in two ways: exactly the same as in the cigarette and lager studies and by adding an additional probe 'anything else at all about..? On balance this did not seem to help much and was therefore not finally used.

The sample consisted of -

MALES

1 'group' of 15 males, AB  
2 'groups' 35 males, C1C2

FEMALES

1 'group' of 21 females, C1C2

These numbers included pilot samples, all respondents had bought both beer and lager for drinking at home. In all 'groups' there was an even

age spread.

A male 'interviewer', thoroughly briefed by the researcher, conducted the male groups and the researcher conducted the groups with women. All work was carried out in the company's sales area. From half the groups the data on brewers was obtained first, followed by lager and vice versa.

### 3.8.2. Analysis and Results: Brewers' Beers Attitudinal Beliefs

In practice the analysis took the same form as for the cigarette data. In total, the number of comments produced were fewer than for cigarettes and this may be due to the fact that

- the samples were smaller in this instance, as males and females had to be analysed separately
- aggregates were involved rather than brands.

There appeared to be some differences in the beliefs produced by males and females and a further two groups (1 male and 1 female) were set up to check whether these differences were real or only due to the smaller sample sizes. The final analysis gave a list of seven beliefs for both sub-groups, which in both cases reached just 60% of recorded responses within each group total. The seven beliefs aggregated across the brewers' beers were:

- buying a good quality beer
- buying a well-known beer
- buying a beer which offers good value for money
- buying a beer that tastes good
- buying a popular beer
- buying a strong beer
- buying a beer which is difficult to obtain.

These beliefs appeared to be realistic descriptors of the market to the sponsoring company. Some appeared semantically very close, like 'well-known' and 'popular'. As Fishbein's technique gives no help, a clarifying section was added to the end of one of the male and one of the female groups. It would appear from this that, a brewers' beers can be old, well-known and unpopular or well-known and popular or neither. It was therefore decided to retain them as separate beliefs.

In addition to these beliefs, there were other salient beliefs which reflected the advertising of certain brewers' beers and these were incorporated into the market modal beliefs:

- Watneys: buying the beer which says 'what we want is Watneys'
- buying the beer with the red barrel
- Truman: buying the beer with more hops in

Whitbread: buying the pint that thinks it's a quart

buying the beer with the Tankard and Trophy emblem

Courage: buying the beer with the cockerel emblem

Bass Charrington: buying the beer with the Toby Jug.

The fact that we have

- many beliefs relating to specific brewers' beers makes this data set clearly different from the cigarette data
- also it was not absolutely clear whether this data set would show real male-female differences at the validation stage and so they were examined separately at that stage. Again this differentiates between the data sets.

### 3.8.3. Analysis and Results: Brewers' Beers Normative Beliefs

General Norms (NB) relate to family and friends. Women produced an additional norm and that is 'husband.' These are the people who influence purchase choice.

At the outset of this study it was hypothesised that take-home beers and lagers would be attitudinally determined markets. The nature of the product to be drunk at home, would be the main purchasing determinant. This hypothesis was strengthened at this stage of the analysis as it became clear that the product had to appeal to the 'main consumer' (ie the husband) or his 'immediate drinking circle.'

Specific norms (SNB) related to:

- younger people
- people who bother about the quality of their beer

in addition to the beliefs already mentioned under general norms. Some respondents equated the young with inexperience or women. There was more than a hint that people who bother about the quality of their beer were more upper class e.g. Whitbread drinkers.

In the pilot study for this elicitation an interesting point emerged: respondents produced the brewer as a norm in addition to the more usual answers to this question. In the elicitation therefore each normative question required the addition 'I don't mean the brewers, I mean just anybody you can think of.'

### 3.8.4. Analysis and Results: Lager Attitudinal Beliefs

For lagers there were eleven beliefs which were salient for the market sector:

- buying a lager which offers good value for money
- buying a good quality lager
- buying a lager that tastes good

buying a strong lager  
buying a refreshing and thirst-quenching lager  
buying a lager with a foreign name  
buying a lager which is easily available  
buying a Pils lager  
buying a popular lager  
buying a lager which is not well-known  
buying a British made lager

Male-female differences were less obvious in this data; women seemed to have a much greater product knowledge of lagers than beers. This greater knowledge on the part of women is also reflected in the fact that the total number of beliefs elicited for lagers is greater than for beers. It may also have something to do with the fact that here we are dealing with brands and not aggregates.

In addition the market modal beliefs again included beliefs which were salient for particular brands only:

Harp: buying the lager from Guinness and Park Royal

Carlsberg: buying the best lager in the world

buying Danish lager brewed in England by Danes

Heineken: buying the lager which refreshes the parts other beers cannot reach

Holsten: buying a German lager

buying a lager with a diet version.

### 3.8.5. Analysis and Results: Lager Normative Beliefs

Both men and women produced family and friends as a general norm (NB) and women also their husbands.

Specific norms (SNB) related to family, friends and husband. In addition there were two further salient specific normative beliefs: sporty types (relating to Carlsberg and Harp especially) and those who know a lot about lager.

## 3.9. CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

### 3.9.1. Elicitation Techniques

After a review of the literature it was concluded that Fishbein's elicitation method was conceptually sound and appeared to work in practice in studies involving consumers. Compared with other techniques it is also relatively quick and cheap to apply. The Fishbein method was therefore applied and it worked with samples covering a wide spread of age, social class and regional backgrounds and attendant different verbal abilities.

After careful piloting, it was also found that Fishbein's elicitation technique could be applied both to brands and aggregates like brewers' beers.

### 3.9.2. Specific Wording of Elicitation Technique

The specific wording used in this research follows the best available in the literature and no advance on it can be claimed. However, as previously described, the element of game increased rapport and should have helped to improve the quality of the final data obtained. This has not been proven, but it is put forward as a workable method.

The wording was also applied consistently and virtually simultaneously in three markets and to 20 brands, which makes it one of the largest and most complex studies available in the marketing literature. Further, the specific wording was expressed at the same level of specificity and this is very important.

### 3.9.3. Moderator for Elicitation

The achievement of consistency in the results was further aided by having the researcher undertake the task of moderator solo, with the exception of a trained helper for some of the beer and lager work. In the literature many different moderator situations were found to apply.

### 3.9.4. Individual Interviews vs. Groups

This research aimed to obtain the best of both of these techniques by developing a method which was new and economical to apply: 'individuals within a group setting.' At a time of financial stringency, funding research is a problem for all researchers, therefore this innovation should be most helpful. The pilot work undertaken for this method ('individuals within a group setting') indicated that the results should not be different from those produced in individual interviews, as respondents still behaved very much like individuals in the 'group setting.' It is also believed, that the quality of the elicitation data obtained, was improved by aiding rapport in the 'group setting.'

### 3.9.5. Classifying and Editing Elicitation Data

Full details of the methods used in this research have been given in section 3.8. Throughout the attempt was made to achieve consistency in the results and better understanding of the data.

Further, in editing the belief statements it was necessary to check that

- they were suitably expressed in relation to the verbal labels on the rating scales to be used in stage II of this research and
- that the  $a_i$  scales were a true reflection of the  $b_i$  scales.

As was indicated earlier great care has to be taken here and as Sampson (1970) pointed out, mistakes can be made.

#### 3.9.6. Analysis of Elicitation Data

The analysis produced market modal beliefs which were the salient beliefs

- common to all the brands in the market sector and
- the salient beliefs of individual brands or brewers' beers.

This is a development of Fishbein's thinking and particularly relevant in new markets. However, this type of analysis needs to be further tested.

The market modal beliefs elicited for the three markets cover a wide range of beliefs (e.g. relating to physical characteristics of the products, their reputation etc) and the author is confident that they are salient beliefs, because of the methodology used to obtain them. It is not clear whether they are determinant beliefs or merely beliefs indicant of respondents overall attitude to the brand in question. Indicant beliefs could operate in new markets. All three markets are relatively new ones. Having to attract external funding for research like this, inevitably means working in new fields, because older established markets have already been adequately researched. Unfortunately, attempts made to obtain a comparison with a well-established market, did not materialise. It would for example, have been interesting to see, if distribution related items are important in new markets but not in older ones.

#### 3.9.7. Sampling for Elicitation

Some of the samples (e.g. students) reported in the literature, produce results from which it is difficult to generalise. In this research real consumers have been used; relatively homogeneous and large samples (e.g. 200 for the elicitation stage in the cigarette study). All this should increase confidence in the results.

#### 3.9.8. 'Importance Issue'

Fishbein claims this is extraneous to his model and the research evidence supports this, when importance is incorporated into his model as an additional element in the formula. However, the issue needs to be examined further and this will be done in a different way in Chapter 5 and Chapter 6.

#### 3.9.9. Multidisciplinary Research Effort

It is clear from this chapter that considerably more effort needs to be put into the following areas:

1. a rigorous set of tests to see to what extent individual salient beliefs are lost in the production of modal salient beliefs and to what

extent this is a real problem in prediction.

2. An external test for salient beliefs, to check that the beliefs obtained are indeed salient.

3. More work on the classification and editing procedures, to provide reasonable guidelines for researchers.

4. Testing the usefulness of market modal beliefs vs. modal beliefs.

5. Exploring the structure within salient beliefs, to develop our understanding of saliency; issues explored in Chapter 6 of this research. In 1977 Slovic, Fischhoff and Lichtenstein stated that even among model builders techniques for doing elicitation are rarely discussed. This state of affairs, it is hoped, is changing. Fishbein's theory was developed within social psychology has been applied to other fields where contributions have been made (e.g. transport: Thomas, 1975; Towriss, 1979). Also, in sociology, for example, many researchers (Filmer, Phillipson, Silverman and Walsh, 1972; Harré and Secord, 1972) are focussing on the process within the individual. They attempt to develop models of the way in which individuals construe reality and aim to discover the rules and patterns for interpretation. Abelson (1976) has made an interesting contribution in this direction, with his work on script processing in psychology; but few practical applications have been published to date.

It is possible that the research activity in many disciplines will contribute to a solution of some of the major outstanding questions in elicitation. In this elicitation research, attention has been paid to the details of the technique and many small improvements were made on many points. It may be that this is another way in which the total research effort on the elicitation part of the model makes headway.

CHAPTER 4: THE THEORY OF REASONED ACTION

MAIN FISHBEIN ANALYSES - HYPOTHESES, DATA AND CONCLUSIONS

4.1. THE THEORY OF REASONED ACTION

The theory was discussed in outline in Chapter 2 and compared with competing theory and research. The formula which summarises the main elements of the theory was presented in an appendix to Chapter 1.

Ajzen and Fishbein (1980) summarise the theory as follows:

CHART 4(i)

Factors determining a person's behaviour (after Ajzen and Fishbein)

$\sum b_i a_i =$  sum of  
attitudinal  
beliefs x  
evaluations:

The persons beliefs that the behaviour leads to certain outcomes & his evaluations of these outcomes

$\sum SNB_{mc} =$  sum of  
normative beliefs x  
motivation to comply:

The sum of a person's beliefs that specific individuals or groups think he should or should not perform the behaviour & his motivation to comply with the specific referents

Aact

Overall Attitude:

Attitude toward the behaviour

Relative weights of attitudinal and normative considerations

NB

General Norm:

(Subjective Norm)

BI

B

Behavioural  $\rightarrow$  Behaviour

Intention

$w_0$

$w_1$

Key: Underlined terms: notation used in this research

Rest: detailed descriptions of notations

$w_0 + w_1 =$  regression weights

This is essentially a predictive theory. Ajzen and Fishbein emphasise that the first stage is to identify the Behaviour to be predicted, then to recognise that Behavioural Intention is an antecedent to Behaviour, and that Behavioural Intention is the function of two basic determinants: a person's overall attitude to the behaviour in question and his general norm. The latter reflects social influences and the person's willingness

to take account of them. According to the theory, overall attitude in its turn, is a function of attitudinal beliefs; similarly, general norm is a function of normative beliefs. This gives something of a linear structure to the theory. It is also an economical theory: 'it identifies a small set of concepts which are assumed to account for the relations (or lack of relations) between any external variable and any kind of behaviour that is under an individual's volitional control' (Ajzen and Fishbein, 1980). Whereas other theories have struggled with 'n plus' variables, Ajzen and Fishbein (1980) maintain that 'an external variable will have an effect on behaviour only to the extent that it influences the determinants of that behavior.' Loken and Fishbein (1980) found for example, that occupational variables did not contribute to prediction of childbearing intentions, over and above childbearing attitudes and general norm.

Having described the main elements of the theory and the relationships that hold between them, it is now necessary to examine the individual elements of the theory in more detail and their relationships to the rest of the theory.

#### 4.2. ELEMENTS OF THE THEORY

##### 4.2.1. Behaviour (B)

The definition of behaviour is a major problem. It is important to remember that it can consist of -

(i) either behavioural action(s) under the individual's control or of outcomes of behaviours. Passing a particular examination may be the outcome of reading books, attending lectures (under the individual's volitional control) and the level of difficulty of the examinations (not under the individual's control). According to Ajzen and Fishbein, predicting sales is more like trying to predict an outcome, which is influenced by factors other than the person's intention to buy, such as product availability, etc. This is an important point which will be expanded later in this chapter.

(ii) Behaviour can also consist of single actions, such as a specific behaviour performed by an individual, about which there would be high agreement among independent observers that the behaviour was performed. Or behaviour may consist of behavioural categories, which involve sets of actions, rather than single actions. It may not be possible to observe them, but they may be inferred after observing a single action which is representative of the type. Reading a book (single action) may, for example, be used to infer that the person is studying (behavioural

category). If a category is to be the behavioural measure, then a representative single action may have to be carefully chosen to represent it, or an index of several single actions may have to be compiled.

Behaviour can be measured by self-reports or by observational techniques. The former are usually more subjective than the latter and to overcome the limitations of either, both techniques are sometimes used in the same study. Also the behavioural measure can represent a single instance of that behaviour or repeated instances. The latter tend to increase the reliability of measurement, yet a careful distinction must be drawn between a measure of magnitude (ie how much of the behaviour occurred) and frequency (ie how often the behaviour was performed) and relative frequency (ie the proportion of times that the behaviour occurred).

According to Ajzen and Fishbein, the researcher must choose the behavioural measure most appropriate to what he wishes to measure and it must be one that is operationally feasible. The theory also states that behaviour has four elements: action, target, context and time. For example, drinking (action) beer (target at which action is directed) at home (context) in the evening (time). Again the researcher may wish to specify all four or state one or two by implication. However, all elements must be considered and be applied consistently throughout the study.

#### 4.2.2. Behavioural Intention (BI)

When attempting to predict Behaviour from Behavioural Intention, the theory states that the closeness of the intention-behaviour link is determined by

- firstly, the degree of correspondence between the two and
- secondly, by the stability of the intentions.

Degree of correspondence implies that action, target, context and time are specified in the same way for the behaviour to be predicted as well as for the behavioural intention. The degree of correspondence is also known as the level of specificity: each element of the formula must match. For example, when trying to predict the behaviour of drinking (action) brand X of beer (target) at home (context) in the evening (time) next time the person drinks beer at home, then when trying to predict the corresponding behavioural intention, it is necessary to predict how likely it is that the next time the person drinks beer at home, he will be drinking (action) brand X of beer (target) at home (context) in the evening (time). The same correspondance is required for all the remaining elements of the theory when applying them in a Stage II questionnaire (e.g. overall attitude, general norm, attitudinal and normative beliefs).

Stability of intentions is largely a function of the time interval between the intention and behaviour; the closer the two are together the more stability can usually be expected. Stability is a real problem in marketing studies, as a considerable amount of action usually takes place in most markets. However, such studies are helped by the fact that stability on the whole is better for samples than for individuals, as 'a great variety of events can produce changes in the intention of individuals' (Ajzen and Fishbein, 1980). Most of these events are specific to the individual and tend to be small in their effect when considering the intentions of a target group. Exceptions are external events, which can shift the intentions of a large proportion of the population in the same direction (e.g. increases in the cost of energy).

#### 4.2.3. Determinants of Behavioural Intention: Aact and NB

Overall attitude towards a behaviour (Aact) represents a person's general feeling of favourableness or unfavourableness towards performing personally the behaviour in question. The theory views attitude largely as an overall evaluation: 'there is a widespread agreement that evaluation is the most essential part of attitude and our definition therefore does justice to the attitude concept', conclude its authors (Ajzen and Fishbein, 1980). The assumption is, that the more favourable a person's attitude is towards the behaviour, the more he should intend to perform that behaviour and vice versa. When measuring Aact two points must be observed: firstly, that we are measuring the person's attitude to his own performance of the behaviour and secondly, that overall attitude must correspond to BI in action, target, context and time.

Overall attitude is measured on a semantic differential bi-polar scale, like all the other elements of the theory. Integer values of +3 to -3 are assigned to these semantic differential bi-polar scales. Green and Tull (1978) describe it as a 'quantitative-judgement method,' as it is assumed that the scale has more than ordinal properties. The +3 to -3 scales are regarded as assumed interval scales as for example 'factor analysis is typically applied to interval-scaled data' and so too is regression analysis. The subsequent regression and factor analyses carried out on the Fishbein data (Chap. 4&6) assume interval scales as input. But as Evard and Maire (1977) state 'the hypothesis of equality of psychological intervals between the degrees of a semantic scale is quite disputable (cf. Holmes, 1978; Prasad 1976).

General Norm (NB) is the second determinant of Behavioural Intention (BI). It has most recently been described as 'subjective norm' by the

authors of the theory. General norm refers to a person's perception that most people who are important to him, think he should or should not perform those behaviours which he believes. 'important others' think he should perform and vice versa. Again NB must correspond to BI in terms of action, target, context and time.

According to the theory, Aact and NB are each given weights and these reflect the relative influence of the two components on Behavioural Intention, as determinants of that intention. It is known that these weights can vary due to individual differences and as a function of differing behaviours which are to be predicted. Knowledge of past research results helps in the formation of hypotheses, about the relative weights of the two components in determining BI, for areas not yet researched.

The theory regards BI as having a mediating role between Aact+NB and Behaviour (B). Therefore Aact and NB should predict BI; whereas their ability to predict the behaviour will depend on the strength of the BI-B relationship. Moreover, the theory argues that Aact and NB together should predict BI better than Aact alone, or NB alone.

#### 4.2.4. Determinants of Overall Attitude and General Norm: $b_i, a_i / \text{SNBmc}$

The determinants of overall attitude towards a behaviour (Aact) are beliefs which have become associated with it. As was pointed out in Chapter 3, these are salient beliefs which are empirically determined. If prediction is to be achieved, then the beliefs must correspond with Aact in action, target, context and time; just as Aact+NB has to correspond with BI and BI with B. The theory states that it is the total set of salient beliefs which enters into the decision process for a given individual and hence they are all required, if good prediction is to be achieved. However, the theory allows for the possibility, that a reduced set of these salient beliefs, could be a better predictor of what the individual will do, than the total set of salient beliefs. Little work has been done on trying to find reduced sets of salient beliefs and this is a major concern in this research (Chapter 6).

The theory also states that there are two elements to each belief. For each person the strength with which each belief ( $b_i$ ) is held is measured as well as how each belief is evaluated ( $a_i$ ). That is, an assessment is made by the person whether these beliefs are a good-bad thing/something personally liked or disliked respectively. For a given individual each  $b_i$  and its corresponding  $a_i$  are multiplied and then all these  $b_i a_i$  numbers are summed ( $\sum b_i a_i$ ). This sum, in turn, is combined with

that of the rest of the sample. This can best be illustrated in a table of hypothetical figures, giving belief strengths ( $b_i$ ) and outcome evaluations ( $a_i$ ):

	$b_i$	$a_i$	$b_i a_i$
	Belief	Outcome	Product
	Strength	Evaluations	
Belief 1	+3	-2	-6
Belief 2	+3	+1	+3
Belief 3	+1	+3	+3
Belief 4	-1	+2	-2
Belief 5	-3	-1	+3
			+1 = $\sum b_i a_i$

This way of combining the data raises a number of interesting points and these will be further elaborated in Chapter 5:

(i) the  $b_i a_i$  product can be the same, even if the individual  $b_i$  and  $a_i$  are different, as is the case with belief 2 and belief 3 above;

(ii) the  $b_i a_i$  product can be the same, although only the signs of the individual  $b_i$  and  $a_i$  are different, as in the case of beliefs 2 and 5 above;

(iii) the summed product of the  $b_i a_i$  ( $\sum b_i a_i$ ) may be the same for different individuals, even though each individual may have a different set of salient beliefs;

(iv) the summed product of the  $b_i a_i$  ( $\sum b_i a_i$ ) may be the same for one individual over time even though the composition of the total set of salient beliefs may have changed or only one or two beliefs have changed their  $b_i$  and  $a_i$  elements relative to one another. This indicates why attitude change is so difficult to predict.

(v) It has sometimes been stated (see Chapter 3) that this type of calculation gives an importance weighting to each belief. As was discussed then, the theory does not support such an interpretation. Importance is therefore not tested in this chapter. However, the  $b_i a_i$  product gives some indication about the beliefs which contribute more or less to the total set (see Fishbein's 1971 quote in Chapter 3). This line of argument will be further developed in Chapter 5, where the diagnostic value of the theory will be examined, compared with the predictive value, which is the subject of this chapter.

The determinants of general norm (NB) are also beliefs, called specific normative beliefs (SNB). Only the person's beliefs that the referent thinks he should or should not perform a behaviour, makes it a true normative belief. A normative belief relates to a specific group or person, rather than to 'generalised others', as NB does. Again these specific normative beliefs are salient beliefs (see Chapter 3) and there must also be correspondence between specific normative beliefs (SNB's) and general norm (NB) in terms of action, target, context and time. Again the theory states that the total set of SNB's enters into the decision process, with the possibility that a subset may give equally good or even better prediction than the total set of salient normative beliefs.

It is not sufficient to know the strength of a person's beliefs about the relevant others (SNB's) for predicting the general norm, but in addition it is necessary to know the person's motivation to comply (mc) with each of the referents. These two elements (SNB and mc) are assessed on 7 point bi-polar scales, multiplied and summed, just like the  $b_i$  and  $a_i$  elements of the attitudinal beliefs.

The authors of the theory argue that overall norm (NB) performs a mediating role vis-à-vis specific normative beliefs ( $\Sigma$ SNBmc), just like overall attitude (Aact) perform a mediating role vis-à-vis attitudinal beliefs ( $\Sigma b_i a_i$ ), ie they are a necessary part of the formula in predicting BI.

#### 4.2.5. The Link Between Beliefs And Behaviour

The argument presented so far and summarised in Chart 4(i), suggests that the theory of reasoned action postulates a number of relationships should hold good. Beliefs, which ultimately predict behaviour, do not do so directly, but underlie overall attitude (Aact) and general norm (NB); these two in their turn help predict Behavioural Intention (BI), which should help predict Behaviour (B). Although these relationships are postulated, they must be tested empirically in every market, to check whether the theory works or whether in the operational application of the theory some problems have arisen (e.g. in terms of the correspondence between action, target, context or time).

Hypotheses were formulated at the beginning of this research to test the basic postulates of the theory and they will be checked out and reported on in section 4.4. of this chapter.

#### 4.2.6. Data Collection And Data Reporting

As can be seen from the questionnaires attached to this chapter, strenuous attempts were made to collect the data for this research, in

the way specified by the theory, even though the data had to serve practical marketing applications, as funding for the research was obtained from two major marketing companies. The details of the data collection are given in the Appendices to this chapter, but two main points will be dealt with here:

(i) To measure Behaviour (B) the attempt was made to obtain panel data, as it has considerable advantages over other methods of measuring behaviour in dynamic markets. It was not possible to do this, so self-reports on postcards were substituted (Appendix 4(iv)). This method had the advantage of being relatively cost-effective and could be administered in time close to the original data collection date (for the questionnaires). It was hoped, that in this way, the stability between the BI and B measures could be increased in real markets. In addition, alternative measures of behaviour were built into the analysis to see if they could give better correlations. If so, it could indicate, that cheaper measures of B might also work, as the alternative measures were collected on the original questionnaires.

(ii) Throughout the questionnaire for each study, at each stage in the chain of measures linking the theory of reasoned action, an attempt was made to achieve correspondence in terms of action, target, context and time. In practical marketing research, however, some operational problems arise and in the three studies reported, these problems have been dealt with as follows. In the cigarette study, buying (action) a specific brand of cigarettes (target) for yourself (substitute for context) next time (time) were the elements used throughout the questionnaire. Smoking occurs in many contexts, therefore context was not specified, but wherever the individual smoked, was taken to be the context. Questions would have become too unwieldy if every time the phrase 'next time' had had to be included. Therefore the time element was dealt with by making 'next time' the general context for the whole questionnaire. In the beer and lager studies the time element was dealt with in the same way as in the cigarette study and again for the same reasons. The action element was drinking, the target element was a particular brewer's beer or a specific brand of lager and the context was drinking at home. The beliefs, as was indicated, in Chapter 3, were those which had been empirically determined for the 3 markets: sub-sector of cigarette market, brewers' beers and lagers. These generated 3 data sets.

### 4.3. DATA PRESENTATION

The three data sets contain an enormous amount of information. The Fishbein analysis requires summative regressions to be fitted (Appendix 4(i)) and a way had to be found to summarise this regression data to make assimilation easy. Therefore all the regression runs for a given brand have been entered on a chart like the one shown on the next page. 12 regressions were run for each brand, using SPSS (Statistical Package for the Social Sciences) on the City of London Polytechnic Dec 10 machine. Each summative regression has a number and this is shown on the chart on the next page and given in detail below:

<u>No. of regression on chart</u>	<u>Single (r) or Multiple (R) regression coefficient</u>	<u>Criterion variable</u>	<u>Predictor variable(s)</u>
(1)	r	B	BI
(2)	R	BI	Aact, NB
(3)	r	BI	Aact
(4)	r	BI	NB
(5)	r	Aact	$\sum b_i a_i$
(6)	r	BI	$\sum b_i a_i$
(7)	r	NB	$\sum SNBmc$
(8)	r	BI	$\sum SNBmc$
(9)	R	BI	$\sum b_i a_i, \sum SNBmc$
(10)	r	NB	$\sum SNB$
(11)	r	BI	$\sum SNB$
(12)	R	BI	$\sum b_i a_i, \sum SNB$

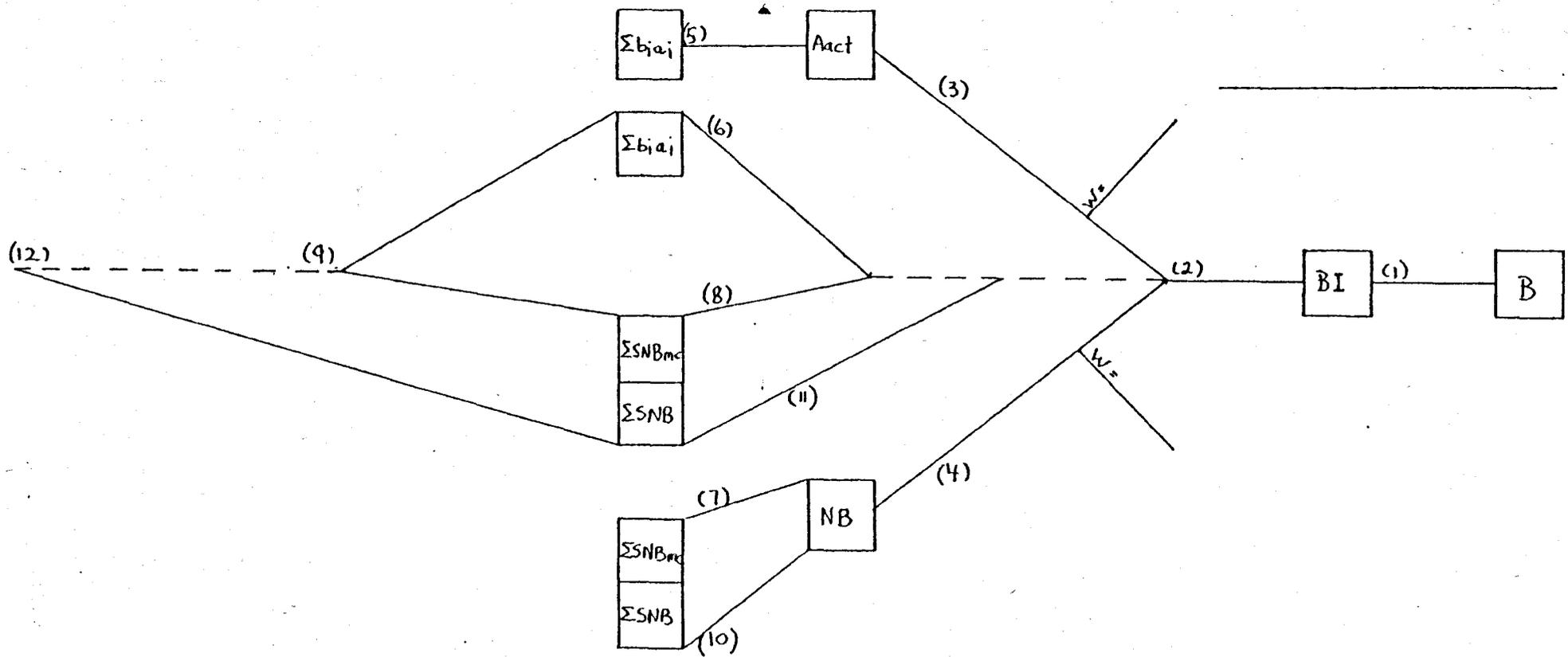
These regressions were run in order to test the hypotheses set up at the start of this research. They attempt to test empirically whether the model is working within the constraints of this research exercise. The basis of the hypotheses were outlined in the introduction to this chapter. In detail some of the major steps in prediction in Fishbein's linear model are given below; each one generating particular computer regression runs:

Step 1 - BI predicts B; regression (1) on chart.

Step 2 - BI is predicted more by Aact + NB together, regression (2) on chart, than separately by either Aact, regression (3) on chart, or NB, regression (4) on chart.

Step 3 - BI is predicted with differing strengths by Aact and NB (size of correlation coefficient (3)/(4) on charts; or regression

GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION



weights (w on chart).

Step 4 - Aact is predicted by the  $\sum b_i a_i$ , regression (5) on chart; similarly NB is predicted by  $\sum SNBmc$ , regression (7) on chart, OR by  $\sum SNB$ , regression (10) on chart.

Trial tabulations indicated that motivation to comply (mc) did not work well in all instances, therefore the specific normative beliefs summed ( $\sum SNB$ ) were run in addition to the specific normative beliefs multiplied by motivation to comply and summed ( $\sum SNBmc$ ). This run was additional to the normal Fishbein analysis, although in some of his more recent work Fishbein and other workers also found that mc is difficult (Fishbein, 1980; etc).

Predicting BI - the remaining regression equations are examined under this heading in the next section of this chapter.

The summative regressions were run on the computer separately for the 3 markets by the author and the effective sample sizes were as follows -

	<u>Sub-sector of</u>	<u>Brewers' Beers</u>		<u>Lagers</u>	
	<u>cigarette mkt.</u>	<u>Men</u>	<u>Women</u>	<u>Men</u>	<u>Women</u>
Regressions incl. B	144	98	49	98	49
All other regressions	246	196	103	196	103

The statistics which have been calculated on these regression runs and the detailed results for the three markets are given in chart form in Appendix 4(v).

In the next section of this chapter the main conclusions are presented under each of the hypotheses set up at the outset of this research. Significant values in the text refer to the 5% level or above. Avenues for further research are also indicated.

#### 4.4. RESULTS AND CONCLUSIONS

As indicated, the extent to which the data gathered in the 3 studies, accorded with the predictions of Fishbein's theory have been presented in summary form in charts (Appendix 4(v)). These will now be examined to see how well they fit the formal hypotheses set up at the outset of this study (Chapter 1) and repeated here.

##### 4.4.1. Hypothesis 1 - there is no relationship between Behaviour (B) and Behavioural Intention (BI): tested by $r_{B:BI}$ -no.(1) on chart

The discussion at the beginning of this chapter suggested that if all the major problems of implementing the theory in survey research are

observed, it should be possible to find a good association between B and BI. Strenuous attempts were made to apply the theory faithfully in this research, although it had to serve practical marketing needs as well as academic requirements. Yet over the three data sets the correlation for rB:BI expressed as percentages (for explanation please see Appendix 4(v)) are low. For cigarettes they range from 6% to 24%; for brewers' beers from 3% to 26% (men) and from 3% to 37% (women). For lager brands from 5% to 25% (men) and 2% to 19% (women). The full results are given in the next two tables.

TABLE 4(i) SUB-SECTOR OF CIGARETTE MARKET: the percentage variation in B explained by BI

Brand A	24%
Brand B	6%
Brand C	8%
Brand D	No information available
Brand E	17%
Brand F	17%
Brand G	12%

TABLE 4(ii) BREWERS' BEERS AND LAGER BRANDS: the percentage variation in B explained by BI

BREWERS' BEERS	LAGER BRANDS	
	MEN	WOMEN
Watneys	26%	37%
Trumans	8%	9%
Whitbread	13%	22%
Courage	15%	15%
Charringtons	3%	7%
Ind Coope	12%	28%
S&N	12%	3%
	Harp	25% 12%
	Skol	5% 19%
	Kronenbourg	12% 10%
	Carlsberg	14% 5%
	Heineken	10% 16%
	Holsten	6% 2%

Some of the major reasons which might account for the low correlation between Behavioural Intention and Behaviour are explored below:

(i) Ajzen and Fishbein (1980) indicated that purchase might partake more of the character of an 'outcome' than of a specific behavioural action. As outcomes incorporate many factors (see introduction to this chapter), not only are the relationships more complex, but some of them may not be under the person's volitional control (e.g. point of purchase influences

such as brand availability, price and promotion). These considerations would apply to the three data sets presented here, all making prediction more difficult.

(ii) The definition of B used in this research. This was collected on a postcard for the 3 purchases (for cigarettes) following the interview; 2 purchases only in the case of beers and lagers. For a given brand each purchase was coded 1, each non-purchase as 0, so in total a persons score could range from 0-3 for cigarettes, 0-2 for beers or lagers. This computed measure was B. It has some affinity to loyalty and should therefore have been a reasonable measure of B; but the complexity of purchase in the market made it too simple a measure. This can be seen from the special analysis undertaken for Brand A (Appendix 4(vi)). Panel data would clearly have been preferable, but it was not available. It would have allowed for greater sophistication in analysis (e.g. McDonald, 1969; Bonfield, 1972). Panel data can also reveal the existance of brand repertoires, examined both in the UK and USA (e.g. Ehrenberg et al 1969, 1970, 1972 and 1977).

(iii) It has been noted that similarity between perceived characteristics of brands or products leads to a situation where purchase can take place within brand repertoires, rather than on a single brand basis. This again increases difficulty of prediction and there is some evidence of its occurrence in these markets (Brand A special analysis, Appendix 4(vi)).

(iv) Also the personal involvement of consumers with the brands researched here may be lower than in the case of some other markets; it certainly would be expected to be lower than in the field of social psychology. Kaplan (1978) for example, found the Fishbein model worked well in predicting 'to have - or not to have - another child' with  $r_{B:BI} = .55$ , which was a highly significant result.

(v) The relationship between 'attitudes' and behaviour is a very complex one and this is well documented by Mostyn (1978b). Not least, because a person can bring his or her attitudes in line with behaviour.

(vi) The data sets were collected in relatively young markets.. In old established markets, where brand loyalty can be stronger, unpublished data seen by the author has indicated stronger BI-B associations ( $r = .5$  and above). These markets had been well researched already and funding for this research had of necessity to be for markets where data was still required, which tended to be newer markets, where these factors did not hold to anything like the same extent.

(vii) Other arguments why the correlation between B and BI may be weak have been put forward by Hyman (1949), Dollard (1949), Insko and

Schopler (1967), Kiesler, Collins and Miller (1969) and Wicker (1969). Hyman argued that attitudes may be measured privately, whereas behaviour is undertaken in real life, where action needs to be defended. This makes a consistent relationship impossible. Dollard instanced respondents who were incapable of making an appropriate (behavioural) response as being a likely factor underlying weak correlation between B and BI, because they were apathetic or they did not have a sufficiently high IQ. Kiesler, Collins and Miller attributed the lack of a good relationship between attitudes and behaviour to the bad measurement of both. Insko and Schopler indicated that a given attitude may have more than one behavioural response; or the expected behaviour may fail to occur because the appropriate opportunity does not arise. They also suggested that the motives and drives underlying a given behaviour may be stronger than motives related to the 'relevant' attitude and it may therefore not be reflected in behaviour. Wicker instanced situational and personal factors (e.g. unforeseen circumstances/ competing motives) as having an interfering effect.

The rB:BI relationship is therefore a weak link in this theory as applied in the current research. Other workers have had the same experience e.g. Glaser (1973) wrote: 'Although the correlations between B and BI are significant it is apparent, from an examination of the differences in the explained variances between behaviour and behavioural intention (B-BI) that the model generally gives better prediction of behavioural intention than behaviour.' Even if the association between B-BI in this research had been stronger, it must still be remembered that multiple regression analysis only proves association and not causation. Also a good correlation at one point in time might not be repeated a second time; the fact that a consumer 'intends to purchase X' and actually does so for a short time period, may only mean that the point of purchase situation and intention coincided, they might not have coincided at a different time. Panel data, which gives much longer records and also the possibility of running the data within individuals, gives much richer answers (e.g. McDonald, 1969). Simpler methods of obtaining B, have also not worked in other situations (e.g. Resnik, 1974).

#### 4.4.2. Hypothesis 1a - there is no relationship between Behaviour as measured on the questionnaire and Behavioural Intention

It is clear from the above, that the Behaviour (B) measure needs careful attention in a marketing study. Alternative measures of Behaviour included on the stage II questionnaire and analysed in Appendix 4(vi), are closer to measures of reported intention to purchase than to actual

purchase. Whether they are capable of reflecting real purchase, would require calibrating the results with panel data for the same time periods. The Behavioural Intention measure can also be improved. The detailed analysis for Brand A (given in Appendix 4(vi)) indicates that the spread of answers on the rating scale for BI, can reduce the relationship between B and BI. Other workers have found this too (Gormley, 1974; Bonfield, 1972) and it may therefore be necessary to 'disaggregate the data' before relating it to Behaviour. This approach shows considerable promise and should be explored in subsequent studies.

If the objective of any given research is to focus on the intention - behaviour link in marketing then the arguments and suggestions given above need to be borne in mind. But should the research focus be more on behaviour alone, then an alternative technique might be explored which concentrates on behaviour (e.g. trade-off analysis e.g. Westwood et al, 1974, etc).

4.4.3. Hypothesis 2 - Behavioural Intention (BI) is not necessary to predict Behaviour (B): tested by RB: Aact + NB

This hypothesis was not tested as the link between Behavioural Intention (BI) and Behaviour (B) was not particularly close. It was therefore decided to concentrate the testing within the Fishbein formula, with the highest element of the equation being BI.

4.4.4. Hypothesis 3 - there is no relationship between attitude towards the act (Aact) plus general norm (NB) and Behavioural Intention (BI): tested by RBI: Aact + NB - nos.2,3,and 4 on chart

There is a good relationship between Aact + NB and BI (no. 2 on charts) for all three data sets, with all regression coefficients above 25% and many well above it. This result is one which would be predicted by the theory. There is only one exception to this amongst women for one brewers' beer.

Further in almost all cases for the 20 products tested, Aact + NB together (no. 2 on charts) predict BI better than either Aact (no. 3 on charts) or NB (no. 4 on charts) alone. Numerically this is true, but these differences are not necessarily significant. This type of result is in line with the model's prediction. The results obtained are given in the tables below.

TABLE 4(iii) SUB-SECTOR OF CIGARETTE MARKET: the percentage variation in BI explained by Aact+NB together, Aact and NB separately

Key: (\*) = significant difference at 5% level or above between rBI:Aact

and rBI:NB results, in favour of starred item.

	<u>RBI:Aact+NB</u>	<u>rBI:Aact</u>	<u>rBI:NB</u>
Brand A	45%	41%(*)	22%
Brand B	44%	37%	24%
Brand C	40%	33%(*)	18%
Brand D	46%	38%	28%
Brand E	55%	46%	41%
Brand F	59%	56%(*)	23%
Brand G	51%	44%	32%

TABLE 4(iv) BEERS AND LAGER MARKETS: the percentage variation in BI explained by Aact+NB together, Aact and NB separately  
BREWERS' BEERS

	<u>MEN</u>			<u>WOMEN</u>		
	<u>RBI:Aact+NB</u>	<u>rBI:Aact</u>	<u>rBI:NB</u>	<u>RBI:Aact+NB</u>	<u>rBI:Aact</u>	<u>rBI:NB</u>
Watneys	56%	54%(*)	42%	69%	67%(*)	45%
Trumans	40%	38%	29%	33%	27%	24%
Whitbreads	41%	35%	30%	40%	39%	23%
Courage	40%	35%	31%	54%	54%(*)	31%
Charringtons	27%	24%	19%	21%	21%	10%
Ind Coope	42%	38%	29%	41%	37%	29%
S&N	46%	43%	35%	49%	46%	37%
<u>LAGER BRANDS</u>						
Harp	63%	60%	51%	53%	48%	40%
Skol	50%	48%(*)	32%	48%	48%	30%
Kronenbourg	45%	45%(*)	18%	43%	40%	22%
Carlsberg	54%	46%	38%	49%	49%(*)	24%
Heineken	42%	41%(*)	19%	51%	50%(*)	24%
Holsten	36%	34%	21%	31%	27%	22%

4.4.5. Hypothesis 4 - the regression equation of rBI: Aact does not really differ from the regression equation rBI: NB - nos. 3 and 4 on chart and regression weights

The purpose of this equation is to test whether both the general norm and the overall attitude (Aact) are really necessary for the prediction of Behavioural Intention (BI). If an explained variance of 25% can be taken as a reasonable measure of association, then in the cigarette study, Aact makes a good predictor of BI for all brands and NB in the case of three out of seven (Table 4(iii) above). In the drinks markets the same

holds true for Aact for seven brewers' beers and six lager brands - with one exception each, in the case of both men and women. (Table 4(iv) above). NB reaches this level of 25% in the drinks markets in all but 4 cases (out of 13) amongst men and all but 7 cases amongst women. When testing rBI: Aact against rBI: NB there are few cases where the differences are significant (\* items on Tables 4 (iii) and (iv)): Brands A, C and F in the sub-sector of the cigarette market and Watneys, Skol, Kronenbourg, Heineken amongst men and Watneys, Courage, Carlsberg, Heineken amongst women in the drinks markets.

As would be expected the regression weights are in line with these results. Although the evidence is less strong for NB, it is suggested that in the current state of the markets, these results nevertheless argue for the need for both measures (Aact and NB).

#### 4.4.6. Hypothesis 4a - the cigarette market is largely under normative control and the drinks markets are largely under attitudinal control

The original hypothesis put forward by marketing people that this sub-sector of the cigarette market was largely under normative control, was not borne out by the data. For all brands the normative effect is weaker and in the case of three brands attitudinal control seems definitely indicated by the results; Table 4(iii). This may be another piece of evidence which underlines the relatively underdeveloped nature of brand profiles in this market; the three brands where the differences are significant appeared to be the ones with the most strongly developed brand personalities when the data was collected (Brand A, C, and F).

There may be another reason why the original hypothesis was not substantiated. In a 'Critical Analysis of the Public Literature' relating to the US smoking market, which Fishbein carried out in 1977, he hypothesises that normative control may be more important in this market for people who are starting to smoke, teenagers and women; while attitudinal control may be more important for those continuing to smoke and for older people. This may apply to our data, as the three more well established brands may have an image which relates them more closely to established/older smokers than the less well developed brands.

The original hypothesis that the drinks markets were more under attitudinal control is true of all brewers' beers and lager brands amongst both men and women, but statistically significant in only four instances amongst both men and women; Table 4(iv). This suggests that there is room for the strengthening of brand images in what is essentially a new market: the take-home market for brewers' beers and lager brands.

As was shown above, Aact and NB as regressed on BI, gave regression coefficients which were significantly different in only a number of instances. One of the principles underlying multiple regression analysis is that the variables (Aact and NB in this case) should be independent of one another. This was tested for all 3 data sets and in almost all cases the correlation coefficients were significantly different from zero. However, for the cigarette data these correlation coefficients were low (ranging from .32 to .59) and it could be argued that they are not sufficiently big to invalidate the regression coefficients. Much more caution must be applied when interpreting the regression coefficients for the drinks markets because here the correlation coefficients for both the male and female samples were bigger (brewers' beers: ranging from .53 to .75; lagers: ranging from .52 to .79).

4.4.7. Hypothesis 5 - there is no relationship between attitude towards the act (Aact) and the sum of the individual attitudinal beliefs ( $\sum b_{ai}$ ): tested by  $r_{Aact:\sum b_{ai}}$  -no. 5 on chart.

As the charts in Appendix 4(v) indicate, the correlation between  $r_{Aact:\sum b_{ai}}$  is not as good as would have been expected in all three markets (excepting brewers' beers amongst men). It ranges from 35% to less than 20% for cigarettes; 11% to 36% amongst men for beers and 5% to 37% amongst women for beers; 16% to 33% amongst men for lagers and 17% to 23% amongst women for lagers. There may be a number of factors contributing to this result:

- working in young markets, where attitudinal beliefs have not as yet attached themselves to brands and so brand images are weak;
- the use of market modal beliefs, which may hide some differences between the brands;
- only some beliefs work strongly for a given brand with others contributing little or brands having different attitudinal profiles as varying combination of beliefs are endorsed for each one;
- the problem of intercorrelation between the items.

All these factors may make a contribution. It is intended to elaborate only on the last of these problems:

- when predictors exhibit high intercorrelation among themselves, this suggests that the data set includes redundant information;
- by using the total set of salient beliefs in the summative regression analysis, Fishbein's method retains this redundant information. The

data will be specifically examined from this point of view in Chapter 6, as the problem of the intercorrelation between belief items, is the main trigger for the examination of subsets within the belief data. Such subsets might exhibit less intercorrelation between belief items and hence improve prediction.

The problems associated with this result for  $r_{Aact:\sum b_i a_i}$  is further underlined by the fact that  $r_{Aact:\sum b_i a_i}$  is not very different from the less direct measure of  $r_{BI:\sum b_i a_i}$  (no 6. on the charts), whereas the model would predict the latter to be worse.

4.4.8. Hypothesis 6 - there is no relationship between overall norm (NB) and the sum of the individual normative beliefs ( $\sum SNB$ ) and motivation to comply (mc): tested by  $r_{NB:\sum SNBmc}$  -no. 7 on charts

For the cigarette market the correlation between  $r_{NB:\sum SNBmc}$  is virtually nil. The mc part of the formula does not work in this market. It was found in this research that mc is extremely sensitive to question wording, and although the wording was improved for the drinks markets, the  $r_{NB:\sum SNBmc}$  improves over the cigarette study only slightly for men. Amongst women,  $r_{NB:\sum SNBmc}$  is more important for both brewers' beers and lagers and this suggests that there could be a sex difference in the results. In the take-home markets, it is believed, that this is due to the fact that women purchase for others more often than men do; hence norms might be of greater importance to them. However, in all cases the correlation improves greatly when motivation to comply (mc) is removed.

4.4.9. Hypothesis 6a - there is no real difference between  $r_{NB:\sum SNBmc}$  and  $r_{NB:\sum SNB}$  - nos. 7 and 10 on the charts

The differences between these two regressions can be seen from the next two tables.

TABLE 4(v) SUB-SECTOR OF CIGARETTE MARKET: difference between  $r_{NB:\sum SNBmc}$  and  $r_{NB:\sum SNB}$

	<u><math>r_{NB:\sum SNBmc}</math></u>	<u><math>r_{NB:\sum SNB}</math></u>
Brand A	0%	55%
Brand B	0%	53%
Brand C	0%	50%
Brand D	0%	55%
Brand E	0%	63%
Brand F	2%	59%
Brand G	0%	55%

TABLE 4(vi) BEERS AND LAGERS: difference between  $rNB:\Sigma SNBmc$  and  $rNB:\Sigma SNB$   
BREWERS' BEERS

	<u>MEN</u>		<u>WOMEN</u>	
	<u><math>rNB:\Sigma SNBmc</math></u>	<u><math>rNB:\Sigma SNB</math></u>	<u><math>rNB:\Sigma SNBmc</math></u>	<u><math>rNB:\Sigma SNB</math></u>
Watneys	6%	69%	27%	63%
Trumans	5%	54%	11%	44%
Whitbreads	6%	54%	9%	57%
Courage	2%	56%	3%	46%
Charringtons	5%	59%	16%	45%
Ind Coope	0%	61%	14%	57%
S&N	1%	57%	15%	56%
<u>LAGER BRANDS</u>				
Harp	12%	70%	23%	68%
Skol	16%	68%	14%	34%
Kronenbourg	4%	54%	12%	51%
Carlsberg	12%	53%	10%	42%
Heineken	11%	58%	11%	45%
Holsten	15%	58%	33%	57%

As the differences between  $rNB:\Sigma SNBmc$  and  $rNB:\Sigma SNB$  in the cigarette sample are very big, they are all significant. The percentages in the drinks markets were tested for significance too and in only one case were the differences not significant (Skol, amongst women). Therefore, even with improvements in question wording, mc still contributes little to the results.

4.4.10. Hypothesis 7 - to test whether the inclusion of overall attitude (Aact) is a necessary part of the formula: there is no difference between  $rAact:\Sigma b_i a_i$  and  $rBI:Aact$  -nos. (5) and (3) on charts

The difference between the aggregated measure and the direct measure in the cigarette market is significant in all but two cases; the aggregated measure is  $\Sigma b_i a_i$  and the direct measure is Aact. Amongst men, the difference is significant for all but one of the lager brands, but for only two of the brewers' beers. Amongst women, the difference is significant for all but one of the lager brands and significant for four of the brewers' beers. Therefore the differences appear to be more in evidence for the cigarette and lager markets than the beer market and the inclusion of Aact is probably necessary. This result may be partly due to the fact that beliefs may have attached themselves more effectively to brands (cigarettes, lagers) than to aggregates like all the beers made by a particular brewer.

The details are given below.

TABLE 4(vii) SUB-SECTOR OF CIGARETTE MARKET: difference between rBI:Aact and rAact: $\sum b_{i,i}$

	<u>rBI:Aact</u>	<u>rAact:<math>\sum b_{i,i}</math></u>
Brand A	41%(*)	25%
Brand B	37%(*)	22%
Brand C	33%(*)	16%
Brand D	38(ns)	24%
Brand E	46%(*)	32%
Brand F	56%(*)	23%
Brand G	44%(ns)	35%

TABLE 4(viii) BEERS AND LAGERS: difference between rBI:Aact and rAact: $\sum b_{i,i}$   
BREWERS' BEERS

	<u>MEN</u>		<u>WOMEN</u>	
	<u>rBI:Aact</u>	<u>rAact:<math>\sum b_{i,i}</math></u>	<u>rBI:Aact</u>	<u>rAact:<math>\sum b_{i,i}</math></u>
Watneys	54%(*)	36%	67%(*)	37%
Trumans	38%(ns)	26%	27%(ns)	15%
Whitbreads	35%(*)	18%	39%(*)	14%
Courage	35%(ns)	28%	54%(*)	20%
Charringtons	24%(ns)	11%	21%(ns)	5%
Ind Coope	38%(ns)	25%	37%(ns)	30%
S&N	43%(ns)	32%	46%(*)	21%
<u>LAGER BRANDS</u>				
Harp	60%(*)	33%	48%(*)	23%
Skol	48%(*)	30%	48%(*)	20%
Kronenbourg	45%(*)	23%	40%(*)	17%
Carlsberg	46%(*)	16%	49%(*)	17%
Heineken	41%(ns)	30%	50%(*)	22%
Holsten	34%(*)	17%	27%(ns)	20%

4.4.11. Hypothesis 7a - to test whether the inclusion of the general norm (NB) is a necessary part of the formula: there is no difference between rNB: $\sum SNB_{mc}$  and rBI:NB OR rNB: $\sum SNB$  and rBI:NB - nos. (7/10) and (4) on charts

As table 4(ix) shows, in the cigarette study, for both of the above situations, all the differences are significant. NB is therefore a necessary part of the formula when mc is included (as this gives very low figures for rNB: $\sum SNB_{mc}$ ), but NB is of more questionable value when mc is excluded, as the rNB: $\sum SNB$  figures are always greater than the rBI:NB figures.

TABLE 4(ix) SUB-SECTOR OF CIGARETTE MARKET: difference between rNB:ΣSNBmc and rBI:NB OR rNB:ΣSNB and rBI:NB

	<u>rNB: SNBmc</u>	<u>rBI:NB</u>	<u>rNB: SNB</u>	<u>rBI:NB</u>
Brand A	0%	22%(*)	55%(*)	22%
Brand B	0%	24%(*)	53%(*)	24%
Brand C	0%	18%(*)	50%(*)	18%
Brand D	0%	28%(*)	55%(*)	28%
Brand E	0%	41%(*)	63%(*)	41%
Brand F	2%	23%(*)	59%(*)	23%
Brand G	0%	32%(*)	55%(*)	32%

In the drinks markets the situation is much more complicated, but the next table summarises the significant (\*) results.

TABLE 4(x) BEERS AND LAGERS: difference between rNB:ΣSNBmc and rBI:NB OR rNB:ΣSNB and rBI:NB

BREWERS' BEERS

	<u>MEN</u>				
	<u>rNB:ΣSNBmc</u>	<u>rBI:NB</u>	<u>rNB:ΣSNB</u>	<u>rBI:NB</u>	
Watneys	6%	42%(*)	69%(*)	42%	
Trumans	5%	29%(*)	54%(*)	29%	
Whitbreads	6%	30%(*)	54%(*)	30%	
Courage	2%	31%(*)	56%(*)	31%	
Charringtons	5%	19%(*)	59%(*)	19%	
Ind Coope	0%	29%(*)	61%(*)	29%	
S&N	1%	35%(*)	57%(*)	35%	
	<u>WOMEN</u>				
Watneys	27%(ns)	45%	63%(ns)	45%	
Trumans	11%(ns)	24%	44%(ns)	24%	
Whitbreads	9%(ns)	23%	57%(*)	23%	
Courage	3%	31%(*)	46%(ns)	31%	
Charringtons	16%(ns)	10%	45%(*)	10%	
Ind Coope	14%(ns)	29%***	57%(*)	29%	
S&N	15%	37%(*)	56%(*)	37%	
Harp	12%	51%(*)	70%(*)	51%	<u>MEN</u>
Skol	16%	32%(*)	68%(*)	32%	
Kronenbourg	4%	18%(*)	54%(*)	18%	
Carlsberg	12%	38%(*)	53%(*)	38%	
Heineken	11%	19%(ns)	58%(*)	19%	
Holsten	15%	21%(ns)	58%(*)	21%	

	<u>rNB:ΣSNBmc</u>	<u>rBI:NB</u>	<u>rNB:ΣSNB</u>	<u>rBI:NB</u>	
Harp	23%(ns)	40%	68%(*)	40%	<u>WOMEN</u>
Skol	14%(ns)	30%	34%(ns)	30%	
Kronenbourg	12%(ns)	22%	51%(*)	22%	
Carlsberg	10%(ns)	24%	42%(ns)	24%	
Heineken	11%(ns)	24%	45%(ns)	24%	
Holsten	33%(ns)	22%	57%(*)	22%	

For brewers' beers all the differences are significant for both situations amongst men: i.e. when mc is included in the test, the direct measure (rBI:NB) does better than when mc is excluded. Amongst women the results are more variable, as the measure including mc is quite large for some brands and therefore not significantly different from the direct measure (rBI:NB). Although the indirect measure (rNB:ΣSNB) is numerically larger than the direct measure (rBI:NB) in the test rNB:ΣSNB and rBI:NB, it is significant in only 4 cases in favour of the indirect measure.

For lagers all the brand differences are significant amongst men when rNB:ΣSNB and rBI:NB are tested, ie the effect is always lower for the direct measure (rBI:NB) than the indirect measure (rNB:ΣSNB). This makes the direct measure a doubtful instrument in this instance too. When mc is included in the test (and mc did somewhat better in this market and beers than in the cigarette market), the direct measure does better in all but 2 instances. Amongst women, mc does much better than amongst men on average, therefore, when mc is included in the test there are no significant differences between the direct and indirect measures. When rNB:ΣSNB and rBI:NB are tested amongst women, the indirect measure does better than the direct measure in all but 3 cases.

All this suggests that more work is required on 'motivation to comply' and there appears to be some doubt as to the usefulness of a 'general others' compared with 'specific others aggregated.'

#### 4.4.12. Predicting BI

In addition to predicting the main links in the theory of reasoned action tested under the above hypotheses, the BI links were also checked (nos. 6,8,11,9 and 12 on the charts).

In the case of the sub-sector of the cigarette market the following points are of interest:

(i)  $\sum b_1 a_1$  explains between 40% and 21% of the variance in BI over the 7 brands (no. 6 on charts).

(ii)  $\Sigma SNB$  explains between 42% and 18% of the variation in BI; when

mc is included in the regression this falls to virtually nothing (nos. 11 and 8).

(iii) In most cases the variance explained by  $\sum b_i a_i$  in BI (no. 6) is not very different in size to that explained by  $\sum b_i a_i$  in Aact (no.5). The model would suggest that the former could be lower. The results for the normative part of the equation are in line with the model's prediction: the variance explained by  $\sum SNB$  in NB is always greater than the variance explained by  $\sum SNB$  in relation to BI. (nos. 10 and 11 on charts).

(iv) The model also argues that Aact+NB together (no. 2) should predict BI better than  $\sum b_i a_i + \sum SNBmc$  together should predict BI (no. 9) and this is certainly the case. The prediction is better when  $\sum b_i a_i + \sum SNB$  together are considered (no. 12) and in the case of regression (12) this holds true even though in the figures presented, one belief ('too strong and harsh') was excluded from the analysis. This was done, as the sponsoring company wished to test the predictive power of the equation minus this belief; it made no difference.

The same points come through in the beer and lager data:

1. the indirect measures predict BI less well than the direct measures (e.g.  $r \sum b_i a_i + \sum SNBmc$  together compared with Aact + NB together);
2. the main exception to this appears to be the comparison involving the salient attitudinal beliefs where  $r_{Aact: \sum b_i a_i}$  is not very different from  $r_{BI: \sum b_i a_i}$ . The model would predict the former (1. above) not the latter instance (point 2).
3. The inclusion of mc in an equation reduces the predictive power.

#### 4.4.13. Conclusions and avenues for further research

In the complex, dynamic and young markets which were investigated in this research, the link between Behaviour and Behavioural Intention was not established. The reasons for this are explored in great depth, both in the main commentary and in Appendix 4(vi). It is likely that both the Behaviour and Behavioural Intention measures can be improved: Behaviour, by getting as close to continuous records of purchase as possible and Behavioural Intention, by carefully examining the spread of the ratings obtained on the 7 point scales. As the example of Brand A demonstrated (Appendix 4(vi)), this type of examination suggests, that the B:BI link should be investigated separately for groups with different endorsement of the BI scale.

When testing the internal validity of the model, in terms of all the remaining links indicated on the charts, the linear nature of the model is generally confirmed; although not significantly in the following main

instances:

(i) In all three markets the general norm (NB) does not appear as useful a concept as the model suggests. Comparing the general norm (NB) with the less direct measure (the sum of the specific normative beliefs), it is a less good predictor than the specific beliefs aggregated - when these are presented minus 'motivation to comply' ( $\Sigma$ SNB). Possibly a 'general others' is less useful than specific others; or it might be a question of exploring the wording of this concept. It might even be the case that 'in some product fields..situational factors may be more relevant than social norms perceived in terms of reference groups' (Sampson and Harris, 1970). For example, situational factors altered the model significantly in the Songer-Nocks' research (1975). This argument could be particularly relevant to markets where several brands are perceived as similar and high point-of-sale activity exists (e.g. sub-sector of cigarette market).

(ii) Clearly there is a problem with motivation to comply; as a concept it does not appear to work very well, even with improvements of the type tried in this research exercise. More work may be required to improve the wording; the pilot work done for this research suggested that respondents' objections were more to the wording than to the concept. Alternatively, if that avenue fails, then it may be necessary to drop this mc measure altogether from the formula and perhaps cover it in terms of the 'context' of the research model: e.g. 'taking into account your own personal wishes and those of other members of the family for whom you buy...' It is suggested, that this would be a valuable direction for further research on the Fishbein model. Other researchers too have found problems with mc e.g. Ajzen and Fishbein (1969), Thomas (1975), Schwartz and Tessler (1972) and Keenan (1976).

(iii)  $\Sigma b_i a_i$  does not appear to predict overall attitude (Aact) as well as it might. Tuck (1970) in an unpublished report relating to a well-established UK market, found  $r_{Aact:\Sigma b_i a_i} = .79$  and  $.51$  for the two brands investigated and these figures were highly significant. It is possible that the results found in this research are connected with the underdeveloped nature of brand profiles in these young markets and also possibly to the use of market modal beliefs, which could have reduced some of the differences between the brands. This will be investigated further.

When applying a model such as Fishbein's in dynamic markets and in product fields where branding is not very strong, success cannot be guaranteed and empirical verification has to be undertaken each time. It

is necessary to check how the model works in different product fields and for different market segments. In the marketing field this is essential, as we are not always dealing with areas of high interest or with homogeneous population groups, in terms of how purchasing decisions are made.

Also in applied research, costs must be minimised, and therefore it is suggested that where the underlying belief structure need not be explored, only the overall attitude and general norm parts of the formula need be established, with consequent savings in data collection and processing. Even where the belief structure is an important part of the research, some of the detailed work on the B:BI link done here for example, might suggest that for marketing advice it is more useful to examine the data ratings for BI versus the behavioural measure, than to run expensive regression analyses. The latter are not always helpful, where great complexity is to be found in the purchase situation.

Marketing men also look for a small set of key beliefs on which they can major in their promotional activity and these ought to be the most predictive of behaviour ie purchasing behaviour. True to Fishbein's model the total set of salient beliefs was handled in the summative regression analyses dealt with in this chapter. To improve marketing advice, the total set of salient beliefs for each brand will be examined in more detail in the next two chapters.

## CHAPTER 5

### FURTHER EXAMINATION OF FISHBEIN DATA

#### 5.1. INTRODUCTION

In this chapter a closer examination is made of the attitudinal and normative beliefs underpinning the overall belief structures (Aact and NB), in order to investigate the Fishbein formula more thoroughly.

It was shown in Chapter 4, that the extent to which Aact (overall attitude) and NB (general norm) predicted BI (Buying Intention) varied for the different brands. It is important to find out whether this is due just to more weight being given to the attitudinal compared with the normative part of the equation or whether, in addition to this, the contribution made by the individual attitudinal or normative beliefs to the overall structure differs from brand to brand. It is not possible to obtain any explanation from the standard Fishbein analyses, as presented in Chapter 4, as all the beliefs are summed.

The analyses required to provide an explanation of the above were listed under hypothesis 8 in Chapter 1:

'..to investigate the Fishbein formula more fully the two following equations need to be broken down:

(i) to check on the contribution of the  $b_i$ 's and  $a_i$ 's to attitude towards the Aact and

(ii) similarly to check on the contribution of the individual SNB's or SNBmc's to general norm..

this check needs to be carried out in order to test whether

Hypothesis 8a - individual brands have different attitudinal and normative beliefs attached to them and

Hypothesis 8b - whether the Fishbein model yields more information by such further analyses than the data on which marketing actions are commonly made today (e.g. mean scores and association data).'

As is clear from Chapter 4, the Fishbein formula involves three types of belief scores in the attitudinal part of the equation:

$b_i$  scores

$a_i$  scores

$b_i a_i$  scores.

The  $b_i$  scores are the belief scores produced by the sample for each of the salient beliefs and they indicate the strength with which the belief is held for a given brand. In the case of the cigarette study, there were

11 beliefs. These will need to be examined later, in order to check whether salience varies for the individual brands. These scores are directly comparable to the mean scores commonly presented in marketing research or brand image studies.

The  $a_i$  scores reflect, in the cigarette study for example, the extent to which these smokers personally like the attributes described by these beliefs in this type of cigarette. Therefore  $a_i$  scores are a reflection of what is liked about a particular product field by the market (or market segment).

The  $b_i a_i$  scores (derived by multiplying a given  $b_i$  score with its  $a_i$  score) tell us which beliefs work most strongly for the brand, since the theory holds that attitude is formed from the sum of the  $b_i a_i$  scores of all the salient beliefs ( $\sum b_i a_i$ ). Clearly the mean  $b_i a_i$  scores presented in the tables and appendices of this chapter, are not exactly the same as the mean  $b_i$  scores multiplied by the mean  $a_i$  scores.

This part of the project will check on the contribution each individual  $b_i a_i$  and  $b_i a_i$  score can make to Aact. For ease of identification this has been called the 'Fishbein  $b_i a_i$  analysis' throughout this chapter.

Similarly, in the normative part of the equation, it is important to check on the contribution made by the individual normative beliefs (SNB) to general norm (NB). This analysis has been undertaken twice. First, as the formula demands, by examining each individual normative belief after it has been multiplied by the relevant motivation to comply (SNBmc). Second, by omitting mc, as there was some evidence (Chapter 4), that motivation to comply did not always work with the data sets used in this study.

This detailed examination of the two parts of the equation, attitudinal and normative, should provide information about the explanatory power of the Fishbein model and its ability to provide marketing advice. For the attitudinal part of the equation, a further comparison can be made between the data from the Fishbein  $b_i a_i$  analysis and the types of data on which marketing actions are usually decided, such as mean scores and association data. Mean scores ( $b_i$  scores) are already part of the input to the Fishbein model; association data is not. By comparing these three types of data (Fishbein  $b_i a_i$  analysis, mean scores and association data) hypothesis 8b can be tested: 'whether the Fishbein model yields more information by such further analyses than the data on which marketing actions are commonly made today (e.g. mean scores and association data);' and to check whether they would provide different marketing advice.

The first part of this chapter deals with the attitudinal belief structures, the second part with the normative belief structures.

## 5.2. ATTITUDINAL BELIEFS UNDERPINNING OVERALL ATTITUDE

### 5.2.1. Belief Scores ( $b_i$ scores) or Mean Scores

As indicated above, the  $b_i$  scores are like the mean scores usually presented in brand image studies. In such studies mean scores only are usually presented and the different brands are compared along the individual belief and overall attitude measures.

The data for the cigarette study were examined in two different ways: first, from the contribution all eleven beliefs make to each brand (Table 5(i)) and second, from the point of view of how each brand performs on one belief at a time (Table 5(ii)). It should be remembered that belief scores range from +3 to -3. Table 5(i) shows that although the belief reliable name and reputation is the first belief for all brands except D, the rank order in which the beliefs support each brand is different. Fishbein argues that for prediction of overall attitude the total set of eleven beliefs applies to all brands, but the data suggest, that the beliefs are endorsed differently in each case and that the brands have different images. There may, therefore, be a cluster of restricted beliefs for each brand which could predict overall attitude better than all the eleven beliefs put together. This hypothesis will be investigated in a subsequent chapter.

The scores on Table 5(i) also indicate that Brand A has a particularly strong image and Brand D a very poorly developed image. This point is really brought out by the analysis shown on Table 5(ii) - Brand A comes top on all beliefs although on three of them there are other brands with mean scores not significantly different from those of Brand A. These are: attractive pack (where top place is shared with Brand B); reasonably priced (where top place is shared with Brands C and F) and buy it only when on offer (where there is very little difference between any of the brands).

In a brand image study, the beliefs are usually related to some overall measure and in this study the most appropriate measure is Aact (Table 5(iii)). Brand A comes top by a significant margin here too. It must therefore be the most successful brand in this sub-sector of the market and there seems little room for existing beliefs to be improved with perhaps the exception of reasonably priced, where it shares top place with two other brands. In future, promotional effort for the brand

TABLE 5(i)

SUB-SECTOR OF CIGARETTE MARKET:  $b_i$ /mean scores by brand

	<u>Brand A</u>	<u>Brand B</u>	<u>Brand C</u>	<u>Brand D</u>	<u>Brand E</u>	<u>Brand F</u>	<u>Brand G</u>
Belief 1	-1.58(9)	-1.13(5)	-1.01(8)	-0.04(11)	-0.32(7)	-0.96(6)	-0.96(5)
Belief 2	1.38(10)	0.72(9)	1.25(3)	0.49(5)	1.09(2)	1.22(3)	0.89(8)
Belief 3	1.63(6)	1.05(7)	1.06(7)	-0.12(8)	0.26(10)	0.92(7)	0.85(9)
Belief 4	1.75(4)	1.09(6)	1.15(4)	-0.06(10)	0.31(8)	0.99(5)	0.96(5)
Belief 5	2.11(2)*	1.89(2)*	1.13(5)	0.98(1)	0.63(6)	1.16(4)	1.52(3)
Belief 6	1.59(8)	0.89(8)	1.08(6)	-0.14(7)	0.29(9)	0.89(8)	0.96(5)
Belief 7	2.11(2)*	1.63(3)	1.56(2)	0.55(4)	0.85(3)	1.66(2)	1.59(2)
Belief 8	2.37(1)	1.98(1)	1.99(1)	0.58(3)	1.66(1)	2.01(1)	1.91(1)
Belief 9	1.75(4)	1.20(4)	0.76(10)	0.09(9)	0.15(11)	0.76(11)	1.04(4)
Belief 10	-0.98(11)	-0.71(10)	-0.61(11)	-0.88(2)*	-0.75(4)	-0.87(10)	-0.75(10)
Belief 11	1.61(7)	0.65(11)	0.99(9)	0.15(6)	0.73(5)	0.89(8)	0.60(11)
Sig. diff.	0.29	0.31	0.30	0.30	0.31	0.31	0.32

KEY: belief 1 = too strong and harsh

2 = reasonably priced

3 = good taste/flavour

4 = a pleasant cigarette

5 = attractive pack

6 = a satisfying, sustaining cigarette

7 = OK to offer around

8 = reliable name and reputation

9 = a cigarette to be seen with

10 = buy it only when on offer

11 = increasing in popularity

The scores range from +3 to -3 hence the figures indicate that some brands have a fairly well developed image (e.g. Brand A), some a fairly poor image (e.g. Brand D).

Figures in brackets are ranks; ranking has been undertaken on size of score alone, not sign. Sign will be interpreted in the text. To be true to the data salient beliefs were introduced into the questionnaire as phrased by the majority of respondents. They were not rephrased, so that both negative and positive worded statements were included. This produces data with both positive and negative signs and makes interpretation somewhat more difficult.

\* mean scores are not significantly different (5% level or above-

TABLE 5(i) cont.

based on a pooled common SE between the eleven beliefs) from the top mean score; the rest are different from the top mean score.

TABLE 5(ii)

SUB-SECTOR OF CIGARETTE MARKET:  $b_i$ /mean scores by belief

<u>Too strong and harsh</u>		<u>OK to offer around cont.</u>	
Brand A	<u>-1.58</u>	Brand E	0.85
Brand B	-1.13	Brand D	0.55
Brand C	-1.01	Sig. diff.	0.28
Brand F	-0.96		
Brand G	-0.96	<u>Reasonably priced</u>	
Brand E	-0.32	Brand A	1.38
Brand D	-0.04	Brand C	1.25
Sig. diff.	0.33	Brand F	<u>1.22</u>
		Brand E	1.09
<u>Good taste/flavour</u>		Brand G	0.89
Brand A	<u>1.63</u>	Brand B	0.72
Brand C	1.06	Brand D	0.49
Brand B	1.05	Sig. diff.	0.28
Brand F	0.92		
Brand G	0.85	<u>A pleasant cigarette</u>	
Brand E	0.26	Brand A	<u>1.75</u>
Brand D	-0.12	Brand C	1.15
Sig. diff.	0.32	Brand B	1.09
		Brand F	0.99
<u>Attractive pack</u>		Brand G	0.96
Brand A	2.11	Brand E	0.31
Brand B	<u>1.89</u>	Brand D	- 0.06
Brand G	1.52	Sig. diff.	0.32
Brand F	1.16		
Brand C	1.13	<u>A satisfying, sustaining cig.</u>	
Brand D	0.98	Brand A	<u>1.59</u>
Brand E	0.63	Brand C	1.08
Sig. diff.	0.28	Brand G	0.96
		Brand B	0.89
<u>OK to offer around</u>		Brand F	0.89
Brand A	<u>2.11</u>	Brand E	0.29
Brand F	1.66	Brand D	-0.14
Brand B	1.63	Sig. diff.	0.33
Brand G	1.59		
Brand C	1.56		

TABLE 5(ii) cont.

<u>Reliable name and reputation</u>		<u>Increasing in popularity</u>	
Brand A	<u>2.37</u>	Brand A	<u>1.61</u>
Brand F	2.01	Brand C	0.99
Brand C	1.99	Brand F	0.89
Brand B	1.98	Brand E	0.73
Brand G	1.91	Brand B	0.65
Brand E	1.66	Brand G	0.60
Brand D	0.58	Brand D	0.15
Sig. diff.	0.25	Sig. diff.	0.31

<u>A cigarette to be seen with</u>		<u>Buy it only when on offer</u>	
Brand A	<u>1.75</u>	Brand A	-0.98
Brand B	1.20	Brand D	-0.88
Brand G	1.04	Brand F	-0.87
Brand C	0.76	Brand G	-0.75
Brand F	0.76	Brand E	-0.75
Brand D	0.09	Brand B	<u>-0.71</u>
Brand E	0.15	Brand C	-0.61
Sig. diff.	0.33	Sig. diff.	0.37

TABLE 5(iii)

SUB-SECTOR OF CIGARETTE MARKET: mean scores for Aact

Brand A	<u>1.54</u>
Brand C	0.69
Brand B	0.62
Brand G	0.50
Brand F	0.45
Brand E	-0.15
Brand D	-0.94
Sig. diff.	0.38

KEY: mean score range from +3 to -3

the brands above the line are not sig. diff. (5% level+ based on pooled common SE between the seven brands) from Brand A; those below the line are sig. diff. from the first brand.

may have to concentrate on reasonably priced and watch for or anticipate market trends which could bring about a change in salient beliefs. Clearly there is a great deal of room for improving the other brands - Table 5(ii) - especially Brands D and E which are ranked bottom both overall and for many of the beliefs. Brand B, is doing as well as Brand A on attractive pack, but could possibly be improved on other beliefs; most particularly on reasonably priced. Brand C, on the other hand, could benefit by improving its image (e.g. attractive pack) and seems to be bought somewhat more on offer than other brands. Whereas Brands F and G might benefit from product improvements (e.g. good taste and flavour, a pleasant cigarette and a satisfying, sustaining cigarette). Without knowing the full situation for each brand, marketing advice cannot be further refined and for reasons of confidentiality, further discussion on brands where the full situation is known, is not possible.

In brand image studies the data are usually examined further by inspecting subgroups of the sample, particularly users and buyers versus non-users and non-buyers. In this case, the nature of the samples makes this impossible.

Therefore mean score data is capable of providing marketing advice and the quality of this advice will now be compared with the marketing advice which can be obtained from the Fishbein  $b_i a_i$  analysis.

#### 5.2.2. The Fishbein $b_i a_i$ analysis

In this analysis the individual  $b_i$  and  $a_i$  scores are compared with the  $b_i a_i$  scores. As the following section will demonstrate, it is capable of providing some interesting and useful information, on which to base marketing judgements. But as Fishbein (1971) pointed out, this analysis should not be interpreted in terms of importance:

'The model, however, does not consider importance judgements... importance judgements are unrelated to attitudes and intentions..indirect attempts to assess importance by looking at correlation or regression weights...are not inappropriate but misleading...if a product has a positive characteristic I consider important, shouldn't this make me like the product more than if it has a positive characteristic I consider unimportant? The answer to this question is essentially 'yes', but in an indirect sense. First, it should be noted that whenever attempts have been made to include importance judgements in the model (ie to change the model from  $\sum b_i a_i$  to  $\sum B_i I_i a_i$ ), the predictive power of the model actually decreases. However, people will tend to have stronger beliefs about (more knowledge of?) attributes they consider important than those

they consider unimportant and/or their evaluation of important attributes will tend to be more polarised (either negatively or positively) than their evaluation of unimportant attributes. Thus, in a sense, the  $\sum B_i a_i$  model does pick up 'importance'. Since the  $B_i$  and  $a_i$  scores will tend to be more polarised for an important attribute than an unimportant attribute, the  $B_i a_i$  score will tend to be large and thus it does contribute more to the total attitude. However, the absolute magnitude of a given  $B_i a_i$  score associated with some 'important' attributes may be relatively low, while the  $B_i a_i$  score associated with some 'unimportant' attributes may be high. I don't think that this is the true answer. However, I do think that this approach is much more reasonable than procedures that use correlations or regression coefficients as indicants of importance.'

The importance issue was discussed in Chapter 3 and need not be repeated here. Instead the detailed reasoning behind the Fishbein  $b_i a_i$  analysis needs to be stated. The  $b_i a_i$  scores compared with the individual  $b_i$  and  $a_i$  scores should indicate

- which  $b_i a_i$  scores contribute most to the overall attitude to the brand and

- which beliefs might be improved (ie where the  $b_i$  score for the brand are lower than the  $a_i$  scores for that belief in the market).

These statements become clear when we refer back to the introduction to this chapter. As the theory holds that attitude is formed from the sum of the  $b_i a_i$  ( $\sum b_i a_i$ ) scores of all the salient beliefs, then the size of a given  $b_i a_i$  score is taken as a rough indication of the contribution that  $b_i a_i$  score makes to the brand image. It is a rough indication only, given Fishbein's proviso quoted above. The  $a_i$  scores show how much people like a belief in a given market, the  $b_i$  scores the strength with which it has become attached to a given brand, upholding its image. Therefore it follows that if a brand is weak (low  $b_i$  score) on what is liked by the market (high  $a_i$  score), it needs to be improved and vice versa. This analysis is now examined for the cigarette data.

Looking at Brand A, on Table 5(iv) which gives the  $b_i a_i$  scores, we find by calculating a new pooled standard error between the eleven  $b_i a_i$  scores, that only the top three  $b_i a_i$  scores are not significantly different from the one ranked first for that brand. Two of the top three  $b_i a_i$  scores relate to the good reputation of the cigarette and one to what might be described as general evaluation (a pleasant cigarette):

	$\frac{b_i a_i}{i}$	$\frac{b_i}{i}$	$\frac{a_i}{i}$
reliable name and reputation	5.15	2.37*	2.03
a pleasant cigarette	4.34	1.75	2.39*
OK to offer around	4.33	2.11*	1.80

These high  $\frac{b_i a_i}{i}$  scores are due to a high belief endorsement ( $\frac{b_i}{i}$ ) for the brand on reliable name and reputation and OK to offer around and a high liking for a pleasant cigarette by the market ( $\frac{a_i}{i}$ ). The asterisks (\*) indicate that the differences between a given pair of  $\frac{b_i}{i}$  and  $\frac{a_i}{i}$  scores is significant (at the 5% level or above) in favour of the figure with the asterik. These figures suggest little need for improving the brand on reliable name and reputation and OK to offer around but some possible improvement on a pleasant cigarette. Therefore it might be reasonable to look at the beliefs with the lower  $\frac{b_i a_i}{i}$  scores, namely:

reasonably priced	2.67	1.38	1.65ns
increasing in popularity	1.86	1.61*	1.15
buy it only when on offer	1.78	-0.98*	-0.42

On the last of these beliefs there is clearly less to worry about than the  $\frac{b_i a_i}{i}$  score suggests, because the brand is bought when not on offer ( $\frac{b_i}{i}$ ) and smokers do not dislike doing this too much ( $\frac{a_i}{i}$ ). The brand is seen as reasonably priced, slightly less so than the market likes; although the differences between the  $\frac{b_i}{i}$  and  $\frac{a_i}{i}$  scores is not significant. The brand is increasing in popularity and appears to be more popular than the market requires (lower  $\frac{a_i}{i}$  than  $\frac{b_i}{i}$  score). This might be a hint that its recent advertising was beginning to suffer from 'overexposure.' It was a point that the sponsoring company investigated further, but for reasons of confidentiality it cannot be expanded here.

The above suggests that price/buying on offer might be areas for concern in the future. As it already was the most pleasant cigarette in this sub-sector of the market, it was difficult to see how to improve the cigarette on this score. The marketing advice from this analysis was therefore to watch the brand's perceived value for money and improve it when necessary.

For the remaining brands, the data are given in less detail; only the top  $\frac{b_i a_i}{i}$  scores are examined and if these need improving, then the other  $\frac{b_i a_i}{i}$  scores will probably need even more improvement. The reasons for commenting on the top  $\frac{b_i a_i}{i}$  scores only are explored below.

TABLE 5(iv)

SUB-SECTOR OF CIGARETTE MARKET: RANKING OF b<sub>i</sub>a<sub>i</sub> SCORES FOR 7 BRANDS

<u>Brand A</u>		<u>Brand C cont.</u>	
reliable name and reputation	5.15	buy it only when on offer	1.02
a pleasant cigarette	4.34	too strong and harsh	-0.13
OK to offer around	<u>4.33</u>	Sig. diff.	0.81
good taste and flavour	4.04	<u>Brand D</u>	
a satisfying, sustaining cig.	3.87	attractive pack	1.69
attractive pack	3.54	OK to offer around	1.59
a cigarette to be seen with	2.89	reliable name and reputation	1.42
reasonably priced	2.67	reasonably priced	<u>0.99</u>
increasing in popularity	1.86	buy it only when on offer	0.81
buy it only when on offer	1.78	a cig. to be seen with	0.63
too strong and harsh	-0.15	increasing in popularity	0.38
Sig. diff.	0.85	too strong and harsh	0.13
<u>Brand B</u>		a pleasant cigarette	-0.03
reliable name and reputation	4.31	a satisfying, sustaining c.	-0.13
OK to offer around	<u>3.52</u>	good taste/flavour	-0.20
attractive pack	3.28	Sig. diff.	0.75
a pleasant cigarette	2.74	<u>Brand E</u>	
good taste/flavour	2.66	reliable name and reputation	<u>3.76</u>
a satisfying, sustaining cig.	2.43	reasonably priced	2.30
a cigarette to be seen with	2.30	OK to offer around	1.95
reasonably priced	1.53	increasing in popularity	1.28
buy it only when on offer	1.15	attractive pack	1.20
increasing in popularity	0.99	buy it only when on offer	1.13
too strong and harsh	-0.05	a cig. to be seen with	1.06
Sig. diff.	0.82	a satisfying, sustaining c.	0.90
<u>Brand C</u>		a pleasant cigarette	0.85
reliable name and reputation	<u>4.51</u>	good taste/flavour	0.60
OK to offer around	3.41	too strong and harsh	-0.07
a pleasant cigarette	3.04	Sig. diff.	0.88
a satisfying, sustaining cig.	2.89		
good taste/flavour	2.77		
reasonably priced	2.69		
attractive pack	2.60		
a cigarette to be seen with	1.71		
increasing in popularity	1.17		

Brand F

reliable name and reputation	<u>4.33</u>
OK to offer around	3.29
a pleasant cigarette	2.40
a satisfying, sustaining cig.	2.39
reasonably priced	2.39
attractive pack	2.37
good taste/flavour	2.30
a cigarette to be seen with	1.95
increasing in popularity	1.47
buy it only when on offer	1.36
too strong and harsh	-0.08
Sig. diff.	0.83

Brand G

reliable name and reputation	4.13
OK to offer around	<u>3.44</u>
attractive pack	2.62
a satisfying, sustaining cig.	2.46
a pleasant cigarette	2.43
good taste/flavour	2.23
reasonably priced	1.86
a cigarette to be seen with	1.80
buy it only when on offer	1.22
increasing in popularity	1.09
too strong and harsh	0.01
Sig. diff.	0.77

Key: Scores range from +9 to -9.

Beliefs above the line are not significantly different (5% level or above based on the pooled common SE between the eleven beliefs) from the top belief for each brand.

For Brand B the top  $b_i a_i$  scores which are not significantly different from one another are:

	$\frac{b_i a_i}{i}$	$\frac{b_i}{i}$	$\frac{a_i}{i}$
reliable name and reputation	4.31	1.98	2.03ns
OK to offer around	3.52	1.63	1.80ns

These high  $b_i a_i$  scores are due to an equally high belief endorsement ( $b_i$ ) and liking ( $a_i$ ) for the two beliefs; there is no need to improve these belief scores for the brand.

For Brands C, E, and F reliable name and reputation alone make the top rank:

Brand C	4.51	1.99	2.03ns
Brand E	3.76	1.66	2.03*
Brand F	4.33	2.01	2.03ns

The difference between the individual  $b_i$  and  $a_i$  scores is only significant for Brand E and so there is some room for improving the brand on this belief.

In the case of Brand D 3 beliefs share top position with the first ranked belief:

attractive pack	1.69	0.98	1.47*
OK to offer around	1.59	0.55	1.80*
reliable name and reputation	1.42	0.58	2.03*
reasonably priced	0.99	0.49	1.65*

For all of these beliefs the  $b_i$  and  $a_i$  differences are significant, ie the brand is scored worse on all of them and considerable improvement can be effected here. This is not surprising as the low  $b_i$  scores suggested a weak overall image for the brand.

Brand G has 2 top  $b_i a_i$  beliefs:

reliable name and reputation	4.13	1.91	2.03ns
OK to offer around	3.44	1.60	1.80ns

A need for improvement is not indicated.

For Brand A the data were explored in considerable detail, in order to obtain the right marketing advice for its future development. The principle that Fishbein  $b_i a_i$  data is capable of such detailed exploration, has been demonstrated, and the same detail was not given for the other brands in order to avoid too much repetition. It must be pointed out that the data sets are very large in this study and the analyses undertaken were very thorough and detailed. They are not always spelled out in the text, if the same points emerge again. But it is necessary to resolve the

question if the two data (Fishbein  $b_i, a_i$  analysis and mean scores) provide the same marketing advice. In the case of Brand A, there was little to choose between the two types of data, as the brand appeared to follow a good strategy. But this may not be the case with brands with room for improvement. For Brand B, the mean scores compared with the performance of Brand A (Tables 5(i) and (ii)), suggested that the most obvious belief to improve for Brand B was reasonably priced. Moreover, there was room for improvement on most of the other beliefs, except attractive pack. Looking at the individual  $b_i$  and  $a_i$  scores for Brand B in Appendix 5(i) suggests that:

1. there is no significant difference between them for OK to offer around and reliable name and reputation, a cigarette to be seen with and buy it only when on offer, and so improvement is not perhaps necessary;

2. the brand does better on the  $b_i$  than  $a_i$  scores and therefore does not need improving for too strong and harsh and attractive pack and

3. does need improving on the rest, as the  $a_i$  scores are higher than the  $b_i$  scores: reasonably priced, good taste/flavour, a pleasant cigarette, a satisfying, sustaining cigarette and increasing in popularity.

This would suggest that the mean scores give a general picture which the Fishbein  $b_i, a_i$  analysis refines. It agrees with the mean score analysis that reasonably priced needs improving for Brand B, but also singles out the taste area in this context. Although on too strong and harsh Brand B's mean score was less good than that of Brand A, the Fishbein  $b_i, a_i$  analysis suggests it need not concern us. Further there is a group of beliefs (listed under 1. above) which although worse than Brand A on the mean scores, are not in need of improvement (Fishbein  $b_i, a_i$  analysis). The same detailed analysis could be provided for the other brands, illustrating the same principles. To reduce repetition they have not been given in full here, as the same points will be further explored in the other data sets.

Compared with looking at the mean score data only, the Fishbein  $b_i, a_i$  analysis also gives a clue to the dynamics of the belief structure by

- pinpointing more accurately those beliefs which might improve the marketing performance of brands, but also warns that
- putting into effect any marketing advice can alter both the individual  $b_i$  and  $a_i$  element of the equation and this might make it more difficult to observe any successful outcome or otherwise of a given promotional campaign. The effect of changing both the  $b_i$  and  $a_i$  element was demonstrated in the previous chapter under

4.2.4. Mean score analysis on its own, by comparison, makes belief change appear too simple.

### 5.2.3. Association Data

As was indicated in a previous chapter, the mean score data and the remaining elements of the Fishbein formula are all collected with the help of rating scales. This method of data collection has several disadvantages:

(i) it takes time to collect, as respondents need to be told how to fill in rating scales and it takes different people more or less time to complete such scales;

(ii) the care with which respondents fill in such scales varies: some taking extreme care and a long time and others being careless or fatigued by the task, particularly if the questionnaire is a long one and

(iii) in terms of data collection and processing, rating scales can also be an expensive method compared with, for example, association data. However, rating scales have the advantage of giving more detailed and perhaps precise results than association data. Strenuous attempts were made when collecting the rating scale data for this research to overcome some of these problems, particularly by carefully piloting the questionnaires. But difficulties cannot always be overcome and where time and cost are of the essence, association data is often employed currently in brand image studies. All the respondent has to do in order to provide association data, is to indicate whether there is an association between a given belief and any or none of a given number of brands. Association data do provide a picture of image strength for the brands and by allowing the respondent to pick the beliefs associated with a particular brand, they could perhaps be a rough and ready check on which beliefs are 'salient' for a brand. Association data were obtained in the cigarette study and the results are given in Appendix 5(ii). The objectives for collecting it related to previous work done by the sponsoring company and so the data cannot be discussed here, but the exercise indicated that association data can be useful in the way described above.

### 5.2.4. Attitudinal Data for 3 markets: conclusions

In Appendix 5(iii) are given the tables and the detailed commentary for the drinks markets. These two data sets essentially corroborate the findings obtained from the cigarette study. Therefore in this section the conclusions drawn from all 3 data sets will be presented and the relevant marketing advice will be emphasized.

(i) The brands seem to have differing profiles (hypothesis 8a) on the total set of salient beliefs for beers, lagers and cigarettes. In

the drinks markets there are many instances where there seem to be real differences between men and women in the data (appendix 5(iv)). It is very difficult to say why these male/female differences are there; the Fishbein elicitation method gives no additional information. In a conventional brand image study, where beliefs are obtained from an extended interview for example, many hypotheses are obtained which might help towards an explanation of such findings. For marketing studies this is a real shortcoming of the Fishbein approach.

(ii) There are also indications in the data that the more successful brands, ie those rated highly on overall attitude, are manipulating the beliefs more successfully than other brands. Brand A of the sub-sector of the cigarette market is such an example.

(iii) The mean scores ( $b_i$  scores) for all 3 data sets are on the low side, especially so for brewers' beers. This may reflect partly the newness of these markets and in the case of the beers, that we presented an aggregate to respondents and not specific brands. It is possible to undertake this type of exercise for an aggregate like brewers' beers, but its usefulness in marketing terms relates to promotional activity being undertaken for brewers' beers jointly and not for individual brands.

(iv) The mean scores when arranged in rank order, give some indication about which beliefs support overall attitude for a given brand more or less. By comparison with the performance of other brands, the mean scores give some broad indication of the beliefs which should be improved for a given brand. The Fishbein  $b_i a_i$  analysis for all 3 data sets (hypothesis 8b) adds a refinement, by indicating more precisely the beliefs which might be improved effectively. The beliefs thus singled out are those which contribute most to overall attitude (high  $b_i a_i$  scores) and where the endorsement for the brand belief ( $b_i$  score) is lower than the general liking for the belief by the market ( $a_i$  score). The marketing advice obtained from the mean scores and the Fishbein  $b_i a_i$  analysis are often different and as has been demonstrated, the Fishbein  $b_i a_i$  analysis seems to give more useful information. It is important to note, that in cases where there are several low mean scores, the Fishbein  $b_i a_i$  analysis can indicate the order of priority (in the absence of any other strategic advice) in which their improvement might be tackled. It obtains this greater precision, by paying attention to the size of the  $b_i a_i$  score and the difference between what respondents like in the market ( $a_i$  score) and what they get from a brand ( $b_i$  score). All three data sets indicate that there is room for improvement in brands' images. However, any improvement

attempted, will depend on the strategy for the brand and any improvement which is successful will depend on how it is handled in terms of affecting both the  $b_i$  and  $a_i$  components. There is very little help in the literature to decide which beliefs to manipulate and how to treat the two  $b_i$  and  $a_i$  components of it e.g. Lutz, 1975; Guerro and Hughes, 1972. Further studies of attitude change might be very helpful here. It must also be remembered that research is done within the context of the 'present', whereas decisions relate to the 'future.' So marketing advice must be creative, yet based on today's research.

(v) In the elicitation procedure for the drinks markets unique items appeared which related to the past advertising effort for the brands. During the elicitation sessions it became clear that these items were indeed very memorable for respondents; yet none of these are very important (in the top rank or equal with it) for the brands when endorsed as mean scores ( $b_i$  scores), evaluation scores ( $a_i$  scores) or as combinations of the two ( $b_i, a_i$  scores). It was argued in Chapter 3 that there is no outside criterion for determining whether the salient beliefs obtained are really salient. The type of result obtained here, suggests that highly memorable items might come into the salient list, without really belonging there. This should be investigated in subsequent studies if possible. On the other hand, these highly memorable items, whilst salient, might not be very effective in supporting overall attitude; or their endorsement on rating scales is low because respondents at this stage in the research process respond in a highly rational way. These hypotheses merit further investigation.

(vi) Although Fishbein states that all the salient beliefs are necessary for prediction, he does acknowledge that a reduced set might improve the actual prediction for a brand. The point relating to memorable items, made above, underlines such an argument and looking for a reduced set of variables is the object of the next chapter.

### 5.3. NORMATIVE BELIEFS UNDERPINNING GENERAL NORM

#### 5.3.1. Normative beliefs from 3 data sets

Normative beliefs relate to the second part of the equation. As was pointed out in the introduction to this chapter, normative beliefs also need to be examined, to find those which support the general norm best.

The tables in Appendix 5(i) indicate that on the whole for the sub-sector of the cigarette market, whenever motivation to comply (mc) is involved, the scores decrease dramatically; therefore it is not worthwhile

to include mc. The mean scores for general norm (NB) and the rank order in which the specific normative beliefs (SNB) support the general norm (NB) are given below:

	<u>BRAND A</u>	<u>BRAND B</u>	<u>BRAND C</u>	<u>BRAND D</u>	<u>BRAND E</u>	<u>BRAND F</u>	<u>BRAND G</u>
NB	1.49	0.93	1.06	-0.27	0.15	0.75	0.79
SNB <sub>1</sub>	3	3	3	3	2	3	2
SNB <sub>2</sub>	2	2	2	2	1	1	1
SNB <sub>3</sub>	1	1	1	1	3	2	3

SNB<sub>1</sub> is family, SNB<sub>2</sub> is friends and neighbours and SNB<sub>3</sub> is smokers who want to impress people. The rank order suggests that friends and neighbours and smokers who want to impress people, mostly hold first or second place, with family usually in third place. These findings are clearly more important in those cases where the normative part of the equation is strong compared with the attitudinal part (e.g. Brand B).

In the case of the drinks markets (Appendix 5(v)), men and women have four specific norms in common and women have a fifth normative belief on their own. The main justification for examining the male/female sub-groups was the fact that previous data suggested a possible difference between males and females and the data supports this. The specific norms were:

	<u>Brewers' Beers</u>	<u>Lagers</u>
<u>Men</u> SNB <sub>1</sub>	Family	Family
<u>and</u> SNB <sub>2</sub>	Friends	Friends
<u>Women</u> SNB <sub>3</sub>	Younger people	Sporty types
SNB <sub>4</sub>	People who bother about the quality of the beer they drink	People who know a lot about lager
<u>Women</u> SNB <sub>5</sub> <u>only</u>	Husband	Husband

As noted before (Chapter 4), the inclusion of mc works better in the drinks markets than in the sub-sector of the cigarette market. It will be recalled that this may be partly due to the nature of the market, but also to the improvement in question wording in the drinks markets. Considering the scores with the inclusion of mc only, we obtain the following picture:

WATNEYS TRUMANS WHITBREADS COURAGE BASS. CHARR. IND COOPE S&N

MEN

NB	1.00	1.12	1.13	0.97	0.64	1.10	1.23
SNBmc <sub>1</sub>	1	2	2	2	2	1	1
SNBmc <sub>2</sub>	2	1	1	1	1	2	2
SNBmc <sub>3</sub>	4	4	4	4	4	3	4
SNBmc <sub>4</sub>	3	3	3	3	3	4	3

WOMEN

NB	1.27	1.21	1.07	1.13	0.82	1.22	0.82
SNBmc <sub>1</sub>	2	2	3	3	3	2	4
SNBmc <sub>2</sub>	3	1	2	2	2	3	3
SNBmc <sub>3</sub>	5	5	5	5	5	5	5
SNBmc <sub>4</sub>	4	4	3	4	4	4	2
SNBmc <sub>5</sub>	1	3	1	1	1	1	1

For men, family and friends are most effective in underpinning NB, generally followed by people who bother about the quality of the beer they drink and younger people. For women, with the exception of Trumans, the husband is first, followed by family and friends, then by people who bother about the quality of the beer they drink and finally by younger people. These findings are next compared with those for lagers:

HARP SKOL KRONENBOURG CARLSBERG HEINEKEN HOLSTEN

MEN

NB	1.07	1.04	1.25	1.59	1.42	0.77
SNBmc <sub>1</sub>	1	1	2	2	2	2
SNBmc <sub>2</sub>	2	2	1	1	1	1
SNBmc <sub>3</sub>	4	4	4	4	4	4
SNBmc <sub>4</sub>	3	3	3	3	3	3

WOMEN

NB	1.37	1.41	1.40	1.55	1.68	0.30
SNBmc <sub>1</sub>	3	3	4	3	3	3
SNBmc <sub>2</sub>	2	2	1	2	2	2
SNBmc <sub>3</sub>	5	5	5	5	5	5
SNBmc <sub>4</sub>	4	4	2	4	4	1
SNBmc <sub>5</sub>	1	1	3	1	1	4

For men, family and friends generally come first in supporting NB, followed by people who know a lot about lager and sporty types. For women, on the

whole, the husband comes first followed by friends and family, people who know a lot about lager and sporty types. Only Kronenbourg and Holsten did not quite conform to this pattern. Here the husband's influence is less important.

### 5.3.2. Summary For Normative Beliefs

The specific normative beliefs (SNB) which were elicited in the three data sets underpin the general norm (NB) in a fairly consistent order across the brands. For women, the husband is clearly very important and the consistent order across the brands only breaks down for those brands where the husband's contribution to the general norm is not the most important.

### 5.4. GENERAL CONCLUSION

The above commentary indicates that the additional examination of the Fishbein formula is worthwhile, both for the attitudinal and normative part of the equation. For it indicates, what contribution the individual attitudinal and normative beliefs make to the overall structure, which is never seen in the summative analysis (Chapter 4).

The data indicate that the brands have different profiles on the attitudinal beliefs but are much more similar on the normative beliefs; in this way supporting the first part of hypothesis 8a more strongly than the second part. For hypothesis 8a stated 'individual brands have different attitudinal and normative beliefs attached to them.'

More specifically, it was argued above, that the Fishbein  $b_i a_i$  analysis is of real value, even so it is more costly to obtain and analyse than mean scores and association data. It helps not only by

-relating the performance of a brand on a particular belief ( $b_i$ ) to the way that belief is seen by the relevant market or market segment ( $a_i$ )

- but also highlights more precisely those beliefs which could be improved for the brand ( $b_i a_i$  vs.  $b_i$  vs.  $a_i$  scores).

- Further, it makes a contribution to the understanding of the dynamics of the belief structures ( the manipulation of the  $b_i$  and  $a_i$  components in a promotional campaign).

This adds a dimension to the marketing advice offered which is not possible with the type of data (mean scores and association data) on which marketing advice is usually based today and supports hypothesis 8b: 'the Fishbein model yields more information by such further analyses ( $b_i a_i$ ) than the data on which marketing actions are commonly made today.' Also if the analyses are done by subgroups e.g. males/females, the Fishbein

$b_i a_i$  analysis can tell us which beliefs to improve amongst a given subgroup.

The commentary also stresses, that there is room for further experimentation, particularly with regard to the following areas:

(i) elicitation: to check whether the unique (promotional) items attached to the drinks' brands, are really salient or not, or just working at a low level for the brands.

(ii) The treatment of motivation to comply, either by producing an acceptable way of introducing this concept into the formula or by omitting or substituting it.

(iii) The exact wording of the belief items. For example, at the elicitation stage certain beliefs were expressed in a positive way and others in a negative way. When preparing these items for the questionnaire, this method of expression was preserved as consumers did appear to think more easily in these terms. But the corollary of this is that the data set is slightly more difficult to handle, as both negative and positive numbers are involved. Changing all the beliefs into positive expressions before data collection could be an improvement, but it is necessary to check whether the items expressed in this way would still be salient. There is no method for doing this at present; only judgement.

(iv) The Fishbein  $b_i a_i$  analysis seems to have something of real value to contribute. It would be useful to check the marketing advice that emerges from it against that from mean scores in other markets, as well as to test the differential effect achieved in longitudinal studies. This would have the further merit of testing the different effect of promotional effort on the  $b_i$  and  $a_i$  components and the interaction between the two.

(v) There is the possibility that there could be redundancy both in the attitudinal and normative items. This hypothesis is the special concern of the next chapter.

(vi) Further the stability of the salient beliefs (between individuals and within individuals over time) for a specific decision needs to be tested extensively. Most research assumes stability but the number of tests published is small. A small scale test is incorporated in the next chapter.

6.1. INTRODUCTION

In Chapters 4 and 5 the data sets collected for this research were analysed in accordance with the Fishbein model. In this chapter, different methods of analysis will be described which were applied to the same data sets. It is the differential marketing pay-off through the use of alternative methods which will be examined closely.

These alternative methods of analysis were explored, because the standard Fishbein analyses did not completely satisfy the marketing man's need for information: providing, if possible, a 'key' set of beliefs with which he can predict, understand and manipulate what goes on in the market. For maximum marketing utility such a 'key' set of beliefs should be small and represent those beliefs which most effectively aid prediction and understanding.

The diagnostic Fishbein analysis was presented in Chapter 5 and it highlights those beliefs on which marketing improvements might be undertaken most effectively. In this way a sub-set of salient beliefs is identified, but it rests on the assumption that what the market likes now ( $a_i$  score) is the best guide to improvement. For prediction (Chapter 4) Fishbein uses the total set of salient beliefs in summative regression analysis and

- conceptually this is too great a number to handle in any marketing or promotional campaigns and
- the detail of the beliefs is lost in summation and so its marketing value is reduced.

These two points have led in the literature (see Chapters 1,2 and methodological introduction to Chapter 3) to three areas of controversy:

- (i) the value of summation
- (ii) the problems of intercorrelations of belief items and
- (iii) the need to reduce the full set of salient beliefs.

Summation, in the Fishbein model, refers to the process of multiplying ( $b_i x a_i$ ) and adding ( $\sum b_i a_i$ ) the belief items in a salient set before entering them into summative regression analyses for the purpose of prediction. This was described in Chapter 4.

Intercorrelation of belief items refers to the interrelationship between the items in a set; particularly to the fact that they can be highly correlated with one another, so that the Fishbein summative model could multiply and add highly correlated items over and over again. If the

intercorrelation between the items is high, then the need to reduce the full set of salient beliefs may be indicated.

These three problem areas will be examined in detail in this chapter as follows -

First, a comparison will be made between the predictions obtained by the Fishbein summative regression analysis and a method of analysis (stepwise regression analysis) which keeps the identity of each belief in a salient set. This is described in section 6.2. of this chapter.

The original design for this research described in Chapter 1 indicated that 'confidence' was an additional variable to be introduced into this research. As will be described later, it was not incorporated into Fishbein's formula, but added to the salient beliefs in stepwise regression analysis. Logically 'confidence' relates to stepwise regression analysis and it has therefore been presented in section 6.3. of this chapter. But the reader who wishes first to follow the main argument of this chapter, can leave section 6.3. until the end, as it is a completely self-contained section of this chapter.

Second, the intercorrelations within the attitudinal and within the normative belief items will be examined, using the output of the stepwise regression analysis, in this way attempting to minimise computer and researcher time. If the intercorrelations are high in the salient sets, then it is argued, this justifies the search for reduced sets of belief items. This examination of intercorrelations is dealt with in section 6.4.

Third, five methods will be reviewed by which reduced sets were sought to increase the marketing utility of the data. This is the main section of this chapter (section 6.5.) and is followed by a discussion section (section 6.6.).

The arguments presented in this chapter are of necessity quite complex and the amount of data handled in its preparation was very large: as both the attitudinal and normative beliefs had to be dealt with for the 20 products spreading over the three markets and in the case of two of the markets, the data had to be run twice, once for men and once for women. The amount of data involved can be judged by examining the summary tables presented in the appendices to this chapter. All these data were carefully examined and are available, but for simplicity the main arguments throughout this chapter have been restricted to three products (Brand A, representing the sub-sector of the cigarette market, Watneys' beers to represent beer and Harp to represent lagers). In a few instances

it has been felt appropriate to restrict the argument to one brand only.

## 6.2. SUMMATION VERSUS DISAGGREGATION

### 6.2.1. Definition

As indicated, in this section a comparison will be made between the predictions obtained by Fishbein's summative regression analysis and a method of analysis (stepwise regression analysis) which keeps the identity of each belief in a salient set. In summation, the identity of individual beliefs is lost.

Stepwise regression analysis is sometimes also referred to as disaggregation and disaggregation is a process whereby the beliefs are kept separate throughout the analysis. As previously mentioned, in this research disaggregation is based on stepwise regression analysis, which puts beliefs in a hierarchical order in terms of effectiveness in predicting the criterion variable.

Wilkie and Pessemier (1973) in their review paper of 'Issues in Marketing's Use of the Multi-attribute Models' point out that there are problems with the summation aspect of such models and quote some authors who have studied the problems of summation versus disaggregation -

'Sheth (1970) makes four points for disaggregation: (1) summation is not theoretically explained by its advocates, (2) summation of ratings obtained on bipolar scales leads to a compromise (average) value, (3) summation of positive and negative ratings assumes that one cancels out another, and (4) his previous empirical studies regressing affect on beliefs have shown summation to consistently lower predictive power as compared to keeping beliefs separate in multiple regression. Cohen and Houston (1971) agree with Sheth's position and add that the disaggregated approach is essentially appealing in terms of diagnosis of bases of consumer attitudes and in analysis of attitude change. Lutz and Howard (1971) concur in pointing out that summation results in considerably less utilization of the very information which had such intuitive appeal for marketers in the first place....' But they continue 'Empirical analyses of disaggregation versus summation are few.'

This research attempts such an empirical analysis; indeed stepwise regression was built into the research design at the beginning for this purpose (Chapter 1). Wilkie and Pessemier (1973) also point out that it is essential to have some sample homogeneity, if the arguments in favour of disaggregation are to hold (e.g. being users of a particular type of cigarette, rather than much wider sample definitions). These conditions are given in the

present study.

### 6.2.2. Stepwise Regression Analysis

From a marketing point of view, comparing summative with disaggregated analyses, could help in theory to answer the question raised here:

Q 1 Would the two types of analyses yield different results in terms of their ability to predict the criterion variable?

It could also answer two further questions -

Q 2 Would the quality of the answers be different (are variables identified and what is their meaning)?

Q 3 Can the use of the disaggregated model assist in identifying a reduced set of 'key' beliefs?

To answer question 1 which is the concern of this section and the other questions depends to some extent on the exact way the stepwise regression analysis is undertaken. It is necessary at this stage, to explain the approach devised for this research and also to indicate the full range of regressions run by the stepwise mode. This will provide the necessary background for the way question one is considered and also indicate the key stepwise regression runs which have been used to answer question one.

There are various ways of performing stepwise regression analysis and for this study the choice of method was dictated by the available computing facilities. The only package readily available on the DEC10 at the City of London Polytechnic which could handle the large volume of data involved was SPSS (as described in the second edition of its 1975 manual; corresponding to versions 5-7 on the computer, as program updating was carried out during the life of this project). There were also limitations on the amount of computer core which was available and as a very large number of runs was required, a cost-effective utilisation of the data had to be devised. SPSS uses forward stepwise regression by inclusion only. The order of inclusion is determined by the respective contribution of each variable to explained variance. This means that the computer could enter variables in single steps from the best to the worst, provided that they meet the statistical criteria established in the parameters section of the statement; these statistical criteria are given in Appendix 6(i). The variable that explains the greatest amount of variance in the dependent variable will enter first; the variable that explains the greatest amount of variance in conjunction with the first will enter second, and so on. In other words, the variable that explains the greatest amount of variance unexplained by the variables already in the equation enters the equation at each step. Appendix 6(i) shows that the independent variable which is

chosen for entry is the one which has the largest squared partial correlation with the dependent variable. However, SPSS does NOT remove variables once entered and one or more variables may never enter into the regression equation, if the statistical criteria are not met.

If a computer program had been available which would have eliminated predictors which no longer meet the pre-established criterion at each successive step and if the criterion values (mainly in terms of an F statistic) for entering beliefs into the regression had been limited right from the outset, then the results provided by such an analysis, would have given

- an optimum reduced set of 'key' beliefs (answer to Q 3 above);
- which should predict the criterion variable better than the total set of beliefs entered into the summative regression analysis (answer to Q 1 above) and
- which should provide more useful data for marketing than is the case with the summative regression results, as it has maintained the original data complete by identifying the individual beliefs and not summing them with all the others. Also by setting out the order in which the individual items in the retained set make their contribution to the total set, it would provide a rank order of belief items. All this would have been obtained in one computer run.

The analysis approach used here requires two stages:

(i) as a first stage a complete ordering of beliefs was obtained by allowing default values to operate only in the SPSS run (full details on SPSS are given in Appendix 6(i)). Thus no preconceptions were imposed on the data at the outset, as a choice of statistical exclusion values can be a fairly arbitrary process. But as the SPSS program does not remove variables once entered, this virtually produces an output containing all beliefs.

(ii) The second stage was to look for a smaller set of 'key' beliefs. A very cost-effective way of finding these was utilised in this research. In the first stage of the analysis, described above, a printout of the correlation matrix for all the beliefs in a given set is automatically provided. The correlation matrices were examined

- to provide not only much of the data for obtaining reduced sets (see section 6.5.) but

- also helped with the problem of checking on the intercorrelations between belief items in a salient set (section 6.4.), so further conserving computer resources.

The limitations of this two-stage analysis approach will be considered below.

### 6.2.3. Stepwise Regression Computer Runs

Stepwise regressions were run for the following equations for most of the cigarette data and lager brands and brewers' beers. In the case of the latter two, they were run separately for men and women:

<u>No. of computer run</u>	<u>Criterion or dependent v.</u>	<u>Predictor(s) or independent variables</u>
1.	BI	Aact,NB
2.	Aact	$b_{ii}$ variables
3.	BI	$b_{ii}$ variables
4.	NB	SNBmc variables
5.	BI	SNBmc variables
6.	NB	SNB variables
7.	BI	SNB variables
8.	BI	$b_{ii}$ and SNBmc variables
9.	BI	$b_{ii}$ and SNBmc variables and confidence
10.	BI	$b_{ii}$ and SNB variables
(run 10. run for Watneys' beers and Harp only).		
11.	Aact	$b_i$ variables
12.	BI	$b_i$ variables
(runs 11 and 12 undertaken for cigarette brands only).		
13.	Aact	$a_i$ variables
14.	BI	$a_i$ variables
(runs 13. and 14. for Brand A only).		

The regression runs are presented in Appendices 6(iv),(v) and (vi) with Appendix 6(iii) explaining both the method of presentation of this large amount of data and the related statistics.

As the number of beliefs making up the full set of salient beliefs varies for the products included in this research, they are quoted in Appendix 6(iii) as well.

### 6.2.4. Predictive Power: Summative vs. Stepwise Analysis

To establish whether summative and disaggregated analysis yield different results in their ability to predict the criterion variable is the main concern of this section of the chapter. In Appendix 6(ii) certain key regressions were pulled out for Brand A (representing cigarettes), Watneys' beers (representing beer) and Harp (representing lager). For the three products the proportion of variance explained in the criterion

variable is shown as a percentage and given for both the summative and stepwise runs. For purposes of illustration one key regression from all the stepwise regression runs undertaken (see 6.2.3.) is given in Table 6(i).

	SUMMATIVE REGRESSION $A_{act} : \sum b_i a_i$	STEPWISE REGRESSION $A_{act} : b_i a_i$ variables
BRAND A	25%	39%
WATNEYS' BEERS:		
Men	36%	52%
Women	37%	48%
HARP:		
Men	33%	36%
Women	23%	40%

TABLE 6(i): Summative vs. stepwise regression: proportion of variance explained in Aact

Table 6(i) shows one key equation. In section 6.2.2. above, it was stated, that stepwise regression with automatic insertion and deletion of variables, produces an optimal subset of 'key' predicting beliefs. As was indicated this method of analysis was not available for this research, and the method used instead gave a ranked set of beliefs, but not an optimal subset. Even so, the example in Table 6(i) indicates that prediction can improve in stepwise regression compared with the summative method. Also the remaining examples presented in Appendix 6(ii), show that in those instances where there is a difference between the two analysis methods (which is true of most cases), the stepwise method explains more of the variation in the criterion.

So from a marketing point of view there is value in stepwise regression, if it can improve the level of prediction; as it appears to be doing even on the basis of this data. This would argue that the improvement in prediction, could be even greater with an optimal set of beliefs and it is therefore important to look at the question of reduced belief sets. This improvement may not apply to other situations e.g. Bass and Wilkie (1973) reported little difference in prediction between the two analyses methods. These indications suggest that more work needs to be done comparing the two methods.

The marketing value is also greater in the case of stepwise regression, because each variable entered into the analysis is identified, which is

clearly not the case in summative regression.(answer to question 2 above).

### 6.3. CONFIDENCE

#### 6.3.1. Introduction

It will be recalled, that this section deals with the addition of a variable by means of stepwise regression analysis; not with the incorporation of a variable into the Fishbein formula. Logically confidence (the variable in question) fits with stepwise regression analysis, but as it is somewhat outside the main framework of this chapter, the reader might like to proceed to section 6.4. and return to this section at the end of the chapter.

#### 6.3.2. The Concept

The concept of confidence has been included in this research to extend the usefulness of the Fishbein model in the marketing context. It was incorporated in the stepwise regression runs, as they allow extra variables to be introduced and tested against the criterion variable. Fishbein would argue against adding variables to the theory, as he believes that those variables currently included in the theory, transmit the effect of other variables (see introduction to Chapter 4). On the whole, this research has been true to this approach, and variables commonly used in marketing studies such as demographics, etc have not been introduced as additions. However, confidence was added because past experience suggested that it might work in the marketing field and the particular way it was introduced into this research, could extend the scope of the present theory.

Harrel (1972) added confidence/perceived risk to his version of the Fishbein model for doctors. He used as his basic Fishbein model -

$$B \sim BI \quad (Aact)w_1 + (NB) (MC)w_2$$

and by adding confidence and perceived risk he changed it to -

$$B \sim BI = w_0 \left( \sum_{i=1}^n [B_i(c_i)] a_i \right) + w_1 \left( \sum_{j=1}^k [(NB) (C)] [MC] \right)$$

He used confidence to assess first, doctors' 'confidence in making each probability estimate.' Second, he instructed his respondents: 'after you have evaluated each outcome, indicate on the second scale the level of confidence you have in your answers, to the first part. FOR EXAMPLE, if you think it is 'extremely probable' that Brand A would Adequately Lower

Blood Sugar and you are only 'moderately confident' (50% confident) in your ability to make the assessment, your response would be:

ADEQUATELY LOWERS BLOOD SUGAR

Extremely Improbable	Extremely Probable	Extremely Low	Extremely High
_____	_____	<u>Confidence</u>	<u>Confidence</u>

BRAND A



In his results overall confidence in the drug brand was shown to be related to attitude as well as to behavioural intention.

The concept of confidence appeared therefore to show promise and was incorporated in this research. The way it was incorporated was different from Harrel, in so far as confidence was used to help assess the extent to which respondents felt sure, that their intentions to purchase brand X, when entering the shop of their choice, would actually have been carried out by the time they left the shop. Such a measure, it was felt, would give some indication of the dynamics in the market place and the extent to which respondents felt they might cope with them. Perhaps the most relevant factors are the promotional activity and stock positions in retailers. Unpublished 'in-and-out surveys' have attempted to assess in-store factors on a much more detailed basis and they indicate, that in-store factors must be assessed in every product field.

The question to assess confidence used in this research was - E.G. Imagine you are going out to buy your next cans or bottles of take-home lager. You have an idea which lager that is going to be. How certain are you that you will actually leave the shop with that particular lager? The question was measured on a 7 point scale ranging from very certain to very uncertain.

6.3.3. Results

To make such a measure easy to apply in future marketing research, it was not incorporated into the model's equations, but simply added as another predictor variable in the stepwise analysis. The details of the analysis are given in Appendix 6(xiii) for two otherwise identical equations. The results indicate that

(i) the proportion of explained variance in the criterion varies little between the two equations, so confidence seems to add little to overall prediction.

(ii) Out of the 33 instances (relating to individual products) for

which both the equations were run, only in 16 cases did confidence enter the equation in the first 5 steps.

(iii) When the variables were reduced to a more highly predictive set, confidence was retained in most instances where it had occurred in the first 5 steps. But in some instances it was not retained and in two instances, where it had occurred outside the first 5 steps, it was finally retained. This result might suggest, that the order in which the variable of confidence appears in the stepwise regression is not very consistent.

Confidence was included initially in this research to extend the usefulness of the Fishbein model in the marketing context. In Harrel's case, it was incorporated into the summative formula. The proportion of explained variance in the criterion variable achieved by confidence in this research, using stepwise regression, does not show good prediction. However, the alternative approach pursued here, of simply adding it as a predictor variable and not incorporating into the formula, is a method which merits further work with other variables. Also confidence might be a more useful extension to the model, if it could be further tested and improved, by asking the question for each brand, so that a cross check could then be undertaken relating proportion of explained variance with different confidence levels to actual degrees of purchase behaviour. This might be a way to improve the relationship with Behaviour in the model.

#### 6.3.4. Confidence as an extension to the Fishbein model, compared with the other two extensions incorporated in this research: preference and loyalty

Preference and loyalty (ie purchase of previous ten units of a product and the next 10 units) were added to this research as alternative Behaviour measures. As was reported in Chapter 4, they were not very fruitful lines to pursue.

Confidence, however, added as an additional variable in stepwise regression and related to each brand (not just overall as had to be done in this research, in order to keep the questionnaire within reasonable length) could show promise. In a study on student occupational aspirations, the present author (Bradley, 1981), found it aided prediction.

### 6.4. INTERCORRELATION BETWEEN BELIEF ITEMS

#### 6.4.1. The Problem

In the introduction to this chapter it was stated that the inter-correlations within the attitudinal and within the normative belief items

will be examined and if the intercorrelations are high, then the search for reduced belief sets may be indicated. Consequently, both the attitudinal and the normative belief sets for each of the 20 products included in this research were examined. The method used in this research relies on an examination of the correlation matrix for a given set of variables and as was indicated previously, this is a cost-effective method, as the correlation matrix is part of the printout for the stepwise regression. Full details of the method are given in Appendix 6(iii) and a detailed example is provided for Brand A, regression 2. in Appendix 6(iv). Owing to the large volume of data involved, no other examples are shown, but they can be obtained by application to the author. Briefly the method for checking intercorrelation works as follows -

(i) predictor variables which correlated .5 or above with the criterion variable were noted; also the intercorrelations between these predictors were noted. Only the predictor with the highest correlation with the criterion was retained, the others were removed, if the intercorrelation between them and the retained predictor was .5 or above.

(ii) Also the intercorrelations among the remaining predictors was checked and if .5 or above, the predictors were removed (see Brand A example, Appendix 6(iv)).

#### 6.4.2. The Data

In Appendices 6 (iv),(v) and (vi) both the attitudinal and the normative beliefs have been examined for intercorrelation between the items.

For cigarettes, the key regression equations examined are given in Table 6(ii). For the attitudinal beliefs the key equations are

- criterion variable Aact OR BI: with the beliefs being either  $b_i a_i$  beliefs OR  $b_i$  beliefs (ie in the former case the beliefs have been multiplied with evaluation before being introduced into the regression analysis, in the latter case this did not apply).

For the normative beliefs the key equations are

- criterion variable NB OR BI: with the beliefs being either SNBmc beliefs OR SNB beliefs (ie in the former case the individual normative beliefs have been multiplied by motivation to comply before being entered into the stepwise regression analysis, in the latter case they went in without this prior multiplication with mc).

In Table 6(ii) the underlined figures are the numbers in the full set of salient attitudinal items OR salient normative items. The figures beneath give the numbers of items remaining, after the intercorrelated items have

been removed, using the above method.

TABLE 6(ii): REDUCTION OF SALIENT BELIEF SETS BY EXAMINATION OF CORRELATION MATRICES: SUB-SECTOR OF CIGARETTE MARKET

BRAND	A	B	C	D	E	F	G
Nos. in full set of salient beliefs:	<u>11</u>						
Attitudinal regressions:							
Aact: $b_i a_i$ var.	8	8	7	8	8	9	8
BI: $b_i a_i$ variables	7	8	7	8	8	9	8
Aact: $b_i$ variables	7	5	6	5	4	5	4
BI: $b_i$ variables	6	6	6	5	4	4	4
Nos. in full set of salient beliefs:	<u>3</u>						
Normative regressions:							
NB:SNBmc var.	3	3	1	3	3	3	3
BI:SNBmc variables	3	3	1	3	3	3	3
NB:SNB variables	2	2	1	1	1	1	1
BI:SNB variables	2	2	1	1	1	1	1

The figures indicate, that the 11 salient attitudinal beliefs which were elicited for the cigarette market, can be reduced to somewhere between 7 - 9 beliefs in the case of the  $b_i a_i$  beliefs or 4 - 7 beliefs in the case of the  $b_i$  beliefs. The two regression equations involving  $b_i$  beliefs were run for the cigarette market only. This was done in order to check, whether the attitudinal beliefs ( $b_i$ ) before being multiplied with their evaluations ( $a_i$ ) would produce different results from the  $b_i a_i$  beliefs, where this prior multiplication has been undertaken. The results are different. The straight beliefs ( $b_i$ ) show more intercorrelation than the  $b_i a_i$  beliefs. This suggests that the multiplication process reduces/masks intercorrelation and this should be further investigated. As Table 6(ii) also shows, the number of reduced beliefs when Aact is the criterion is very similar to the reduced numbers when BI is the criterion variable. It must be noted, that the same number may not imply that the identical beliefs are represented in the reduced sets.

In the case of the normative beliefs for cigarettes the reduction is less when motivation to comply (mc) is included in the regression than when it is not. The 1-2 beliefs obtained when mc is excluded should be taken as the truer figure, as mc did not work very well in this market (Chapter 4).

These results clearly indicate that there is considerable redundancy within the attitudinal and within the normative belief items. This may be explained by the fact that there is correlation between the items per se and perhaps also by the use of market modal beliefs, which could have increased the redundancy of items for individual brands. That there is some truth in this latter argument can be seen from the intercorrelations between the predictors and the criterion variable and from the intercorrelations between the predictors; in some instances they are low for the former.

Similar intercorrelations and redundancy applies to the attitudinal beliefs for brewers' beers, as can be seen from Table 6(iii). The same applies to the normative beliefs, although in this data there is not the difference between the figures that included/exclude mc. For the reasons outlined in Chapter 4, mc worked better in this market.

Similar points emerge from the lager table - Table 6 (iv) - as for brewers' beers.

#### 6.4.3. Summary and Discussion

The extent of the intercorrelation within both the attitudinal and normative belief items for the 20 products would suggest that

- the belief sets can be reduced and

- that summative regression analysis may not be a good research tool to use, as was stated by some writers quoted in the introduction to this chapter. Fishbein would argue against this because

(i) the total set of salient beliefs is required by his theory to obtain the best explanation of the market and the Fishbein  $b_i a_i$  analysis (Chapter 5) focusses on the beliefs most relevant for action.

(ii) With a reduced set of beliefs an equally good or better prediction might be obtained than with using the full set of salient beliefs, but Fishbein's theory would indicate that the reduced set might be poorer in explanation.

So Fishbein would argue that he obtains good prediction with his model using summative regression analysis plus good diagnostic information, especially with the Fishbein  $b_i a_i$  analysis, where the beliefs are kept separate too.

TABLE 6(iii) REDUCTION OF SALIENT BELIEF SETS BY EXAMINATION OF CORRELATION MATRICES: BREWERS' BEERS

<u>MEN</u>	<u>WATNEYS</u>	<u>TRUMANS</u>	<u>WHITBREADS</u>	<u>COURAGE</u>	<u>CHARR.</u>	<u>IND C.</u>	<u>S&amp;N</u>
Nos. in full set of salient beliefs:	<u>9</u>	<u>8</u>	<u>9</u>	<u>8</u>	<u>8</u>	<u>7</u>	<u>7</u>
Attitudinal regressions:							
Aact: $b_{i_i} a_i$ var.	4	3	4	3	4	3	2
BI: $b_{i_i} a_i$ var.	5	2	4	3	4	3	2
Nos. in full set of salient beliefs:	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>
Normative regressions:							
NB:SNBmc	1	1	1	2	1	1	1
BI:SNBmc	1	1	1	2	2	1	1
NB:SNB	1	1	1	2	2	1	2
BI:SNB	1	1	1	2	1	1	2
 <u>WOMEN</u>							
Nos. in full set of salient beliefs:	<u>9</u>	<u>8</u>	<u>9</u>	<u>8</u>	<u>8</u>	<u>7</u>	<u>7</u>
Attitudinal regressions:							
Aact: $b_{i_i} a_i$ var.	2	4	4	3	3	2	2
BI: $b_{i_i} a_i$ variables	3	5	4	3	3	2	2
Nos. in full set of salient beliefs:	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>
Normative regressions:							
NB:SNBmc	1	2	1	1	2	2	2
BI:SNBmc	1	2	1	1	2	2	2
NB:SNB	1	1	1	1	1	2	3
BI:SNB	1	1	1	1	1	3	2

TABLE 6(iv) REDUCTION OF SALIENT BELIEF SETS BY EXAMINATION OF CORRELATION MATRICES

<u>MEN</u>	<u>HARP</u>	<u>SKOL</u>	<u>KRONENBOURG</u>	<u>CARLSBERG</u>	<u>HEINEKEN</u>	<u>HOLSTEN</u>
Nos. in full set of salient beliefs:	<u>12</u>	<u>11</u>	<u>11</u>	<u>13</u>	<u>12</u>	<u>13</u>
Attitudinal regressions:						
Aact: $b_i a_i$ variables	8	7	7	8	6	8
BI: $b_i a_i$ variables	8	7	6	8	6	8
Nos. in full set of salient beliefs:	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>	<u>4</u>
Normative regressions:						
NB:SNBmc	1	1	1	1	1	1
BI:SNBmc	1	1	1	1	1	1
NB:SNB	1	1	1	1	1	1
BI:SNB	1	1	1	1	1	1
 <u>WOMEN</u>						
Nos. in full set of salient beliefs:	<u>12</u>	<u>11</u>	<u>11</u>	<u>13</u>	<u>12</u>	<u>13</u>
Attitudinal regressions:						
Aact: $b_i a_i$ variables	8	6	6	7	7	7
BI: $b_i a_i$ variables	9	6	6	7	7	7
Nos. in full set of salient beliefs:	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>	<u>5</u>
Normative regressions:						
NB:SNBmc	2	2	1	1	1	2
BI:SNBmc	2	2	2	1	1	1
NB:SNB	1	1	1	2	2	4
BI:SNB	1	1	1	2	2	3

However, as has been indicated above

- there may be problems with summation as a research tool (Wilkie and Pessemier, 1973) and
- salient belief sets may be large
  - : so making comprehension and manipulation by the marketing man difficult and
  - : lacking focus, by not identifying a small 'key' set of beliefs.

While the Fishbein  $b_i a_i$  analysis goes a long way to provide some focus, it may not be the only method of doing this. The high intercorrelations between the belief items found in this research, it is argued, provides another reason supporting the search for smaller 'key' sets of beliefs - to increase the marketing utility of the data. Methods for identifying reduced sets of beliefs will be examined next.

## 6.5 THE IDENTIFICATION OF REDUCED SETS OF ATTITUDINAL AND NORMATIVE BELIEFS

### 6.5.1. Introduction

The previous section made it clear that there is considerable inter-correlation within both the attitudinal and the normative belief items. This fact, as well as the large number of items in the original salient lists, makes it essential to reduce the number of items. The marketing value of this type of data is much enhanced if a smaller 'key' set of items can be identified which can be manipulated in a given promotional campaign. Much attitudinal data whilst collected in a perfectly correct manner, is not adequately applied, as 'the techniques and the technicians' fall down on working through the application problems. It is not easy to take a set of 'seven plus or minus two' beliefs and apply them in a promotional exercise. It is a key element in this research to find a method which will satisfactorily reduce sets. The standard Fishbein summative approach fails here (Chapter 4), although the Fishbein  $b_i a_i$  analysis is an attempt in the right direction (Chapter 5).

To identify reduced sets, 5 techniques were explored in this study: three relying on stepwise regression analysis, hence capitalising on a major re-run of the data sets and two on principal component and factor analysis respectively.

### 6.5.2. Technique One For Reducing Belief Sets: Interactive Analysis

A pilot exercise was run on an IBM Statpack program on another computer which allows the researcher to include and exclude variables in the analysis in order to fully explore the structure of items in a set and

find the most predictive set. A sample of this pilot is included in Appendix 6(vii).

This method was not pursued any further because this analysis method is expensive in the time required both by the researcher and the computer; it cannot take large data sets easily and a more cost-effective technique was available.

### 6.5.3. Technique Two For Reducing Belief Sets: Variables in Equation

In the SPSS stepwise regression program at each step 2 tables are printed out, called Variables in Equation and Variables not in Equation (at that particular step). After the regression run has been made, it is possible therefore to go back to that step in the sequence in which the proportion of explained variance in the criterion variable and all individual F values for retention in the Variables in Equation table are significant. Since the equation for that subset of variables is already available, the program need not be rerun. This method was used here; starting with the first step the F value was examined in the Variables in Equation table and if significant the next step was looked at until the first non-significant entry to the equation was encountered (also see Appendix 6(iii); significance was read at 5% level or above).

The data for Variables in Equation is presented in Appendices 6(iv), (v) and (vi) for all the equations run. These tables show the number of items to which the equation can be reduced if only the initial significant items (called Variables In Equation -VIE- in the tables) are retained. The reductions are considerable in the case of all three data sets; page 128+.

The method is clearly capable of providing reduced sets of items. A second point, that needs to be considered, is whether the items in the reduced set are in the 'right' order, from the item that contributes most at the top, to the one that contributes least at the bottom. This problem was raised in section 6.2. In this context the main limitations of this technique need to be considered. By not specifying a restricted F level in the initial stepwise run, the equations contain almost all items and the addition of the later variables in the series adds little or nothing to the power of the equation, as indicated by the level of the proportion of explained variance in the criterion. This can be seen by inspecting that equation where the full step by step printout has been given in the appendices (Appendix 6(vi) regression 2. Men:Harp). In a trial run where the F level was restricted SPSS naturally produced the same items in the same order and simply cut the run at the specified F level. There was little point in such truncated runs and the full runs were undertaken.

TABLE 6(v): REDUCTION OF BELIEF ITEMS ACHIEVED USING VIE METHOD: SUB-  
SECTOR OF CIGARETTE MARKET: SUMMARY OF APPENDIX 6(iv)

KEY: \* Key equations

Figures in brackets give number of items in full salient set run in equation and figures beneath are the variables left with significant values in VIE table, at 5% level or above.

BRAND 1.BI:Aact,NB 2.\*Aact: $b_{ii}$  3\*BI: $b_{ii}$  4.\*NB:SNBmc 5.\*BI:SNBmc 6.\*NB:SNB

	(2)	(11)	(11)	(3)	(3)	(3)
A	2	2	2	2	2	3
B	2	4	7	2	2	3
C	2	3	4	2	2	2
D	2	5	2	2	2	2
E	2	4	5	2	2	3
F	2	3	4	3	2	3
G	2	5	5	2	2	2

7.BI:SNB 8.BI: $b_{ii}$ ,SNBmc 9.BI: $b_{ii}$ ,SNBmc,C. 11.\*Aact: $b_i$  12.\*BI: $b_i$

	(3)	(14)	(15)	(11)	(11)
A	3	2	3	4	4
B	2	10	11	3	5
C	2	4	5	3	3
D	3	2	3	4	4
E	3	6	6	5	5
F	3	4	4	4	7
G	3	7	7	5	5

TABLE 6(vi): REDUCTION OF BELIEF ITEMS ACHIEVED USING THE VIE METHOD:

BREWERS' BEERS: SUMMARY OF APPENDIX 6(v)

KEY: As for cigarette table: Table 6(v) plus

Brewers' Beers: W= Watneys; T= Trumans; Wh= Whitbreads; Cou= Courage;  
Ch= Charringtons; IC= Ind Coope; S&N= Scottish & Newcastle.

Belief items: E.g. (4/5) no. of beliefs before/ refers to male data;  
number after / to female data.

PRODUCT	1. BI: Aact, NB	2. *Aact: b <sub>i</sub> a <sub>i</sub>	3. *BI: b <sub>i</sub> a <sub>i</sub>	4*NB: SNBmc	5*BI: SNBmc	6.*NB: SNB
W	(2)	(9)	(9)	(4/5)	(4/5)	(4/5)
Men	2	2	5	1	1	3
Women	2	1	3	2	2	4
T	(2)	(8)	(8)	(4/5)	(4/5)	(4/5)
Men	2	2	4	1	1	2
Women	2	1	1	1	1	3
Wh	(2)	(9)	(9)	(4/5)	4/5)	(4/5)
Men	2	4	3	1	0	3
Women	1	1	4	3	1	3
Cou	(2)	(8)	(8)	(4/5)	(4/5)	(4/5)
Men	2	4	4	2	0	3
Women	1	3	3	3	1	3
Ch	(2)	(8)	(8)	(4/5)	(4/5)	(4/5)
Men	2	2	3	2	0	3
Women	1	1	1	3	1	5
IC	(2)	(7)	(7)	(4/5)	(4/5)	(4/5)
Men	2	1	1	2	0	3
Women	2	1	1	3	1	4
S&N	(2)	(7)	(7)	(4/5)	(4/5)	(4/5)
Men	2	2	2	2	0	3
Women	2	1	1	3	1	3

continued on page 130

TABLE 6(vi) CONTINUED

PRODUCT	7.*BI:SNB	8.BI:b <sub>i</sub> a <sub>i</sub> ,SNBmc	9.BI:b <sub>i</sub> a <sub>i</sub> ,SNBmc,C.	10.BI:b <sub>i</sub> a <sub>i</sub> ,SNB
W	(4/5)	(13/14)	(14/15)	(13/14)
Men	2	6	6	7
Women	3	7	7	7
T	(4/5)	(12/13)	(13/14)	
Men	2	7	8	
Women	3	6	7	
Wh	(4/5)	(13/14)	(14/15)	
Men	2	3	3	
Women	2	4	4	
Cou	(4/5)	(12/13)	(13/14)	
Men	1	4	4	
Women	4	5	6	
Ch	(4/5)	(12/13)	(13/14)	
Men	2	3	3	
Women	2	3	3	
IC	(4/5)	(11/12)	(12/13)	
Men	3	1	2	
Women	2	2	2	
S&N	(4/5)	(11/12)	(12/13)	
Men	2	2	3	
Women	3	2	3	

TABLE 6(vii): REDUCTION OF BELIEF ITEMS ACHIEVED USING THE VIE METHOD:  
LAGER BRANDS: SUMMARY OF APPENDIX 6(vi)

KEY: as for brewers' beers

BRAND	1.BI:Aact,NB	2.*Aact:b <sub>i</sub> a <sub>i</sub>	3.*BI:b <sub>i</sub> a <sub>i</sub>	4.*NB:SNBmc	5.*BI:SNBmc	6.*NB:SNB
Harp	(2)	(12)	(12)	(4/5)	(4/5)	(4/5)
Men	2	3	3	1	1	2
Women	2	4	3	1	4	4
Skol	(2)	(11)	(11)	(4/5)	(4/5)	(4/5)
Men	2	5	1	1	2	3
Women	1	1	1	2	1	3
Kbourg	(2)	(11)	(11)	(4/5)	(4/5)	(4/5)
Men	1	1	3	1	2	2
Women	2	3	3	2	2	3
Carlsbg	(2)	(13)	(13)	(4/5)	(4/5)	(4/5)
Men	2	6	9	2	3	2
Women	1	1	4	1	2	2
Heineken	(2)	(12)	(12)	(4/5)	(4/5)	(4/5)
Men	1	3	2	1	1	2
Women	1	1	1	1	4	2
Holsten	(2)	(13)	(13)	(4/5)	(4/5)	(4/5)
Men	2	5	3	1	1	2
Women	2	3	4	1	2	4

continued on page 132

TABLE 6(vii) CONTINUED

BRAND	7.*BI:SNB	8.BI:b <sub>i</sub> a <sub>i</sub> ,SNBmc	9.BI:b <sub>i</sub> a <sub>i</sub> ,SNBmc,C.	10.BI:b <sub>i</sub> a <sub>i</sub> ,SNB
Harp	(4/5)	(16/17)	(17/18)	(16/17)
Men	4	4	6	4
Women	3	7	9	7
Skol	(4/5)	(15/16)	(16/17)	
Men	2	2	3	
Women	3	2	2	
Kbourg	(4/5)	(15/16)	(16/17)	
Men	2	4	4	
Women	2	3	3	
Carlsbg	(4/5)	(17/18)	(18/19)	
Men	2	7	7	
Women	2	7	7	
Heineken	(4/5)	(16/17)	(17/18)	
Men	2	3	3	
Women	2	8	7	
Holsten	(4/5)	(17/18)	(18/19)	
Men	2	3	5	
Women	2	5	6	

The limitations of the technique with regard to the ordering of items, has been partly overcome by the Variables in Equation method, as it concentrates on the significant items only (and these could enter the equation first). But as SPSS produces an ordered set of items only and not an optimal set, it is also possible that by this method, some of the variables introduced into the equations at an early stage, subsequently could lose their power and significance and should therefore not be included in a reduced set. As the reduction process is quite considerable with the Variables in Equation method, it is hoped, that the resultant reduced sets do not suffer too greatly from this limitation. A check is built into the analysis later (see Analysis of Correlations).

Qualitatively the results obtained from the stepwise compared with the summative regression analysis are better, as the significant variables (VIE) are identified. This problem was also raised in section 6.2. of this chapter. But the proviso on order must be borne in mind.

#### 6.5.4. Technique Three For Reducing Belief Sets: Analysis of Correlations

This method was tested as it represents an adaptation to interactive analysis to the facilities available to the author. It was tried on two brands in the cigarette market: one (Brand A) was chosen because the proportion of explained variance in the criterion variable on the first step of the original regression analysis was high; the other brand (B) was chosen: it was at the low end of the spectrum. It was felt that this would represent the maximum spread in the data. This exploratory work was carried out on the cigarette data, rather than on the drinks data, as it was felt, that not so much could be gained by development work in these markets, as they were even newer markets than the sub-sector of the cigarette market.

The technique used here was described as an adaptation of interactive analysis, but unlike interactive analysis (see section 6.5.2.), where interaction is a continuous process with the computer, three approaches were used in this research. The details of the methodology are given in the key to Appendix 6(viii) but briefly they are -

(i) the correlation matrices of the original stepwise regression runs were examined to decide (by the same criterion as before) which variables to include and which to exclude and if several variables had a strong claim to being included, then they would only be allowed in on consecutive runs.

(ii) A more subjective set of variables was run and this was obtained from the elicitation interview and related to the hypotheses then formed, about which variables might relate most to a given brand. This problem

relates to the extraction of soft data and is one that marketing researchers are constantly confronted with in their work. It is therefore worth examining in a research exercise, which is particularly concerned with the marketing pay-off of alternative techniques.

(iii) An approach which excluded all variables which correlated highly with the criterion.

(iv) An approach taking the variable which correlated most with the criterion variable and making it the criterion.

The runs were undertaken with default values as before and the details are given in Appendix 6(viii). The results are summarized in Tables 6(viii), (ix) and (x). The runs were restricted to the attitudinal belief part of the Fishbein formula, as it is the bigger part, and so makes a more detailed exploration of the data possible.

TABLE 6(viii) ANALYSIS OF CORRELATIONS: APPROACH (i) and (ii) above: BRAND A

Approach (i): allowing variables which correlated highly with criterion in initial stepwise regression into analysis on consecutive runs only.

1. There were 3 highly correlated  $b_i$  beliefs with criterion in original stepwise regression: good taste/flavour

a pleasant cigarette

a satisfying, sustaining cigarette

GOOD TASTE/FLAVOUR IN A PLEASANT CIG. IN A SATISFYING, SUSTAINING CIG. IN

<u>Aact:b<sub>i</sub></u>	<u>BI:b<sub>i</sub></u>	<u>Aact:b<sub>i</sub></u>	<u>BI:b<sub>i</sub></u>	<u>Aact:b<sub>i</sub></u>	<u>BI:b<sub>i</sub></u>
good taste/ flavour	good taste/ flavour	a plst. cig.	a plst. cig.	a sat./sustg.	a sat./sustg.cig.

OK to offer reasonably around priced a cig. to be seen in pop. OK to offer reasonably priced around

reasonably  
priced

2. There were also 3 highly correlated  $b_i$  beliefs with criterion.

KEY: IN = variable in run

E.g. Aact:b<sub>i</sub> Regression equation run with  $b_i$  variables = regression numbers 1.2.3.5.6.7. in appendices

Variables listed under regression equations are significant variables = Variables in Equation.

Approach (ii): subjective set of variables (included good taste/flavour and a pleasant cigarette, not a satisfying, sustaining cigarette)

Aact:b<sub>i</sub> variables  
a pleasant cig.

BI: b<sub>i</sub> variables  
good taste/flavour  
a pleasant cig.  
reasonably priced  
OK to offer around

KEY: regression run 4 & 8 in appendices

TABLE 6(ix) ANALYSIS OF CORRELATIONS: APPROACH (i) and (ii) above: BRAND B

Approach (i): details as for Brand A

1. There were 2 highly correlated  $b_i$  variables when criterion was Aact:  
good taste/flavour

a pleasant cigarette

There were 3 highly correlated variables( $b_i$ ) when the criterion was

BI: good taste/flavour

a pleasant cigarette

a satisfying, sustaining cig.

GOOD TASTE/FLAVOUR IN A PLEASANT CIG. IN A SATISFYING, SUSTAINING CIG. IN

<u>Aact:<math>b_i</math></u>	<u>BI:<math>b_i</math></u>	<u>Aact:<math>b_i</math></u>	<u>BI:<math>b_i</math></u>	<u>BI:<math>b_i</math></u>
good taste/ flavour	good taste/ flavour	a plst. cig.	a plst. cig.	a satisfying, sustg. cig.

too stg.  
& harsh

OK to offer  
around

too stg.  
& harsh

reasonably  
priced

reasonably  
priced

reasonably  
priced

reasonably  
priced

too stg.  
& harsh

too strong and  
harsh

KEY: as for Brand A

regression run numbers involved = 1.2.4.5.6.

2. There were 3 highly correlated variables with criterion when the variables were  $b_i a_i$  variables.

Approach (ii): subjective set (includes good taste/flavour not a pleasant cigarette).

Aact: $b_i$  variables

good taste/flavour  
too strong and harsh

BI: $b_i$  variables

good taste/flavour  
reasonably priced

too strong & harsh  
reasonably priced

KEY: this represents regression runs 3.7. from appendices.

These two tables identify for the two brands (A & B) those variables which are highly correlated with the criterion when the beliefs were  $b_i$  beliefs. The same information is available for the  $b_i a_i$  beliefs. Also they identify the variables chosen for the subjective sets. The results given in terms of the significant variables (VIE) indicate

- that whenever one of the highly correlated items is included in the equation, it appears in the significant variables. This is true irrespective of whether the predictors are  $b_i$  or  $b_i a_i$  beliefs and the criterion is Aact or BI. This result therefore does not help to throw any light on order effect, as these initially highly correlated variables seem to force their way to the top. It is relevant therefore to ask what would

happen if these items were excluded, or if one of them were taken as the criterion variable in its turn (see Table 6(x)).

- In the subjective sets more significant variables appear when the criterion is BI than Aact. in the case of Brand A. In the former case price appears as a significant variable and as was pointed out in Chapter 4 this was a growing factor in the market-place. Therefore subjectively chosen belief sets may not be such unrealistic sets, as it is sometimes claimed in the literature by proponents of hard data.

For Brand A, as indicated, two further analyses were carried out: excluding all three highly correlated items and making the item with the highest correlation with the criterion variable, the criterion in its own turn. The results are shown in Table 6 (x).

TABLE 6(x) BRAND A: ANALYSES OF CORRELATIONS: APPROACH (iii) and (iv)

Approach (iii): excluding all highly correlated items. For the  $b_i$  variables these highly correlated items were: good taste/flavour, a pleasant cigarette, a satisfying, sustaining cigarette.

Aact:  $b_i$  variables  
 a cig. to be seen with  
 too strong and harsh  
 increasing in popularity  
 OK to offer around

BI:  $b_i$  variables  
 a cigarette to be seen with  
 reasonably priced  
 too strong and harsh  
 OK to offer around  
 buy it only when on offer

Approach (iv): most highly correlated item = criterion: a pleasant cigarette

A pleasant cigarette: all other  $b_i$  variables

good taste/flavour  
 a satisfying, sustaining cigarette  
 OK to offer around  
 Reasonably priced  
 too strong and harsh

: most highly correlated item = criterion: a pleasant cigarette

A pleasant cigarette: all other  $b_i$  variables but less two other highly  
correlated ones (good taste/flavour; a satisfying,  
 sustaining cigarette).

OK to offer around  
 too strong and harsh  
 reasonably priced  
 a cigarette to be seen with  
 reliable name and reputation  
 attractive pack

When all three highly correlated items are excluded for Brand A: the resultant significant items reflect recent advertising effort for the brand. The order of the items is different between the two runs (Aact as criterion/BI as criterion) and this suggested that the research might usefully explore another group of techniques, namely principal component and factor analysis. For in these techniques the overall evaluative items usually get separated and become a factor in their own right and other items also group into their individual factors.

It is interesting to note that when the most highly correlated item ( $b_{i1}$ ) is taken as the criterion and run against all the remaining variables, the order in which the items come out is different from the order when these items were run originally against Aact. This would suggest, that even the most highly correlated item is no surrogate for Aact. And this introduces a note of caution. Even though the belief items may correlate highly with the criterion and among themselves, it is possible that this does not invalidate the Fishbein summation method. Perhaps all these items are necessary to predict the Aact:  $\sum b_{i1}$  correlation well, as Fishbein would argue. To test this further, the reduced set identified for one brand, was re-run for the Aact:  $\sum b_{i1}$  equation and the results are reported on in the discussion section 6.6. This is only a small experiment and much more systematic work on this needs to be undertaken in future.

It was also hoped that this Analysis of Correlations technique might shed some light on the order in which the variables enter the stepwise regression run. It was pointed out under the variables in equation method that one of the limitations of data reduction techniques could be that they would produce different orders for items. Analysis of Correlations, by being an adaptation of interactive analysis, should produce a more meaningful order. But as has been demonstrated for Brand A above

- the belief items which correlated highly with the criterion variable will force their way to the top of any list of significant items, whenever they allowed to do so

- and a different ordering is only obtained when they are excluded altogether.

Yet it is important to remember that these stable highly correlated items fit the advertised image of the brand.

#### 6.5.5. Technique Four And Five For Reducing Belief Sets: Principal Component and Factor Analysis

##### (i) Initial Exploration of Data

The initial exploration of the data using principal component and factor

analysis was undertaken to find the most appropriate way of exploring the structures within the belief sets. Its use was therefore

- exploratory

- as well as to test hypotheses. The previously used data reduction techniques had already indicated variables which duplicated by being highly correlated. Principal component and factor analysis was used to see if the reduced sets obtained by techniques 1,2, and 3 described so far, could be confirmed.

In this initial exploration principal component and factor analyses PA1 and PA2 (for full explanations see Appendix 6(ix)) were run for all brands of the cigarette market, using SPSS. The runs were undertaken separately for the  $a_i$ , the  $b_i$  and the  $b_i a_i$  variables. The resultant data are given in Appendix 6(ix), which also gives full technical and statistical details. What emerges is that principal component analysis is clearly the most difficult to interpret, PA2 comes next and PA1 is the easiest to understand. This interpretation is partly subjective, as the interpretation relies heavily on the meaning of the items coming together in components or factors. Moreover it relates to the images of the individual brands. But there is a more non-subjective element to the interpretation as well. Principal component analysis is difficult to interpret as the first component tends to be very large; also the same belief item tends to appear in more than one component. All this adds up to an ill-defined picture. For this reason no identifying labels are given to the components. Taking only those items that loaded .5 or above on a factor, fewer factors are obtained using PA2 than PA1, as can be seen quickly when inspecting the number of factors in Appendix 6(ix). The PA2 factors are therefore more 'mixed' factors, ie they contain several strands of meaning which PA1 spins out. It is for this reason that the PA1 analysis has been shown for all brands, with principal component and PA2 as well only for Brand A.

For PA1 the data relating to each brand have been shown on two pages: page 1 gives the full results and page 2 gives the belief item which best represents a particular factor (for detailed explanation see Appendix 6(ix)). This is the belief item which carries the largest factor score for that factor. This is another reduction method built into this analysis procedure and is called the reduced factor.

Table 6(xi) summarises the PA1 run for the  $a_i$  scores for the market segment; giving some idea of the structure of the total market segment.

TABLE 6(xi): EVALUATIONS (a<sub>i</sub> scores) FOR TOTAL SUB-SECTOR OF CIGARETTE MARKET: ONLY IDENTIFYING LABELS OF EACH FACTOR ARE GIVEN

PA1 FACTORS

<u>TOTAL MARKET SEGMENT</u>	<u>BRAND A</u>	<u>BRAND B</u>	<u>BRAND C</u>	<u>BRAND D</u>	<u>BRAND E</u>	<u>BRAND F</u>	<u>BRAND G</u>
OE	OE	OE	OE	OE	OE	OE	OE
Pa	Pa	Pa	Pa	Pa	Pa/R	Pa	Pa/R1
S	S	S	S	S	S	S	S
B	B	B	B	B	B	B	B
P	P	P	P	P/R	P	P	P
R	R	R	R		-	R	R2
Pr	Pr	Pr	Pr	Pr	Pr	Pr	Pr

Labels identifying factors:

OE = Overall Evaluation

Pa = pack

S = strength

B = bargain

P = popularity

R = reputation

Pr = Price

The evaluation scores (a<sub>i</sub>) were run separately for each brand, and as expected, came out the same. They provide a picture of the belief structure for the attitudinal beliefs for the total market segment. The identifying labels only have been given above, they show the close correspondence of the PA1 factors between the brands, but it must be remembered that the same label, may not include the identical individual beliefs.

The reduced factors for the b<sub>i</sub> and the b<sub>i</sub>a<sub>i</sub> scores are given in the next two tables. Reduced factors, it will be recalled, are those which give the item with the highest loading on a particular factor only. The results indicate

- that there is redundancy between the belief items
- that brand profiles do indeed vary.

The order of the factors is given in the left hand margin, this is of interest although there is no easy relationship as in principal component analysis, where the percentage variance explained by each factor can be calculated,

this is not the case for PA1.

TABLE 6(xii): REDUCED PA1 b<sub>i</sub> FACTORS: SUB-SECTOR OF CIGARETTE MARKET

	<u>BRAND A</u>	<u>BRAND B</u>	<u>BRAND C</u>	<u>BRAND D</u>	<u>BRAND E</u>	<u>BRAND F</u>	<u>BRAND G</u>
F1	GT/F	PC	GT/F	GT/F	GT/F	SSC	SSC
F2	RN/R	RN/R	RN/R	RN/R	RN/R	TSH	AP
F3	BOO	TSH	RP	BOO	TSH	RN/R	RP
F4	RP	RP	BOO	RP	BOO	BOO	TSH
F5	TSH	BOO	TSH	TSH	IP	AP	CSW
F6	IP	IP	AP	AP	RP	RP	BOO
F7	AP	-	IP	-	-	IP	IP

KEY: GT/F = good taste/flavour  
 RN/R = reliable name and reputation  
 BOO = buy it only when on offer  
 RP = reasonably priced  
 TSH = too strong and harsh  
 IP = increasing in popularity  
 AP = attractive pack  
 PC = pleasant cigarette  
 SSC = satisfying, sustaining cigarette  
 CSW = a cigarette to be seen with  
 OK = OK to offer around

TABLE 6 (xiii): REDUCED PA1 b<sub>i</sub> a<sub>i</sub> FACTORS: SUB-SECTOR OF CIGARETTE MARKET

	<u>BRAND A</u>	<u>BRAND B</u>	<u>BRAND C</u>	<u>BRAND D</u>	<u>BRAND E</u>	<u>BRAND F</u>	<u>BRAND G</u>
F1	GT/F	GT/F	GT/F	PC	GT/F	GT/F	GT/F
F2	AP	AP	RN/R	IP	BOO	AP	AP
F3	TSH	TSH	BOO	BOO	AP	BOO	TSH
F4	BOO	BOO	TSH	TSH	IP	TSH	RP
F5	IP	IP	IP	AP	RP	IP	IP
F6	RN/R	RP	CSW	RP	TSH	RN/R	BOO
F7	OK	CSW	RP	RN/R	RN/R	RP	BOO
F8	RP	RN/R	AT	OK	OK	CSW	-

KEY: as above.

In this exploratory analysis, the number of factors obtained for the PA1 analysis was controlled by specifying a cut-off value (minimum eigenvalue of 0.5 - see technical and statistical note, Appendix 6(ix)). For the  $b_i$  beliefs this gave between 6-7 factors. The question then arose whether this was the appropriate number of factors for the structure contained in the data. A number of techniques were explored and these are also described in the technical and statistical note, referred to earlier. The technique which seemed to hold most promise was the running of a range of solutions.

#### (ii) Range of Solutions

For each cigarette brand PA1 was run for 4 - 9 solutions; the data are given in Appendix 6(x). Appendix 6(xi) gives the same data for Watneys and Harp, representing the drinks markets.

The question which needed to be answered now was how to pick the most appropriate solution. Lunn (1969) addressed himself to the problem and he suggested 3 possible techniques -

(i) when inspecting a range of solutions it sometimes becomes clear that 'one particular solution is indeed the best. That is, it is both the most meaningful to interpret, and has the highest factor loadings. Solutions extracting fewer factors are blurred: those extracting more are too diffuse.'

(ii) In situations where several solutions are acceptable, it would be inappropriate to demand a single optimum solution. Lunn (1969) states 'the one chosen will depend upon marketing considerations. For example, a specific solution will be taken, if detailed brand discrimination is required, but a more general solution, where we are interested in understanding the basic mechanisms.'

(iii) A further possibility is to use Cronbach's coefficient alpha. This gives an assessment of split half reliability, taking into account all possible pairs of splits. 'But it can also be used to help to clarify the range of factor solutions', says Lunn, 'and to select the most suitable one for the research purpose. In all these cases, the items selected are those which maximise reliability, as measured by alpha.'

#### (iii) Chosen Solutions

The methods for finding the most appropriate solution for the markets studied here were (i) and (ii) above, namely a solution which stood out from the rest and marketing considerations.

In the cigarette market

- solution 7 was chosen for brands A, B and C, which was the

- solution before reputation split into two factors;
- For Brand D solution 6 was chosen and again for the same reason.
  - For Brand E solution 6 was appropriate if pack was not seen as an important item for this brand; solution 7 if it was. Solution 6 was right for the brand (see mean scores, Chapter 5).
  - For Brand F solution 7 was chosen, when popularity had split out as a separate factor and for Brand G it was solution 5, before reputation split into two factors.

For the drinks markets the chosen solutions were somewhat more difficult to arrive at, as the first factor was always much more than just an evaluative factor. Also there is the male/female difference to be taken into account.

- For Watneys' beers solution 7 was chosen for men and solution 8 for women, when value for money &/or strength had split out from overall evaluation plus.
- For Harp solution 9 was chosen for men and 8 for women for the same reason; although even for these solutions value does not split out as a separate factor.

The reduced factors for the chosen solutions are given in Table 6(xiv).

It was mentioned earlier that Lunn listed marketing considerations in choosing factor solutions. After studying the data from this research these marketing considerations can be specified somewhat more precisely. They involve considerations of

- the current brand images of the brands
- the use of the solutions in subsequent research and it is argued that reduced factors are of great value here; they represent 'key' beliefs, small in number and so easier and cheaper to apply. Reduced solutions offer a good working tool for marketing researchers and merit further consideration.
- The likely developments in the market place. For example, Brand A's current image emphasized overall evaluative items, but price was becoming an important consideration in the market. The company therefore looked for a solution which contained price as a separate item, to be able to monitor the brand's progress. They continued with their theme advertising, but pursued price vigorously with scheme promotions. In the drinks markets good value for money was often part of overall evaluation; if the drink was not seen as good value consumers were not interested. However, for practical

reasons, in order to monitor future progress by the brands, the chosen solutions looked for value as a separate factor, if at all possible.

TABLE 6(xiv): REDUCED FACTORS FOR CHOSEN FACTOR SOLUTIONS: BRAND A, HARP WATNEYS' BEERS

BRAND A: 7 factor solution

good taste/flavour  
reliable name and reputation  
buy it only when on offer  
reasonably priced  
too strong and harsh  
increasing in popularity  
attractive pack

WATNEYS' BEERS

MEN: 7 factor solution

buying a good quality beer  
buying the beer with the red barrel  
having difficulty to obtain it  
buying a well-known beer  
buying a popular beer  
buying a strong beer  
(buying the beer which offers good value for money)

WOMEN: 8 factor solution

buying a beer that tastes good  
buying the beer with the red barrel  
buying a well-known beer  
having difficulty to obtain it  
buying the beer which offers good value for money  
buying a popular beer  
buying a strong beer  
buyg. the beer wh. says what we want is W.

HARP

MEN: 9 factor solution

buying a good quality lager  
buying a lager which is easily available  
buying the lager from Guinness and Park Royal  
buying the lager which is not well known  
buying a Pils lager  
buying a lager with a foreign name  
buying a popular lager  
buying a British made lager  
(buying a strong lager)

WOMEN: 8 factor solution

buying a good quality lager  
buying a British made lager  
buying a lager which is easily available  
buying a lager which is not well-known  
buying a lager with a foreign name  
buying a Pils lager  
buying a popular lager  
buying a strong lager

KEY: reduced factors give the item with the largest factor score in each factor; picked by inspection of largest factor scores in rows.

(iv) Stability of Solutions

If possible the solutions chosen should be checked for stability. This was done by running the data on split samples and the details are given in Appendix 6(xii). The results indicate that the same factors emerge, but not necessarily in the same order, after factor 1 and factor 2 have been extracted. This test was done only on the cigarette data and although the results do not further the order argument, they do give confidence in the

factor analysis results.

## 6.6. DISCUSSION AND CONCLUSION

### 6.6.1. The Problem

In this chapter an attempt was made to consider the usefulness of stepwise regression compared with summative regression and to discover a method which would produce a 'key' set of reduced beliefs. To achieve this a number of stages had to be gone through -

(i) It was necessary to ask whether in terms of prediction and the quality of the answers obtained, stepwise regression added anything for the marketing man over and above what summative regression provided. This research indicates that the answer to both of these questions seems to be yes. This would be even more true of the type of stepwise regression which eliminates variables, thus producing optimal belief sets.

(ii) The output from stepwise regression was utilised to check whether there was evidence of intercorrelations between the belief items. As the intercorrelations between the belief items in a given set was high, this seemed to support the search for reduced belief sets.

(iii) 5 different methods of data reduction were examined, which of these worked best?

### 6.6.2. Comparison Of Data Reduction Methods

Comparison across the 5 reduction techniques indicate that

- there is redundancy between the items and
- that two techniques in particular show promise: factor analysis and analysis of correlations.

#### Factor Analysis (PA1)

Factor analysis, although one of the most expensive techniques employed here, sorts the belief items into groups which can be reduced to single item factors. This makes the reduced factors economical to apply in sub-sequent research. In this way the current brand image can be measured and future changes can be monitored. This approach argues for factor analysis to be undertaken even on salient lists of beliefs (which are shorter than lists obtained by other methods, see Chapter 3), before attempting any quantification of the data. Indeed Moinpour and Wiley (1972a) argued for factor analysis to be undertaken prior to regression analysis to reduce intercorrelations between items. In their view, high item inter-correlations reduces the validity of regression work.

#### Analyses of Correlations

None of the reduction techniques explored in this chapter sorts out

the importance question is which technique produces the most meaningful order in which the items appear. Attempts to solve this question in previous research (see Chapter 3, section 3.6.) were not very successful either, but one technique looked at in this research, namely Analysis of Correlations holds some promise for marketing studies. It comes closer to producing optimal sets than any of the other techniques tried here, can work on large data bases and does not require additional funds (like interactive analysis).

The detailed results for the 3 products are given in the next three tables and they will be useful for the next two sections. In these the 5 data reduction techniques will be compared from the point of view of

- the diagnostic or explanatory information they provided and
- their comparative predictive powers.

#### Diagnostic Comparison

Fishbein argues that all the salient beliefs for a particular product are required to obtain good diagnostic information. Tables 6 (xv), (xvi) and (xvii) show the significant or key beliefs to which the total set can be reduced. These are smaller and much more manageable sets for marketing purposes.

These reduced sets can be compared with the Fishbein  $b_i a_i$  analysis. The Fishbein  $b_i a_i$  analysis is not a reduction technique as such, but it is of interest here in so far as it separates those beliefs on which the brand does well ( $b_i$  scores are greater than  $a_i$  scores) from those on which the brand does not so well ( $a_i$  scores are greater than  $b_i$  scores); both types of beliefs are required by the marketing man in a 'key' set of beliefs - in order to monitor future progress of his brand. Taking Watneys data for men the  $b_i a_i$  analysis suggests that the beliefs which might be improved for the brand (Chapter 5) are:

- buying a good quality beer
- buying a beer which offers good value for money
- buying the beer that tastes good
- buying a strong beer.

This range of beliefs most closely resembles the beliefs included in the chosen factor solution for the brand amongst men Table 6(xvi). If the beliefs are listed on which Watneys does well (well-known, popular, not difficult to obtain, and the 2 advertising slogans), then again the factor solution resembles this group better than any other reduction method.

This diagnostic analysis would therefore put more emphasis on factor analysis as a data reduction method, than on any other. Factor analysis

produces a good range of items and the Fishbein  $b_i a_i$  analysis identifies those which can be acted upon; although sometimes this proves difficult (e.g. Brand A: a pleasant cigarette; Chapter 5).

TABLE 6(xv) CORRELATION MATRIX ANALYSIS: COMPARISON OF DATA REDUCTION METHODS:

BRAND A

1. Aact:  $b_i$  variables

a. 11 beliefs reduced to 7 by eliminating highly correlated items (.5 or above) from correlation matrix of original stepwise regression run. This was the check on the intercorrelation of belief items.

A pleasant cigarette  
attractive pack  
a satisfying, sustaining cigarette  
buy it only when on offer  
reasonably priced  
increasing in popularity  
too strong and harsh

b. Variables in Equation (VIE) reduced 11 beliefs to 4:

a pleasant cigarette  
a cigarette to be seen with  
a satisfying, sustaining cigarette  
attractive pack

c. Analysis of Correlations

see table 6(viii) and 6(x).

2.  $b_i$  variables

d. Exploratory PA1 factor analysis (eigenvalue 0.5): reduced list of  $b_i$  beliefs (picked by inspection of largest factor score in rows) giving 7 items:

good taste/flavour  
reliable name and reputation  
buy it only when on offer  
reasonably priced  
too strong and harsh  
increasing in popularity  
attractive pack

e. Solution 7 PA1 Factor Analysis:

good taste/flavour  
reliable name and reputation  
buy it only when on offer  
reasonably priced  
too strong and harsh  
increasing in popularity  
attractive pack

TABLE 6(xvi) CORRELATION MATRIX ANALYSIS: COMPARISON OF DATA REDUCTION METHODS:  
WATNEYS' BEERS

MALE

1. Aact:b<sub>i</sub>a<sub>i</sub> variables

a. 9 beliefs reduced to 4 in correlation matrix

buying a beer that tastes good  
having difficulty to obtain it  
buying the beer with the red barrel  
buying the beer which says what we want is Watneys

b. VIE reduced 9 beliefs to 2

buying the beer that tastes good  
buying a good quality beer

2. b<sub>i</sub> belief items

e. Solution 7 PA1 factor analysis

buying a good quality beer  
buying the beer with the red barrel  
having difficulty to obtain it  
buying a well known beer  
buying a popular beer  
buying a strong beer  
(buying the beer which offers good value for money)

FEMALE

1. Aact:b<sub>i</sub>a<sub>i</sub> variables

9 beliefs reduced to 2 in correlation matrix

buying a good quality beer  
having difficulty to obtain it

VIE reduced 9 beliefs to 1

buying the beer that tastes good

2. b<sub>i</sub> belief items

Solution 8 PA1 factor analysis

buying a beer that tastes good  
buying the beer with the red barrel  
buying a well known beer  
buying a strong beer  
having difficulty to obtain it  
buying the beer which offers good value for money  
buying a popular beer

TABLE 6(xvii) CORRELATION MATRIX ANALYSIS: COMPARISON OF DATA REDUCTION METHODS: HARP

MALE

1. Aact:b<sub>i</sub>a<sub>i</sub> variables

a. 12 beliefs reduced to 8 in correlation matrix

buying a lager which tastes good  
buying a British made lager  
buying a lager which is not well known  
buying a lager with a foreign name  
buying a popular lager  
buying a lager from Guinness and Park Royal  
buying a lager which is easily available  
buying a Pils lager

FEMALE

1. Aact:b<sub>i</sub>a<sub>i</sub> variables

12 beliefs reduced to 8 in correlation matrix

buying a good quality lager  
buying a lager from Guinness and Park Royal  
buying a lager which is easily available  
buying a popular lager  
buying a lager with a foreign name  
buying a lager which is not well-known  
buying a Pils lager  
buying a British made lager

Continued on page 148

TABLE 6(xvii) Contd.

<p><u>b. VIE reduced 12 beliefs to 3</u></p> <p>buying the lager that tastes good          buying a British made lager          buying a good quality lager</p> <p><u>2. b<sub>i</sub> belief items</u></p> <p><u>e. Solution 9 PAI factor analysis</u></p> <p>buying a good quality lager          buying a lager which is easily available          buying the lager from Guinness &amp; Park Royal          buying a lager which is not well-known          buying a Pils lager          buying a British made lager          buying a lager with a foreign name          buying a popular lager          (buying a strong lager)</p>	<p><u>VIE reduced 12 beliefs to 4</u></p> <p>buying a good quality lager          buying a lager from Guinness and Park Royal          buying a popular lager</p> <p><u>2. b<sub>i</sub> belief items</u></p> <p><u>Solution 8 PAI factor analysis</u></p> <p>buying a good quality lager          buying a British made lager          buying a lager which is easily available          buying a lager which is not well-known          buying a lager with a foreign name          buying a Pils lager          buying a popular lager          buying a strong lager</p>
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Predictive Comparison

To test the predictive power of the various data reduction methods a test was set up and to make it rigorous it was restricted to Brand A. The equation chosen for the test wherever possible was  $A_{act} : \sum b_i a_i$  and the reduction methods examined are those listed before and some others. They are fully listed in Table 6(xviii) and at this stage the reader should look at the headings in Table 6(xviii) to obtain a summary statement of each of the methods compared. When the detailed items involved are examined, they indicate that there is a common core of items that is attached to the brand, with others around it.

The  $A_{act} : \sum b_i a_i$  equation was taken to test the predictive power of reduction methods A-F; in this equation the items were summed, to be able to compare each method with the original  $A_{act} : \sum b_i a_i$  equation using all 11 salient beliefs for the brand. The results were as follows:

<u>REDUCTION METHOD(see Table 6(xviii))</u>	<u>R<sup>2</sup> as %</u>	<u>Rank</u>
Method A	17%	5
B	37%	1
C(1)	17%	5
C(2)	17%	5
C(3)	17%	5
C(4)	11%	10
D	17%	5
E	18%	4
F	37%	1
Original $A_{act} : \sum b_i a_i$ reg.	25%	3

TABLE 6(xviii): COMPARISON OF REDUCTION METHODS DISCUSSED IN THIS CHAPTER AND SOME OTHER METHODS; testing their predictive power for BRAND A

A. The variables remaining after examining the correlation matrix of the original stepwise regression and removing variables with high intercorrelations (Appendix 6(iv))

a pleasant cigarette  
OK to offer around  
\*reasonably priced  
\*buy it only when on offer  
\*too strong and harsh  
\*increasing in popularity  
\*reliable name and reputation  
\*attractive pack

B. Variables in Equation of original stepwise run: second data reduction technique discussed in this chapter (Appendix 6(iv)).

a pleasant cigarette  
a satisfying, sustaining cigarette

C. Analysis of Correlations: third data reduction technique discussed in this chapter: Appendix 6(viii)

1. Aact and first reduced set of  $b_i, a_i$  variables

\*too strong and harsh  
\*reasonably priced  
\*good taste/flavour  
\*attractive pack  
OK to offer around  
\*reliable name and reputation  
\*buy it only when on offer  
\*increasing in popularity

2. Aact and second reduced set of  $b_i, a_i$  variables

\*too strong and harsh  
\*reasonably priced  
a pleasant cigarette  
\*attractive pack  
OK to offer around  
\*reliable name and reputation  
\*buy it only when on offer  
\*increasing in popularity

3. Aact and third reduced set of  $b_i, a_i$  variables

\*too strong and harsh  
\*reasonably priced  
\*attractive pack  
a satisfying, sustaining cigarette  
OK to offer around  
\*reliable name and reputation  
\*buy it only when on offer  
\*increasing in popularity

4. Aact and all  $b_i, a_i$  variables MINUS 3 variables which correlate highly with criterion (good taste/flavour, a pleasant cigarette, a satisfying

contd.

sustaining cigarette)

- OK to offer around
- \*buy it only when on offer
- \*increasing in popularity
- \*reasonably priced
- a cigarette to be seen with
- \*reliable name and reputation
- \*attractive pack
- \*too strong and harsh

D. 8 factor solution reduced to 1 item per factor: Appendix 6(ix)

(This 8 factor solution was run on a minimum eigenvalue of .5 and differs from the chosen 7 factor solution for the brand for the  $b_i$  variables only by one additional item. The identical items in the two solutions are starred. The 7 factor solution is given in Appendix 6(x).

- \*good taste/flavour
- \*attractive pack
- \*too strong and harsh
- \*buy it only when on offer
- \*increasing in popularity
- \*reliable name and reputation
- OK to offer around
- \*reasonably priced

(The 7 factor solution would correspond to the 5th reduction method discussed in this chapter).

E. Evaluations for total market segment ( $a_i$  scores)PA1 analysis;Appendix 6(ix)

- \*too strong and harsh
- \*reasonably priced
- \*good taste/flavour
- \*attractive pack
- OK to offer around
- \*buy it only when on offer
- \*increasing in popularity

F. The three overall evaluative items

- \*good taste/flavour
- a pleasant cigarette
- a satisfying, sustaining cigarette

KEY: \* items appearing in factor solution.

F. the three evaluative items were run on the assumption that they produce the highest percentage prediction of all methods.

The results quoted on page 148 indicate that only two methods offer improved prediction over the original one which includes all the salient beliefs. Interestingly enough, these two are the ones where the two or three most evaluative items were run against Aact (method B and F respectively). From their meaning this is the reduced set which was promoted.

The results also indicate that

- there is a common core of items attached to the brand (marked \*)
- some reduction methods emphasised end results promoted in the advertising (e.g. B and F) and others
- emphasised product characteristics more (e.g. D); as well as other items.
- price appeared in all except A and F.

The conclusions which the company derived from this was to

- continue emphasising evaluative items in theme advertising
- strengthen price through scheme promotions as this seemed to be a key belief in the market ( $a_1$  scores e.g. method E.).

### 6.6.3. Conclusions

When a study is carried out collecting data suitable for Fishbein methodology then

- Fishbein analysis methods must be carried out, if the aim is replication.
- If there is the chance to explore the data then it is recommended that:

- (i) stepwise regression analysis is tried in place of summative regression analysis;
- (ii) stepwise regression producing optimal sets is employed;
- (iii) intercorrelation between belief items is reduced before stepwise regression is carried out;
- (iv) and that intercorrelations can be reduced by factor analysis or a method akin to the analyses of correlations used here.

Such exploration would increase the marketing utility of the data by providing belief sets

- which would be relatively small
- highlight the belief structure of a given brand
- are easily comprehensible and relatively easy to use. If these two factors are ignored in marketing studies, the studies will not be used as intended.

## CHAPTER 7

### MAIN CONCLUSIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

#### 7.1. INTRODUCTION

It will be recalled that the main parameters of this research were set out in the Abstract at the start. This is repeated below:

'In the field of social psychology Martin Fishbein has developed the 'theory of reasoned action.' A literature search was undertaken in both social psychology and marketing which revealed that the theory has been widely tested in social psychology, but to a much lesser extent in its marketing application. In particular, the marketing application indicated many gaps in methodology largely due to constraints imposed by time, money and the need for confidentiality of the results; all of which provided few opportunities to evaluate the model consistently.

The present investigation therefore had four main aims:

(i) to apply the model to real marketing problems amongst large and representative groups of consumers, paying particular attention to the operational application of all elements of the model and making improvements to this methodology wherever possible.

(ii) To apply the model consistently over several markets. To achieve this, marketing companies were sought, which had problems for which Fishbein methodology was appropriate and three markets were covered.

(iii) To extend the model to seek improvements in predictability. Two measures of Behaviour and Confidence were added.

(iv) To explore the differences in marketing advice which would result from a comparison between

- the standard Fishbein analyses
- methods commonly used by marketing researchers today (mean scores and association data) and
- alternative analyses (e.g. stepwise regression and multivariate techniques) applied to the data which had been collected for the standard Fishbein analyses.'

It will be recalled that to cover all these elements the thesis was organised as follows:

Chapter 1 covered the research design in relation to the four main aims of the study;

Chapter 2 dealt with the theoretical basis of the research;

Chapter 3 discussed the elicitation part of the model fully, particularly as advances in methodology were made here;

Chapter 4 covered the analyses of the predictive power of the standard Fishbein model and Chapter 5 covered its diagnostic applications; Chapter 6 tested the alternative analyses taking the research beyond the standard Fishbein model and it is the purpose of this chapter - Chapter 7 - to draw conclusions and indicate further worthwhile areas of research.

## 7.2. ELICITATION OF SALIENT ATTITUDINAL AND NORMATIVE BELIEFS

Fishbein defined and applied the concept of saliency to the elicitation process. As was indicated in Chapter 3, considerable refinements were added in the application of this concept to marketing studies, particularly in the UK. A further refinement was the 'element of game' added in this research, which made the whole elicitation task easier for respondents. As a consequence of these refinements saliency now has several advantages over other elicitation techniques, but its major drawback is the lack of any external test. This might be obtained from the work done on elicitation in several disciplines; external tests of saliency should also tackle the problem of determinant versus indicant beliefs.

In this research the concept of saliency was applied both to brands and aggregates like brewers' beers and it worked for both; although, as expected, it seemed to work slightly better for the former.

In marketing studies the elicitation of salient beliefs is usually undertaken on an individual basis, while other elicitation techniques use either individuals or groups. In this research the attempt was made to combine individual and group elicitation, in order to get the best from each. The resultant 'individuals within a group setting' technique (described in full in Chapter 3) is very cost efficient and new to marketing research.

The new elicitation technique used, was the same for all three markets and was carried out mostly by the author with some help from another psychologist, trained by the author in this technique. This aids the consistency of the results, something not always achieved in other studies.

Moreover, this research obtained the beliefs of real consumers, from relevant and relatively homogeneous groups, which meant that the language in which beliefs were couched was that of the consumer.

## 7.3. EDITING AND ANALYSIS OF SALIENT ATTITUDINAL AND NORMATIVE BELIEFS

Editing and analysis of the elicited beliefs was undertaken solely by the author; which further aids consistency of results. More research

with this degree of consistency in elicitation, editing and analysis could help establish whether consistency or the input of several researchers gives the best marketing pay-off.

It was indicated in Chapter 3, that the Fishbein method does not help resolve semantic difficulties and it was suggested that clarification sections ought to be added at the end of some elicitation sessions, as proved invaluable in this research.

Researchers have worked on both the beliefs of individuals and modal beliefs (e.g. Fishbein) in sample surveys. For this research the concept of market modal beliefs was developed, which are

1. salient beliefs aggregated for a homogeneous subsector of a market
2. plus any highly salient beliefs obtained for a particular brand.

The hypotheses behind market modal beliefs was that they

(i) would give an immediate indication of the structure of beliefs in a new market

(ii) could be particularly appropriate where brand images differ in degree and not in kind (as might well be the case in relatively new markets)

(iii) could allow strong salients for particular brands to emerge

(iv) would allow for brand comparisons to be made on all beliefs. In new markets this was particularly important because it gave a datum line from which beliefs could be singled out to build a particular brand image and the success of such a marketing operation could then be measured subsequently against this datum.

It was found that the strong salient beliefs for the individual brands, related to previous brand advertising, and especially to the drinks markets.

In future research, comparisons should be undertaken to explore what is lost and gained by using individual beliefs, versus modal beliefs, versus market modal beliefs; preferably for both new and old established markets.

#### 7.4. QUANTIFIED RESULTS - 'THE THEORY OF REASONED ACTION'

The theory was consistently applied across 20 products in three markets, making this large study almost unique in the marketing and academic literature. Fishbein argues that certain causal relationships should hold connecting the various elements of his theory (e.g. beliefs feed into overall attitude/ general norm/ feed into Behavioural Intention feed into Behaviour), but in Chapter 4 the author has argued that in a new area such as marketing, these causal links must be empirically tested.

The detailed results obtained with Fishbein's model are presented in Chapter 4 and they indicate that in all 3 markets

(i) the link between Behaviour and Behavioural Intention is not established; and the likely reasons for this are fully discussed. Both the Behaviour and Behavioural Intention measures can be improved and one of the analyses presented in Chapter 4 demonstrates that this can be done effectively with the Behavioural Intention measure (by looking at the detailed ratings on the 7 point scales). The results indicate that more work needs to be done to establish the link between the Behaviour and Behavioural Intention measures in marketing studies. It may be that the link was difficult to establish in this research because

- the markets investigated here were relatively new ones and not established markets with brand loyalty;
- the retail market was in a state of flux with inflation and recession putting more emphasis on price-value than usual;
- the theory does not allow for situational and other factors which might indeed be much more dominant in marketing than in social psychology.

The theory will be of little value to marketing people wishing to use attitude as a predictor unless Behaviour can be linked with Behavioural Intention.

(ii) When testing the internal validity of the Fishbein model, its linear nature is generally confirmed, although not well nor at levels which are significant, particularly in the following instances:

a. The general norm (NB) is not as useful a concept as it might be, for when motivation to comply (mc) is removed from the sum of the specific normative beliefs ( $\sum$ SNB), they ( $\sum$ SNB) tend to be a better predictor of the general norm (NB) than the general norm is of BI (Behavioural Intention). It was suggested in Chapter 4 that the general norm could be further improved or there is the possibility, which Sampson and Harris (1970) noticed, in place of the general norm.. 'in some product fields.. situational factors may be more relevant to markets where several brands are perceived as similar and high point-of-sale activity is in evidence.' This was increasingly the case with the markets researched here.

b. The results indicate that there are real problems with motivation to comply. As a concept it did not appear to work very well, even with the type of improvements tried in this research exercise (in the drinks markets). It was therefore suggested in Chapter 4 to

- carry on the work of improving the wording

- and if that fails, drop motivation to comply as a measure and take account of it in the context of the model (e.g. 'taking into account your own personal wishes and those of other members of the family for whom you buy').

Ajzen and Fishbein (1980) also recognized that there was a problem: 'there are many unresolved issues with respect to the concept of motivation to comply' and they state that more research is in progress. This research attempts to check the usefulness of the concept by making it specific to a behaviour rather than eliciting it in general as is currently done. They state 'For example, instead of asking people how much, in general, they want to do what, say, their friends think they should do, they could be asked how much they want to do what their friends think they should do when it comes to family planning or to politics.'

c. The  $\sum b_i a_i$  did not appear to predict overall attitude (Aact) as well as it might. This may in part have something to do with the use of market modal beliefs, which needs to be investigated further.

(iii) The hypothesis put forward at the beginning of this research (Chapter 1) that the cigarette market would be more under normative control was not borne out; the normative effect was generally weaker than the attitudinal effect. Similarly, the drinks market was believed to be more under attitudinal control, but with few exceptions this was not significant. This points again to the fact that these were young markets, presenting many opportunities for brand images to be built.

(iv) Of necessity, the findings of this research are restricted to relatively new markets. They may therefore not be generalisable to more old established markets and one example quoted from such a market in Chapter 4 (Tuck, 1970, unpublished report on UK washing powder market) did suggest that some stronger correlations between the elements of the theory of reasoned action can be obtained (e.g. Aact:  $b_i a_i = .79$  for Persil, a well-established brand with great brand loyalty).

(v) As was indicated, throughout stage II quantification and the subsequent analysis many small improvements in methodology have been developed in this research, which should make for better application of the theory in areas where motivation to purchase a particular brand may not always be high; particularly when compared with the subject matter dealt with in social psychology which usually involves the respondent to a much greater extent.

## 7.5. INCREASING THE MARKETING PAY-OFF OF FISHBEIN'S THEORY

In Chapter 4 the main Fishbein summative regression analyses were presented. This led to a search for additional marketing pay-off from the data. Four major ways were explored.

First the traditional analysis of Fishbein data offers the marketing man a useful overall theory, but the detailed belief structure is lost by summation (other problems relating to summation were discussed in Chapter 6). Yet the detailed beliefs are after all what the marketing man uses to explain, predict and hopefully change brand images.

Marketing researchers in the UK have usually offered mean score data to marketing men and if this is collected on rating scales it can be akin to the  $b_i$  measures in a Fishbein analysis. In addition Fishbein offers  $a_i$  scores and the combined  $b_i a_i$  scores. In this research the comparison between these three measures has been called the Fishbein  $b_i a_i$  analysis. More recently, marketing researchers have used association data for good methodological as well as cost reasons, instead of rating scales. Mean scores, the Fishbein  $b_i a_i$  analysis, association data are compared in Chapter 5 and it was concluded that

- (i) compared with association data, rating scale data could
  - produce problems for the respondent
  - and greater cost.
- (ii) Rating scale data, as used in the Fishbein  $b_i a_i$  analysis, has something of real value to offer the marketing man, over and above mean score data and association data because:
  - it helps by relating the performance of a brand on a particular belief ( $b_i$ ) to the way that belief is seen by the relevant market or market segment ( $a_i$  scores);
  - it highlights more precisely those beliefs which could be improved for a given brand (low  $b_i$  scores vs. high  $a_i$  scores) &
  - it warns that the dynamics of the total belief structure in a market ( $b_i a_i$  vs.  $b_i$  vs.  $a_i$ ) are very complex. Putting into effect any marketing advice can alter both the individual  $b_i$  and  $a_i$  element of the equation and this might make it more difficult to observe the outcome of any given promotional campaign.
- (iii) Association and rating scale data do, of course, have the advantage of keeping the individual beliefs - which is not the case in Fishbein summation.

Further research is required comparing mean score, association data and

Fishbein's b<sub>i</sub>a<sub>i</sub> analysis (e.g. Davidson and Jaccard, 1979; Kaplan 1968, 1972).

A second way in which the marketing payoff of Fishbein's theory can be increased is in terms of cost and time. There are several possibilities:

- (i) in markets, where the detailed belief structure is not important, all the Fishbein data need not be collected - it could be restricted to B, BI, Aact and NB, if appropriate to the survey's aims.
- (ii) Where the belief structure is important, it could be argued that when diagnostic information is more important than prediction, - summation and the cost of regression analysis could be saved - and a marketing study could concentrate on the Fishbein b<sub>i</sub>a<sub>i</sub> analysis (as defined in Chapter 5).
- (iii) To reduce the cost of collecting rating scale data, association data could be collected instead. This method is not only cheaper and quicker, but it could also be argued that by letting the respondent emphasise the 'important' associations, it comes closer to emphasising what is salient to the individual (than the traditional Fishbein approach, which employs modal beliefs and requires all of them to be completed by all respondents).

Future research effort should help determine in what situations these alternatives are most appropriate.

A third way of increasing the marketing pay-off of Fishbein data was presented in detail in Chapter 6. Fishbein argues that the total set of salient beliefs is necessary for understanding a market, but he also allows for the fact that a reduced set might give better or as good prediction; but possibly poorer explanation. But the number of salient beliefs can be too large for a marketing man to manipulate in any promotional campaign and he therefore asks three questions:

- how can the number be reduced?
- which are the most important beliefs?
- and what is the order of importance?

It has already been stressed that importance has no place in Fishbein's theory and these questions have therefore been dealt with in the following ways:

- (i) As in the Fishbein approach it is possible that highly correlated items may be multiplied and added over and over again in the summative regression analysis, the intercorrelations within the attitudinal and within the normative belief items was checked for

all the data by using a most cost-effective method. The full correlation matrices, which are part of the output of stepwise regression analysis, were checked for this purpose. In all cases the data indicated redundancy between belief items. For example, for the cigarette data the 11 salient attitudinal beliefs reduced to somewhere between 7-9 for the various brands when the equation was  $Aact:b_i a_i$  and 4-7 items when the equation run was  $Aact: b_i$  variables. Similarly, there was redundancy in the normative part of the equation; when the individual normative beliefs (SNB's) were run without motivation to comply (mc) the 3 individual normative beliefs in the cigarette data reduced to somewhere between 1-2 beliefs for the various brands.

The Fishbein approach as such fails to identify a reduced and actionable set of beliefs, although the Fishbein  $b_i a_i$  analysis (Chapter 5) is a move in the right direction. Therefore a key element of this research was the identification of such a reduced set of beliefs.

- (ii) As data reduction seemed to be justified, by the high intercorrelation between the salient belief items, 5 major data reduction techniques were explored in Chapter 6 which were all capable of reducing the data, but varied in their effectiveness to give diagnostic or predictive information.
- (iii) However, neither previous research (quoted in Chapter 3) nor the data reduction methods explored in Chapter 6 were really capable of providing an answer to the 'importance' or order of the items question. It was suggested that this could probably be most effectively done with the help of
  - interactive analysis, which showed promise in this research, but could not be extensively pursued and by
  - analysis of correlations, which was fully explored in Chapter 6.
- (iv) The data reduction methods studied here were also compared with the Fishbein  $b_i a_i$  analysis. The conclusion reached in Chapter 6 was that factor analysis was not only an effective method of reducing belief data, but also one which appeared true to the structure of the data. It was suggested the reduced factor (a further analysis development built into this research) could be taken as the answer; it gave the smallest number of belief items in total (with only one belief representing each factor). Owing to the high intercorrelations found between belief items, it was pointed out that many writers (see Chapter 6) urge factor analysis

to be undertaken prior to either summative or stepwise regression analysis.

A fourth way in which the marketing pay-off of the Fishbein data can be increased is by running stepwise regression analyses instead of Fishbein's recommended summative regression analyses. This alternative approach was fully described in Chapter 6. In stepwise regression analysis the identity of the individual beliefs is preserved, unlike in summative regression analysis. Only Fishbein's  $b_i a_i$  analysis keeps the identity of the individual beliefs.

#### 7.6. EXTENSIONS TO FISHBEIN'S MODEL

As indicated in Chapter 1 the purpose of this study was to

(i) replicate Fishbein's model in a marketing context.

(ii) Effect improvements in research practice

- where these seemed appropriate at the time to the marketing conditions (e.g. the development of market modal beliefs);
- or where the data could be improved by making the task easier for respondents (e.g. the 'game element' in elicitation);
- or by making the data collection more cost-effective with for example, 'the individual within a group setting' technique, also used in elicitation.

(iii) A further purpose was to test individual variables to see if they gave better prediction; NOT to built additional elements into the Fishbein equation. Two alternative measures of Behaviour (loyalty and preference) were built into this research. As the results in Chapter 4 show, this was an interesting attempt to find cheaper Behaviour measures than the main measure used, but they cannot be recommended for future studies. Indeed the main Behaviour measure did not produce satisfactory results and much more needs to be done to establish good links between Behaviour and Behavioural Intention in marketing studies.

Another addition incorporated into this research was the concept of confidence. It was added as a variable into stepwise regression analysis, reported on in Chapter 6, not as an additional variable into Fishbein's formula. This appears to be a useful avenue to pursue in future research, especially if the assessment of confidence/perceived risk is

- taken separately for each brand
- is applied to buying situations where confidence/perceived risk is

greater than in the case of the products studied in this research. Future research could concern itself with adding other variables with the help of stepwise regression analysis, which would help establish the Behaviour - Behavioural Intention link better. Situational variables might be most useful in this context.

### 7.7. FISHBEIN AND MARKETING APPLICATIONS

The data sets collected for this research have proven valuable

- in solving real marketing problems;
- adding to the store of knowledge about the application of the model to marketing problems;
- indicating where this application can be improved and
- pointing out avenues of research which have not proven useful.

However, if Fishbein's model is to help the marketing man predict purchasing behaviour much more work needs to be done in this area as well as in others as is described in section 7.8.

### 7.8 AN A PRIORI APPROACH TO RESEARCH

In Chapter 2, where Fishbein's theory and alternative theories used in marketing have been reviewed, it was stated that Fishbein's major contribution to marketing had been in

- defining 'attitude' in an operational sense
- setting up the concept of salience
- establishing a predictive model of choice behaviour
- and developing the Fishbein  $b_i a_i$  analysis to increase the diagnostic information from his model.

In attempts to apply the model to an area such as marketing, for which it was not developed, much useful work has been done to make the model operational and in one area in particular (elicitation) an important contribution has been made by this research. But three major problems remain:

1. relating Behavioural Intention to Behaviour
2. relating the concepts employed by the theory to the underlying cognitive processes
3. and scrutinizing the details of the research used in marketing studies.

#### 1. The Behaviour - Behavioural Intention Link

In this and in other research exercises reported in the literature, the Behaviour - Behavioural Intention link, was the weakest element in the chain of explanations offered by the model. In marketing, purchase behaviour

must be explained if a model is to make a useful contribution and it was suggested, further research should employ either of two promising approaches. One approach could be to look at real buying data, derive 'laws' (as Ehrenberg has done) but then to go further and try to 'fit explanations' of why buying behaviour takes this particular form. Or test a particular theory against real buyer data and see if it 'fits.' The two elements - buying and explanation - need to be related and this could produce a good theory with which to

- describe a particular market
- explain its workings and
- predict future developments in it.

## 2. Underlying Cognitive Processes

Although Fishbein's model is one of the better a priori approaches used by marketing researchers (Kelman, 1974), the second question raised was whether it reflected the underlying cognitive processes. It was suggested in Chapter 2 that it was probably better at prediction than explanation (after all cognitive processes may not multiply and add). This argument is also supported by Anderson and Shanteau (1977). As researchers look more across academic boundaries further contributions might be expected, as Olson indicated in 1980 information processing theory for example, may help in explaining some of the cognitive processes involved.

## 3. Details of Research

To achieve any progress in the marketing area, it was also suggested that many of the details

- like the measuring instruments used and
- the statistical analyses applied

need to be examined carefully. The interrelationships in marketing studies are very complex and 'good theory', cost-effective measuring instruments and appropriate statistical techniques will need to make their 'joint contribution to the understanding of individual markets.

## 7.9. APPRAISAL OF RESEARCH PROJECT

Finally, in appraising this project, it can be stated that all its objectives have been covered:

- a literature review has been undertaken
- the Fishbein model has been applied to real marketing situations
- improvements were built into the application of the model and
- methodologies were pursued, taking this research beyond Fishbein's model.

The results achieved in this research were used to deal with academic issues with pay-off in marketing as well as to deal with real marketing problems. Both of these aspects of the results have been fully discussed in the various chapters, as this research project was particularly concerned with the marketing pay-off of alternative research techniques.

APPENDIX 1 (i)

THE THEORY OF REASONED ACTION: THE FORMULA

$$B \sim BI = w_0[Aact] + w_1[NB]$$

$$Aact = \sum_{i=1}^{n_i} b_i a_i \quad NB = \sum_{j=1}^{n_j} SNB_j mc_j$$

B = Behaviour

BI = Behavioural Intention

Aact = Overall Attitude: attitude towards performing the behaviour

NB = General Norm (or subjective norm)

$b_i$  = individual attitudinal belief (the belief that performing the behaviour will lead to some consequence  $i$ )

$a_i$  = evaluations of these individual attitudinal beliefs (the value of consequence  $i$  to the individual)

$SNB_j$  = individual normative beliefs, or the perceived prescriptions of referent  $j$

$mc_j$  = motivation to comply with referent  $j$

$n$  = number of salient beliefs/number of relevant referents

$w_0$  = regression weight

$w_1$  = regression weight

APPENDIX 1 (ii)

LIST OF SYMBOLS USED IN THIS RESEARCH

B	Behaviour
BI	Behavioural Intention
Aact	Overall Attitude
NB	General Norm
$b_i$	Individual attitudinal belief
$a_i$	Evaluation of individual attitudinal belief
$b_i a_i$	Individual attitudinal beliefs multiplied by their respective evaluations and
$\Sigma b_i a_i$	summed or
$b_i$ var.	notation of individual attitudinal beliefs without prior multiplication by their respective evaluations in stepwise regression; also indicated as $b_i, b_i$ , etc. Similarly for $b_i a_i$ var.
$SNB_j$	Individual normative beliefs, or the perceived prescriptions of referent $j$
$mc_j$	motivation to comply with referent $j$
In most of the data $j$ has been dropped and the shorter more conventional version of SNB or $mc$ have been used instead; in tables where a particular SNB needs to be identified it has been given a number.	
$SNBmc$	Individual normative belief multiplied by its respective motivation to comply and
$\Sigma SNBmc$	summed or
$\Sigma SNB$	summed without prior multiplication with $mc$
$n$	number of salient beliefs/number of relevant referents
$w_0$	regression weight
$w_1$	regression weight
$r$	single regression coefficient
$R$	multiple regression coefficient
C	Confidence

APPENDIX 1 (iii)  
RESEARCH HYPOTHESES

KEY:

1. Group A and B hypotheses are covered in Chapter 4;  
Group C hypotheses in Chapter 5;  
Group D hypotheses in Chapter 6.
2. Hypothesis Testing: the notation used for testing the hypotheses developed in this research are as follows -

<u>Single/Multiple regression coefficient</u>	<u>Criterion or Dependent Variable</u>	<u>Predictor or independent variable</u>
<u>Examples:</u>		
<u>Hypothesis 1</u>		
r	B	BI
<u>Hypothesis 2</u>		
R	B	Aact + NB

HYPOTHESES FOR SUMMATIVE MODEL

GROUP A. RELATING TO BEHAVIOUR

Hypothesis 1 - there is no relationship between Behaviour (B) and Behavioural Intention (BI): tested by  $r_{B:BI}$

Hypothesis 1a - there is no relationship between Behaviour (B) as measured on the questionnaire and Behavioural Intention (BI)

Hypothesis 2 - Behavioural Intention (BI) is not necessary to predict Behaviour (B): tested by  $R_{B: Aact + NB}$

GROUP B. TESTING THE INTERNAL VALIDITY OF THE MODEL

Hypothesis 3 - there is no relationship between attitude towards the act (Aact) plus overall norm (NB) and Behavioural Intention (BI): tested by  $R_{BI: Aact + NB}$

Hypothesis 4 - tests whether both the general norm (NB) and the overall attitude (Aact) are really necessary to the prediction of BI: the regression equation  $r_{BI: Aact}$  does not really differ from  $r_{BI: NB}$

Hypothesis 4a - the sub-sector of the cigarette market studied in this research is largely under normative control and the drinks markets are largely under attitudinal control.

Hypothesis 5 - there is no relationship between attitude towards the act (Aact) and the sum of the individual beliefs ( $\sum b_{i1}$ ): tested by  $r_{Aact: \sum b_{i1}}$

Hypothesis 6 - there is no relationship between overall norm (NB) and the sum of the individual normative beliefs ( $\Sigma$ SNB) and motivation to comply (mc): tested by  $r_{NB:\Sigma SNBmc}$

Hypothesis 6a - there is no difference between  $r_{NB:\Sigma SNBmc}$  and  $r_{NB:\Sigma SNB}$

Hypothesis 7 - to test whether the inclusion of overall attitude (Aact) is necessary; there is no difference between  $r_{Aact:\Sigma b_i a_i}$  and  $r_{BI:Aact}$

Hypothesis 7a - to test whether the inclusion of general norm (NB) is necessary; there is no difference between  $r_{NB:\Sigma SNBmc}$  and  $r_{BI:NB}$  OR  $r_{NB:\Sigma SNB}$  and  $r_{BI:NB}$

#### GROUP C. FURTHER INVESTIGATION OF MODEL

Hypothesis 8 - (If the results indicate considerable variation in the extent to which Aact and NB predict BI then for this reason as well as to investigate the Fishbein formula more fully the two following equations need to be broken down:

(i) to check on the contribution of  $b_i$ 's and  $a_i$ 's to attitude towards the Aact and

(ii) similarly to check on the contribution of the individual SNB's or SNBmc's to general norm).

This check needs to be carried out in order to test whether

Hypothesis 8a - individual brands have different attitudinal and normative beliefs attached to them and

Hypothesis 8b - whether the Fishbein model yields more information by such further analyses than the data does on which marketing actions are commonly made today (e.g. mean scores and association data).

This analysis has been identified in the text as the Fishbein  $b_i a_i$  analysis and it would indicate whether different marketing advice would emerge from it compared to the other techniques in relation to the development of sales messages, etc. This analysis might also suggest whether the successful brands are successful because they are already following an optimal strategy according to the interpretation put on the data and whether it would be worthwhile in future research (e.g. longitudinal studies) to establish how sales messages can be changed.

#### GROUP D. HYPOTHESES FOR DISAGGREGATED MULTIPLE REGRESSION MODEL, ETC.

1. What does it add over and above the summative model? Test specific hypotheses as per summative model.

2. Check if the inclusion of 'confidence' increases the prediction of the model.

APPENDIX 3(i)

CIGARETTE ELICITATION FORM

A. THE INTRODUCTION TO RESPONDENTS stressed the following general points in relation to the task to be performed:

(i) In front of them respondents had some pencil and paper and in a minute they would be asked if they would help fill in a few details about their smoking of ....cigarettes.

(ii) They were to go together through the paper with the moderator to make it even easier for them, but not to confer with their neighbours. The whole setting was relaxed and stressed that all we were going to do was play a little game: specifically respondents were to imagine themselves going out to buy their next packet of cigarettes and that the moderator would tell them which packet that was, so that they would cover a number of brands (display pointed out).

B. QUESTIONS

1. Which .... cigarette brand (from subsector of market) do you buy most often?
2. What other brand or brands do you buy on a regular basis?
3. What was the last brand of cigarettes that you bought?
4. Which brand of ...cigarettes do you expect to buy next?
5. Could you help me by doing a bit of imagining. Imagine you are going out to buy your next packet of cigarettes. Imagine that you are buying the brand you buy most often (which is....Q1). Thinking of this brand, what comes into your mind when buying it?
6. Thinking about the other brand(s) you buy regularly, what comes into your mind when buying it? Answer this question for any brands you wrote down at Q2.

POINT TO DISPLAY

7. Now I want you to think of the same sort of thing for the other brands. What comes into your mind when thinking of buying them? I want you to use the next few sections totell me in turn about each of them, missing out the brand(s) you have told me about already. Now, going from left to right, pick out the first brand about which you have not written anything as yet. Write the name of this brand on the line below...What comes into your mind when you think of buying that brand?
8. Now write down the name of the next brand you have so far written nothing about...What comes into your mind when you think of buying that brand?
9. Now write down the name of the next brand you have so far written nothing

about...What comes into your mind when you think of buying that brand?

10. Now write down the name of the next brand you have so far written nothing about...What comes into your mind when you think of buying that brand?

11. Now write down the name of the next brand you have so far written nothing about...What comes into your mind when you think of buying that brand?

12. Now write down the name of the next brand you have so far written nothing about...What comes into your mind when you think of buying that brand?

13. Now write down the name of the next brand you have so far written nothing about...What comes into your mind when you think of buying that brand?

14. Now write down the name of the next brand you have so far written nothing about...What comes into your mind when you think of that brand?

15. Now write down the name of the next brand you have so far written nothing about...What comes into your mind when you think of buying that brand?

16. Could you now think of something a little different: Other people often have views about the cigarettes we should buy. Can you think of anyone who might have views about the cigarettes you should buy next time? This can be a member of your family, or somebody else altogether.

17. Please imagine for me what sort of people would think that you should next buy...(brand)?

18. What sort of people would think that you should next buy...(brand)?

19. What sort of people would think that you should next buy...(brand)?

20. What sort of people would think that you should next buy...(brand)?

21. What sort of people would think that you should next buy...(brand)?

22. What sort of people would think that you should next buy...(brand)?

### C. CLASSIFICATION DETAILS

Occupation (Occupation of Head of Household)

Part-time/Full-time working, etc.

Age

Area

APPENDIX 3(ii)

BRAND ROTATION FOR ELICITATION STAGE

- (a) Brand 1
- Brand 2
- (b) Brand 3
- Brand 4
- (c) Brand 5
- (d) Brand 7
- (e) Brand 6
- (f) Brand 8

Normative beliefs for these groups of brands were elicited from the six groups in each area as follows -

	group 1	group 2	group 3	group 4	group 5	group 6
North	ab	ac	ad	bc	bd	cd
South	ab	ac	ad	bc	bd	cd

This meant that everybody provided normative beliefs alternately for the two company brands and for four other brands.

APPENDIX 3(iii)

BREWERS' ELICITATION FORM

- Q1 Which brands of beer have you bought for drinking at home in the last four weeks? (Record name of brewer and brand.)
- Q2 Which brand do you buy most often?
- Q3 What was the last brand you bought?
- Q4 Which brand do you expect to buy next?
- Q5 Could you help me by doing a bit of imagining. Imagine you are going out to buy your next beer for drinking at home. Could you tell me what comes into your mind when you are buying...(brewer' beers) for drinking at home?
- Q6 Could you tell me what comes into your mind when you are next buying ....(brewers' beers) for drinking at home?
- Repeat Q6 for Qs 7 - 10.
- Q11 Could you think of something a little different - Other people often have views about brewers whose beers we buy next for drinking at home. Can you think of anyone who might have views about the brewers whose beers you buy for drinking at home? ADD - this can be a member of your family or somebody else altogether. I don't mean the brewer, I mean just anybody you can think of.
- Q12 Please imagine for me what sort of people would think you should next buy .....(brewers' beers) for drinking at home? I don't mean the brewers, I mean just anybody you can think of.
- Repeat Q12 for Qs13 to 17.

N.B. General Introduction as for cigarette form; again repeated for lager elicitation form.

APPENDIX 3(iv)

LAGER ELICITATION FORM

Q1 Which brands of lager have you bought for drinking at home in the last four weeks (Record name of brewer and brand)?

Q2 Which brand do you buy most often?

Q3 What was the last brand you bought?

Q4 Which brand do you expect to buy next?

Q5 Could you help me by doing a bit of imagining? Imagine you are going out to buy your next lager for drinking at home. Could you please tell me what comes into your mind when you are buying....lager for drinking at home?

Q6 Could you tell me what comes into your mind when you are next buying ...lager for drinking at home?

Repeat Q6 for Qs 7 - 10.

Q11 Could you think of something a little different - other people often have views about the lagers we buy for drinking at home. Can you think of anyone who might have views about the lagers you buy next for drinking at home? ADD - this can be a member of your family or somebody else altogether. I don't mean the brewers, I mean just anybody you can think of.

Q12 Please imagine for me what sort of people would think you should next buy...lager for drinking at home? I don't mean the brewers, I mean just anybody you can think of.

Repeat Q12 for Qs 13 - 17.

APPENDIX 4(i)  
REGRESSION FITTED

The regression equation fitted to the data for both the summative and the stepwise regressions (presented in Chapters 4 and 6 respectively) was of the type -

$$y = \beta_0 x_0 + \beta_1 x_1 + \dots\dots\dots$$

where the coefficients are standardized to eliminate a constant term.

APPENDIX 4(ii)  
CIGARETTE QUESTIONNAIRE

1. Personal Details (name, address).
2. Demographics (Age, social class, male/female, north/south).
3. Introduction to respondents: this stressed that throughout we were interested in obtaining respondent's views in relation to the next time he/she went to buy ....cigarettes (from subsector of this market) and explained how to fill in seven point scales. If required, these points were emphasised again throughout the questionnaire by the interviewer who completed the questionnaire.

4. Key:(i) ....cigarettes in the questionnaire refers to the cigarettes of the sub-sector of the market which was researched.

(ii) On the questionnaire the brand lists were typed in identical order. Rotation was achieved by respondent 1 being asked first about Brand A, etc.; respondent 2 being asked first about Brand B and so on. For each respondent the same order was maintained throughout the questionnaire.

(iii) Rotation of the belief items was achieved in a similar way. Respondent 1 was asked first about 'too strong and harsh', etc.; respondent 2 was asked first about 'reasonably priced' and so on. For each respondent the same order applied throughout the questionnaire.

(iv) Question order differs in some instances from that suggested by Ajzen and Fishbein in their latest work (1980), but there are many variants in the literature before that date. Also the order used by Loken and Fishbein (1980) is very similar to that used here.

Q1. Could you please tell me whether, on the whole, you are in favour or not of buying for yourself the following brands of ....cigarettes.

Very	Quite	Just	Neutral or	Just	Quite	Very
fav.	fav.	fav.	inbetween	unfav.	unfav.	unfav.

Brand A  
Brand B  
Brand C  
Brand D  
Brand E  
Brand F  
Brand G

Q2. BRAND A

How true are these statements of this brand?

Very Quite Just Neutral or Just Quite Very  
— true — inbetween — untrue —

Too strong and harsh  
Reasonably priced  
Good taste/flavour  
A pleasant cigarette  
Attractive pack  
A satisfying, sustain-  
ing cigarette  
OK to offer around  
Reliable name and  
reputation  
A cigarette to be seen  
with  
Buy it only when on offer  
Increasing in popularity

Q5 to Q8: repeat for BRAND B TO BRAND G.

Q9 I want you to tell me whether the following things connected with buying  
.....cigarettes in general (not just specific brands) seem to you  
personally things you like or dislike.

Like Quite Just Neutral or Just Quite Dislike  
very like like inbetween -dislike— very  
much much

Too strong and harsh  
Reasonably priced  
Good taste/flavour  
A pleasant cigarette  
Attractive pack  
A satisfying, sustain-  
ing cigarette  
OK to offer around  
Reliable name and  
reputation  
A cigarette to be seen  
with  
Buy it only when on offer  
Increasing in popularity.

Q10. Different people have different views about the different...brands we can buy. On the whole, would you say that most of your family, friends and neighbours would approve of buying the brands listed below.

Approve _____	Neutral or	Disapprove _____
Very Just Quite	inbetween	Just Quite Very
much		much

Brand A

Brand B

Brand C

Brand D

Brand E

Brand F

Brand G

Q11 Using the same scale do you think that most of your family would or would not approve of your buying the brands listed below?

Brand A

Brand B

Brand C

Brand D

Brand E

Brand F

Brand G

Q12. Similarly, do you think that most of your friends and neighbours would or would not approve of your buying the brands listed below?

Brand A

Brand B

Brand C

Brand D

Brand E

Brand F

Brand G

Q13. Similarly, do you think smokers who want to impress people would or would not approve of your buying the brands listed below?

Brand A

Brand B

Brand C

Brand D

Brand E

Brand F

Brand G

Q14. Now, using this scale, tell me how important it is to you to do what most of your family favour.

—Important— Neutral or —Unimportant  
Very Quite Just inbetween Just Quite Very

Q15. And how important is it to you to do what most of your friends and neighbours favour?

Q16. And how important is it to you to do what smokers who want to impress people favour?

Q17. Next time you buy a pack of....cigarettes, are you likely or unlikely to buy any brands listed below? Use this scale for your answer.

Very Quite Just Neutral or Just Quite Very  
—likely— inbetween —unlikely—

Brand A

Brand B

Brand C

Brand D

Brand E

Brand F

Brand G

Q18. Could you think back to your last TEN packets of ...cigarettes you have bought and tell me what brands they were. How many of each did you buy? (List brands below, with quantities, make sure it adds up to 10).

Q19. Now, thinking about your next TEN purchases, what brands do you think they would be? How many packets would you buy of each? (List ten brands below, with quantities, make sure it adds up to 10).

Q20. Imagine you are going to buy your next packet of cigarettes. You have an idea which brand that is going to be. How certain are you that you will actually leave the shop with that brand?

Very Quite Just Neutral or Just Quite Very  
—certain— inbetween —uncertain—

Q21. Look at these 7 brands please (Brand A-G) and tell me which one you like best, which second best, and which next etc.

APPENDIX 4(iii)

BEER AND LAGER QUESTIONNAIRE

1. Purchase information: personal purchase of beer only established, lager only and both in the last four weeks; particular brewers' beers and brands of lager bought in last four weeks; which brewers' beer (ONE ONLY) usually bought and which brand of lager usually bought. For usual brewer's beer and usual lager bought, usual place of purchase established.

2. Personal details and demographics (name, address, age, social class, male and female).

3. Introduction to respondents: this stressed that throughout we were interested in obtaining respondent's views in relation to the next time he/she went to buy beer/lager for drinking at home; before answering each question respondents were to imagine going out to buy their next bottle/can of beer/lager for drinking at home and answer the question in that context. It also explained how to fill in the seven point scales. If required, these points were emphasized again throughout the questionnaire by the interviewer; but definitely repeated again before Q16 or Q1 whenever these started the second half of the interview; as the order of asking about beers and lagers was alternated between respondents.

Q1. I would like (first) to talk to you about buying beer made by different Brewers to drink at home. On the whole could you tell me whether you are in favour or not in favour of buying beers made by the following brewers, to drink at home?

Very Quite Just Neutral or Just Quite Very  
—favourable— inbetween —unfavourable—

Watneys

Trumans

Whitbreads

Courage

Charringtons

Ind Coope

Scottish & Newcastle

Q2. Tell me if the following statements about buying beers from various brewers to drink at home are true or untrue in your opinion?

Very Quite Just Neutral or Just Quite Very  
—true— inbetween —untrue—

Buying Watneys to drink at home is:  
buying good quality beer

buying a well-known beer  
buying a beer which offers good value for money  
buying a beer that tastes good  
buying a popular beer  
buying a strong beer  
means having difficulty to obtain it  
buying the beer which says 'what we want is Watneys'  
buying the beer with the red barrel  
Buying Trumans to drinks at home is:

buying a good quality beer  
buying a well-known beer  
buying a beer which offers good value for money  
buying a beer that tastes good  
buying a popular beer  
buying a strong beer  
means having difficulty to obtain it  
buying the beer with more hops in  
Buying Whitbreads to drinks at home is:

buying a good quality beer  
buying a well-known beer  
buying a beer which offers good value for money  
buying a beer that tastes good  
buying a popular beer  
buying a strong beer  
means having difficulty to obtain it  
buying the pint that thinks it's a quart  
buying the beer with the Tankard and Trophy emblems  
Buying Courage to drink at home is:

buying a good quality beer  
buying a well-known beer  
buying a beer which offers good value for money  
buying a beer that tastes good  
buying a popular beer  
buying a strong beer  
means having difficulty to obtain it  
buying the beer with the cockerel emblem  
Buying Bass Charrington to drink at home is:

buying a good quality beer  
buying a well-known beer  
buying a beer which offers good value for money  
buying a beer that tastes good  
buying a popular beer  
buying a strong beer  
means having difficulty to obtain it  
buying the beer with the Toby Jug  
Buying Ind Coope to drink at home is:

buying a good quality beer  
buying a well-known beer  
buying a beer which offers good value for money  
buying a beer that tastes good  
buying a popular beer  
buying a strong beer  
means having difficulty to obtain it  
Buying Scottish and Newcastle to drink at home is:

buying a good quality beer  
buying a well-known beer  
buying a beer which offers good value for money  
buying a beer that tastes good



Watneys  
Trumans  
Whitbread  
Courage  
Charringtons  
Ind Coope  
Scottish and Newcastle

Q7. Do you think that most of your friends would or would not approve of your buying...beer to drink at home?

Watneys  
Trumans  
Whitbread  
Courage  
Charringtons  
Ind Coope  
Scottish and Newcastle

Q8. Do you think younger people would or would not approve of your buying ...beer for drinking at home?

Watneys  
Trumans  
Whitbread  
Courage  
Charringtons  
Ind Coope  
Scottish and Newcastle

Q9. Do you think that people who bother about the quality of the beer they drink would or would not approve of your buying...beer for drinking at home?

Watneys  
Trumans  
Whitbread  
Courage  
Charringtons  
Ind Coope  
Scottish and Newcastle

Q10. Sometimes we want to fit in with other people and sometimes we do not. On the whole, thinking of buying beer to drink at home, how much does it matter to you to buy what other people think you should buy. Please use this scale to tell me whether you want to fit in with..(repeat each in turn)when buying beer for drinking at home?

Want to fit in	Neutral or	Do not want to fit in
Very Quite Just	inbetween	Just Quite Very
Much		Much

Your husband\*  
Your family  
Your friends  
Younger people  
People who bother about the quality of the beer they drink  
(\*Ask women only)

Q11. Next time you buy beer for drinking at home are you likely or unlikely to buy...beer?

Very Quite Just Neutral or Just Quite Very  
—likely— inbetween —unlikely—

Watneys  
Trumans  
Whitbreads  
Courage  
Charringtons  
Ind Coope  
Scottish and Newcastle

Q12. Can you think back to the last TEN bottles/cans of beer you have bought for drinking at home and tell me which brewers' beers they were and how many of each brewers' beers you bought? (Ensure total adds to 10).

Q13. Now thinking about your next TEN purchases, which brewers' beers do you think they will be and how many bottles/cans will you buy of each? (Ensure total adds to 10).

Q14. Imagine you are going out to buy your next can or bottles of take-home beer. You have an idea which brewers' beer that is going to be. How certain are you that you will actually leave the shop with that particular brewers' beer?

Very Quite Just Neutral or Just Quite Very  
—certain— inbetween —uncertain—

Q15. Could you look at these brewers please and put them in the order in which you prefer their beer for drinking at home? Which do you like best, second best and so on?

Watneys  
Trumans  
Whitbread  
Courage  
Charringtons  
Ind Coope  
Scottish and Newcastle

Q16. I would like (now) to talk about buying different lagers to drink at home. On the whole could you tell me whether you are in favour or not in favour of buying the following lagers, to drink at home?

Very Quite Just Neutral or Just Quite Very  
—favourable— inbetween —unfavourable—

Harp  
Skol  
Kronenbourg  
Carlsberg  
Heineken  
Holsten

Q17. Tell me if the following statements about buying different brands of lager to drink at home are true or untrue in your opinion?

Buying Harp to drink at home is:

buying a lager which offers good value for money  
buying a good quality lager  
buying a lager that tastes good  
buying a strong lager  
buying a refreshing and thirst quenching lager  
buying a lager with a foreign name  
buying a lager which is easily available  
buying a Pils lager  
buying a popular lager  
buying a lager which is not well-known  
buying a British made lager  
buying a lager from Guinness and Park Royal.

Buying Skol to drink at home is:

buying a lager which offers good value for money  
buying a good quality lager  
buying a lager that tastes good  
buying a strong lager  
buying a refreshing and thirst quenching lager  
buying a lager with a foreign name  
buying a lager which is easily available  
buying a Pils lager  
buying a popular lager  
buying a lager which is not well-known  
buying a British made lager

Buying Kronenbourg to drink at home is:

buying a lager which offers good value for money  
buying a good quality lager  
buying a lager that tastes good  
buying a strong lager  
buying a refreshing and thirst quenching lager  
buying a lager with a foreign name  
buying a lager which is easily available  
buying a Pils lager  
buying a popular lager  
buying a lager which is not well-known  
buying a British made lager

Buying Carlsberg to drink at home is:

buying a lager which offers good value for money  
buying a good quality lager  
buying a lager that tastes good  
buying a strong lager  
buying a refreshing and thirst quenching lager  
buying a lager with a foreign name  
buying a lager which is easily available  
buying a Pils lager  
buying a popular lager  
buying a lager which is not well-known  
buying a British made lager

buying the best lager in the world

buying Danish lager brewed in England by Danes

Buying Heineken to drink at home is:

buying a lager which offers good value for money  
buying a good quality lager

buying a lager that tastes good  
 buying a strong lager  
 buying a refreshing and thirst quenching lager  
 buying a lager with a foreign name  
 buying a lager which is easily available  
 buying a Pils lager  
 buying a popular lager  
 buying a lager which is not well-known  
 buying a British made lager  
 buying the lager which 'refreshes the parts other beers cannot reach.'  
Buying Holsten to drink at home is:  
 buying a lager which offers good value for money  
 buying a good quality lager  
 buying a lager that tastes good  
 buying a strong lager  
 buying a refreshing and thirst quenching lager  
 buying a lager with a foreign name  
 buying a lager which is easily available  
 buying a Pils lager  
 buying a popular lager  
 buying a lager which is not well-known  
 buying a British made lager  
 buying a German lager  
 buying a lager with a diet version.

Q18. I want you to tell me whether the following things connected with buying lager to drink at home are personally things you like or dislike?

Like Quite Just Neutral or Just Quite Dislike  
 very like like inbetween —dislike very  
 much much

buying a lager which offers good value for money  
 buying a good quality lager  
 buying a lager that tastes good  
 buying a strong lager  
 buying a refreshing and thirst quenching lager  
 buying a lager with a foreign name  
 buying a lager which is easily available  
 buying a Pils lager  
 buying a popular lager  
 buying a lager which is not well-known  
 buying a British made lager  
 buying a lager that reminds me of Guinness and Park Royal  
 buying the best lager in the world  
 buying the Danish lager brewed in England by Danes  
 buying the lager which refreshes the parts other beers cannot reach  
 buying the lager which comes from Germany  
 buying the lager which has a diet version.

Q19. Different people have different views about the lager we can buy for drinking at home. On the whole would you say that most of your family and friends would approve of your buying ...lager to drink at home?

Approve Neutral or Disapprove  
 Very Quite Just inbetween Just Quite Very  
 much much

Harp  
Skol  
Kronenbourg  
Carlsberg  
Heineken  
Holsten

Q20. (ASK WOMEM ONLY)

Do you think your husband would or would not approve of your buying...lager to drink at home?

Harp  
Skol  
Kronenbourg  
Carlsberg  
Heineken  
Holsten.

Q21. Do you think that most of your family would or would not approve of your buying..lager for drinking at home?

Harp  
Skol  
Kronenbourg  
Carlsberg  
Heineken  
Holsten.

Q22. Do you think that most of your friends would or would not approve of your buying...lager for drinking at home?

Harp  
Skol  
Kronenbourg  
Carlsberg  
Heineken  
Holsten

Q23. Do you think sporty types would or would not approve of your buying ..lager for drinking at home?

Harp  
Skol  
Kronenbourg  
Carlsberg  
Heineken  
Holsten

Q24. Do you think people who know a lot about lager would or would not approve of your buying...lager for drinking at home?

Harp  
Skol  
Kronenbourg  
Carlsberg  
Heineken  
Holsten.

Q25. Sometimes we want to fit in with other people and sometimes we do not. On the whole, thinking of buying lager to drink at home, how much does it

matter to you what other people think you should buy? Please use this scale to tell me whether you want to fit in with...(repeat each in turn) when buying lager for drinking at home?

Want to fit in	Neutral or	Do not want to fit in
Very Quite Just	inbetween	Just Quite Very_____
much		much

Your husband\*  
Your family  
Your friends  
Sporty types  
People who know a lot about lager  
(\* Ask women only).

Q26. Next time you buy lager for drinking at home are you likely or unlikely to buy..lager?

Very Quite Just Neutral or Just Quite Very  
—likely—— inbetween -unlikely——

Harp  
Skol  
Kronenbourg  
Carlsberg  
Heineken  
Holsten

Q27. Could you think back to the last TEN bottles/cans of lager you bought for drinking at home and tell me which brands they were and how many of each brand you bought? (Ensure total adds to 10).

Q28. Now thinking about your next TEN purchases, which lagers do you think they will be and how many bottles/cans will you buy of each? (Ensure total adds to 10).

Q29. Imagine you are going out to buy your next cans or bottles of take-home lager. You have an idea which lager that is going to be. How certain are you that you will actually leave the shop with that particular lager?

Very Quite Just Neutral or Just Quite Very  
—certain—— inbetween -uncertain——

Q30. Could you look at these lagers and put them in the order in which you prefer them for drinking at home? Which do you like best, second best and so on?

Harp  
Skol  
Kronenbourg  
Carlsberg  
Heineken  
Holsten

NB. Rotation of brands and belief statements was identical to the method used in the cigarette questionnaire; it was operated both within beers and lagers.

APPENDIX 4(iv)  
POSTCARDS - DATA FOR 'B'

POSTCARD FOR SUB-SECTION OF CIGARETTE MARKET

Respondent Number

Please fill in the details of the...cigarettes you buy on the next three purchase occasions, in the table set out below.

I BOUGHT FOR MYSELF THESE...CIGARETTES:

First	Second	Third
purchase	purchase	purchase
occasion	occasion	occasion

BRAND A

BRAND B

BRAND C

BRAND D

BRAND E

BRAND F

BRAND G

OTHER....CIGARETTES

POST THIS CARD NOW PLEASE

Key: ....cigarettes refers to sub-sector of market.

POSTCARD FOR BREWERS' BEERS

Respondent Number

Please record your next 2 beer purchases for drinking at home.

AFTER THIS INTERVIEW

<u>The FIRST time I bought</u>	<u>The SECOND time I bought</u>
<u>beer for drinking at home</u>	<u>beer for drinking at home</u>
<u>I bought (TICK):</u>	<u>I bought (TICK):</u>

Watneys' beers

Trumans' beers

Whitbread beers

Courage beers

Charrington beers

Ind Coope beers

Scottish and Newcastle beers

Other brewers' beers

PLEASE RETURN THIS CARD AS SOON AS POSSIBLE.

APPENDIX 4(iv) cont.

POSTCARD FOR LAGERS

Respondent Number

Please record your next two lager purchases for drinking at home.

AFTER THIS INTERVIEW

<u>The FIRST time I bought</u>	<u>The SECOND time I bought</u>
<u>lager for drinking at</u>	<u>lager for drinking at</u>
<u>home I bought (TICK):</u>	<u>home I bought (TICK):</u>

Harp lager  
Skol lager  
Kronenbourg lager  
Carlsberg lager  
Heineken lager  
Holsten lager  
Other lagers.

PLEASE RETURN THIS CARD AS SOON AS  
POSSIBLE.

APPENDIX 4(v)

STATISTICS FOR SUMMATIVE REGRESSION ANALYSES

CHARTS SUMMARISING DATA FOR SUMMATIVE REGRESSION ANALYSES FOR:

1. SUB-SECTOR OF CIGARETTE MARKET
2. BREWERS' BEER MARKET
3. LAGER MARKET

DATA PRESENTATION ON CHARTS

A. Figures above the line

r and R are measures of association: r is the simple linear correlation coefficient involving one predictor and one criterion variable; R is the multiple correlation coefficient involving two or more predictor variables and one criterion variable. The size of the r/R measure is an indication of the significance of the relationship between criterion and predictor variable(s) and so too is the fit on the regression line. Where the relationship between the criterion and predictor variable(s) is significant, this has been indicated for r/R at the relevant degrees of freedom thus

0.1% level (\*\*\*)

1% level (\*\*)

5% level (\*)

ns = not significant

B. Figures below the line

Both  $r^2$  and  $R^2$  are a measure of

variation in criterion variable explained by the predictor(s)

total variation in criterion variable

and the values must range from 0 to 1. For interpretation it is best to consider them as percentages e.g.

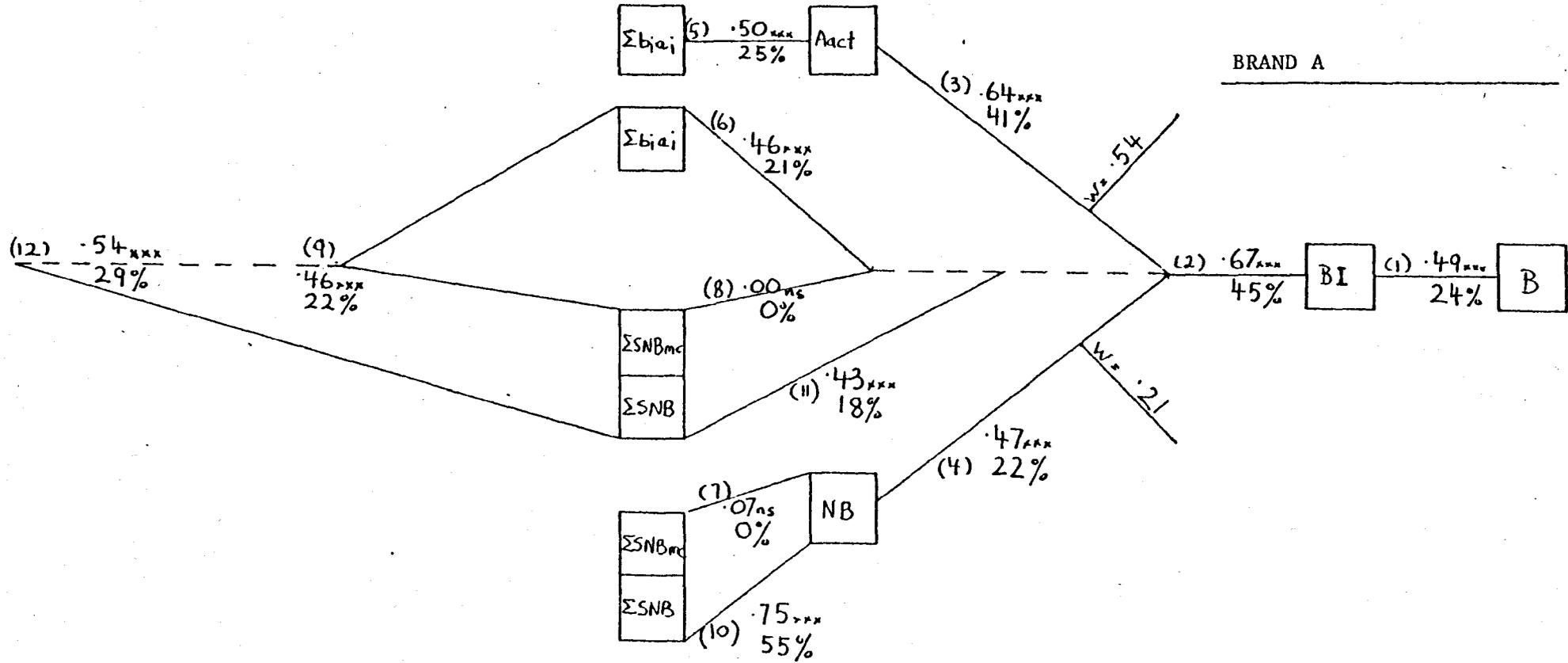
BRAND A, regression (1)  $\frac{r}{r^2} = \frac{.49}{24\%}$

BRAND B, REG. (2)  $\frac{R}{R^2} = \frac{.67}{45\%}$

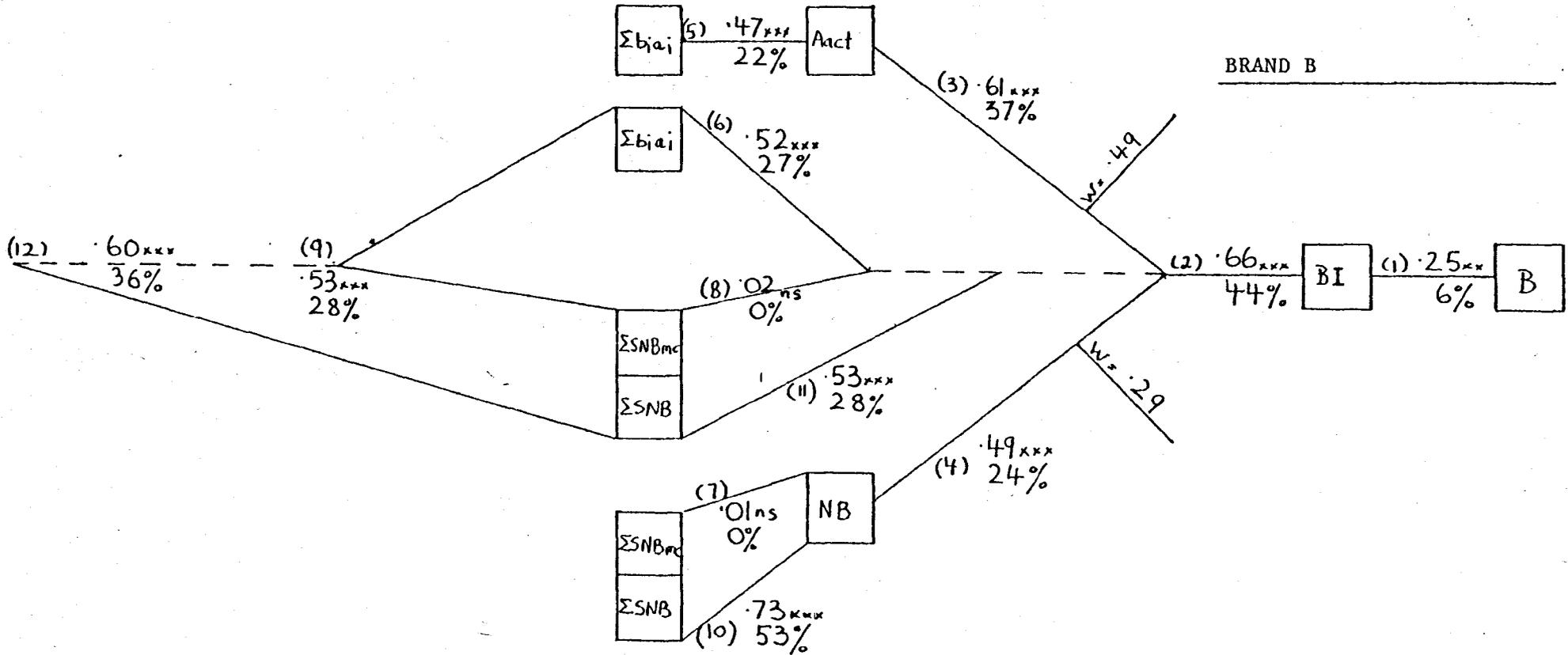
C. Regression weights

are given for Aact and NB on BI (regression 2).

GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION

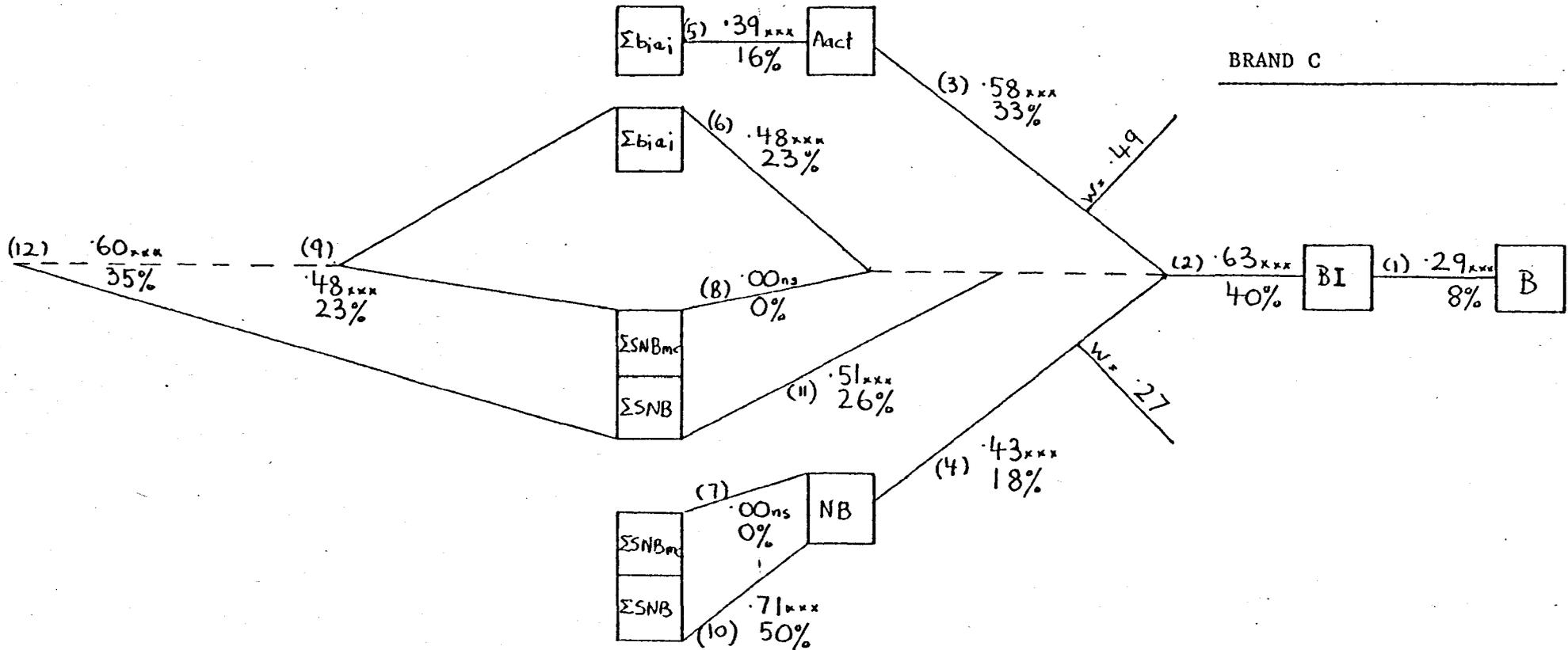


GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION



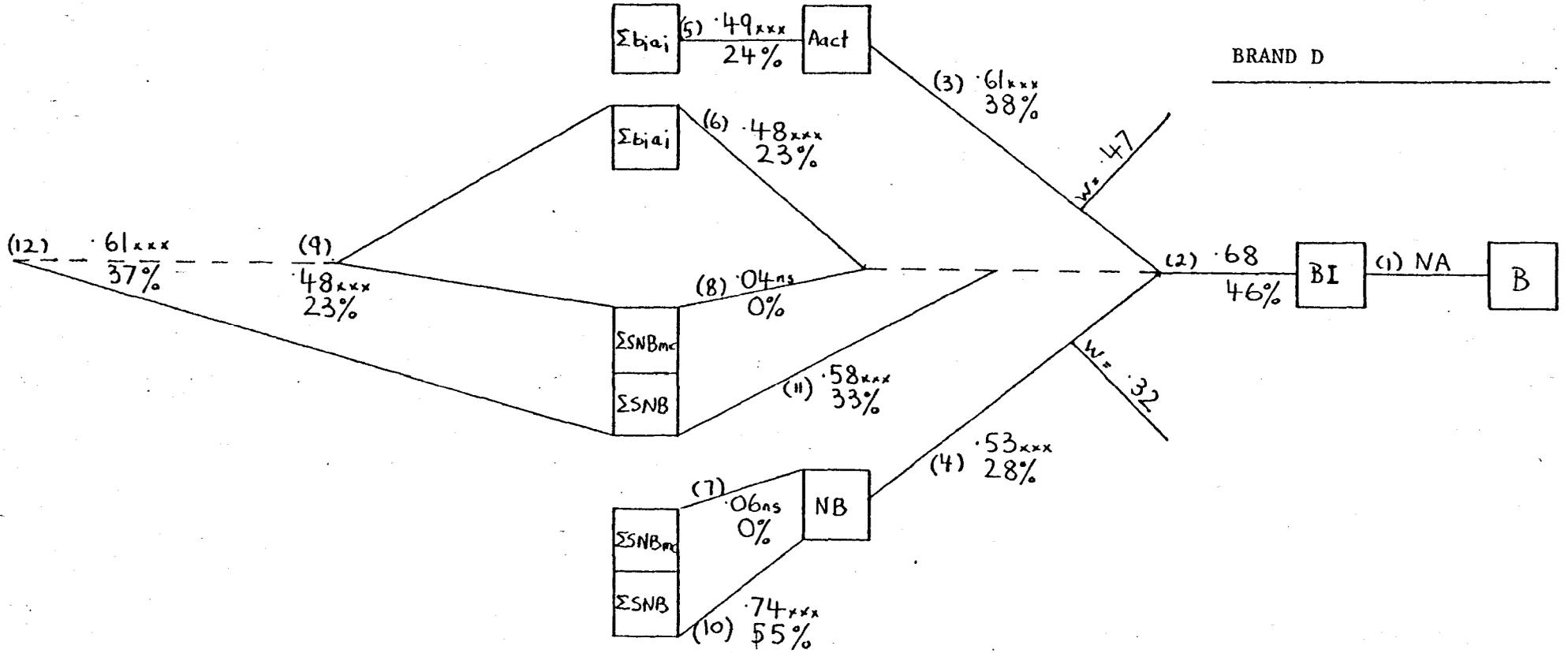
BRAND B

GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION

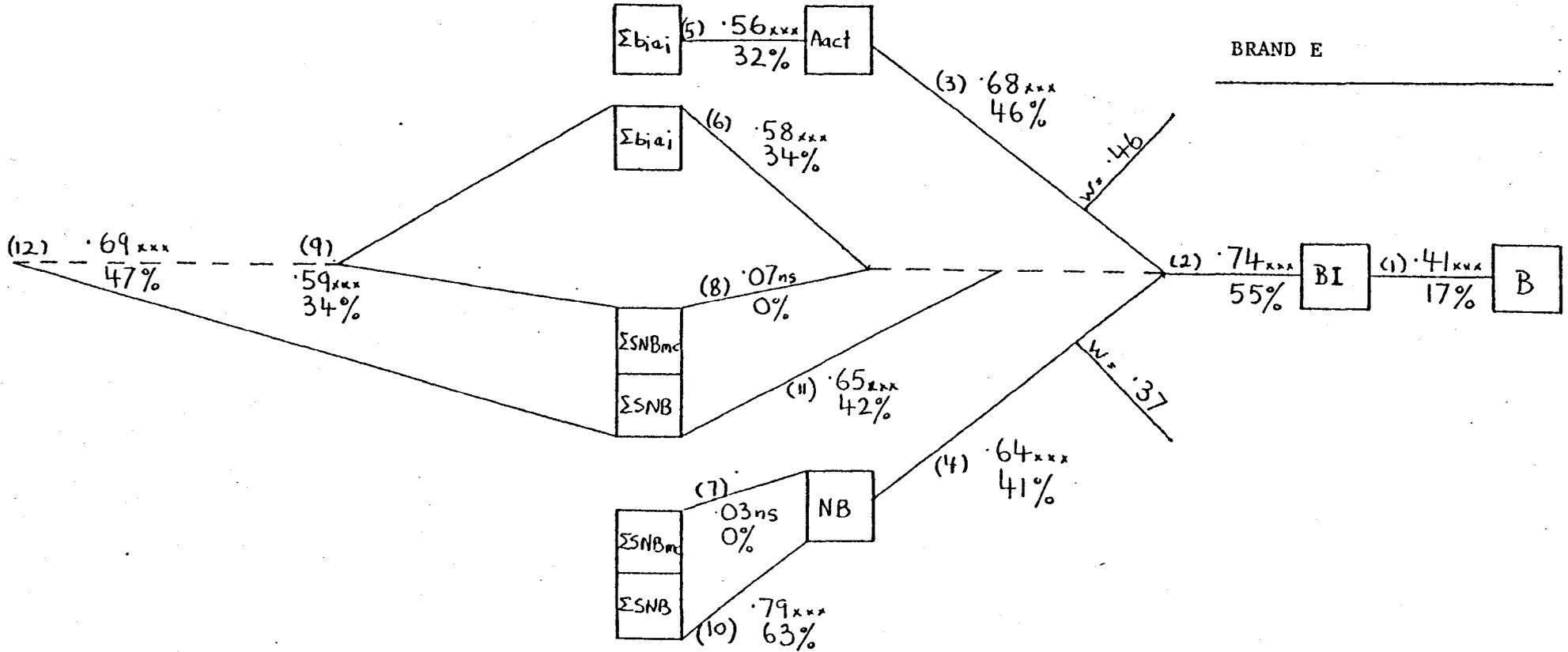


BRAND C

GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION

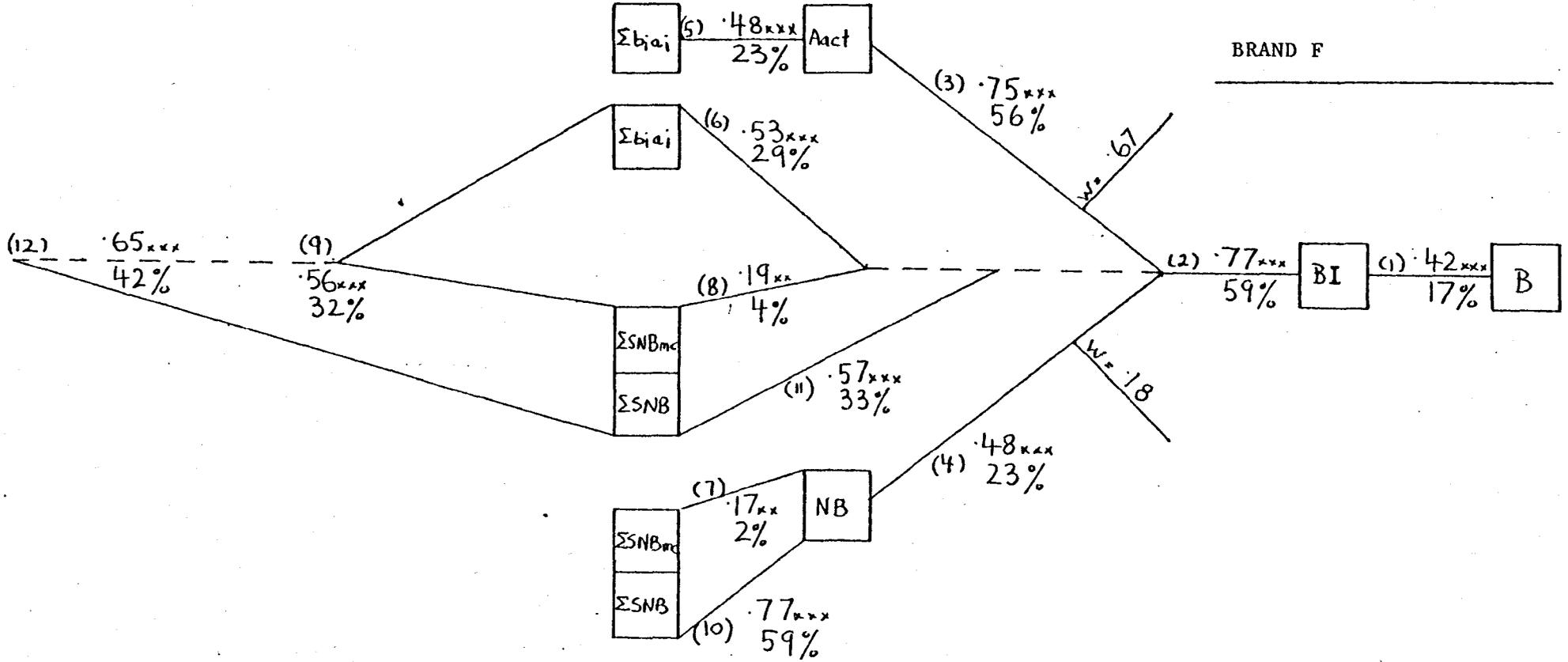


GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION



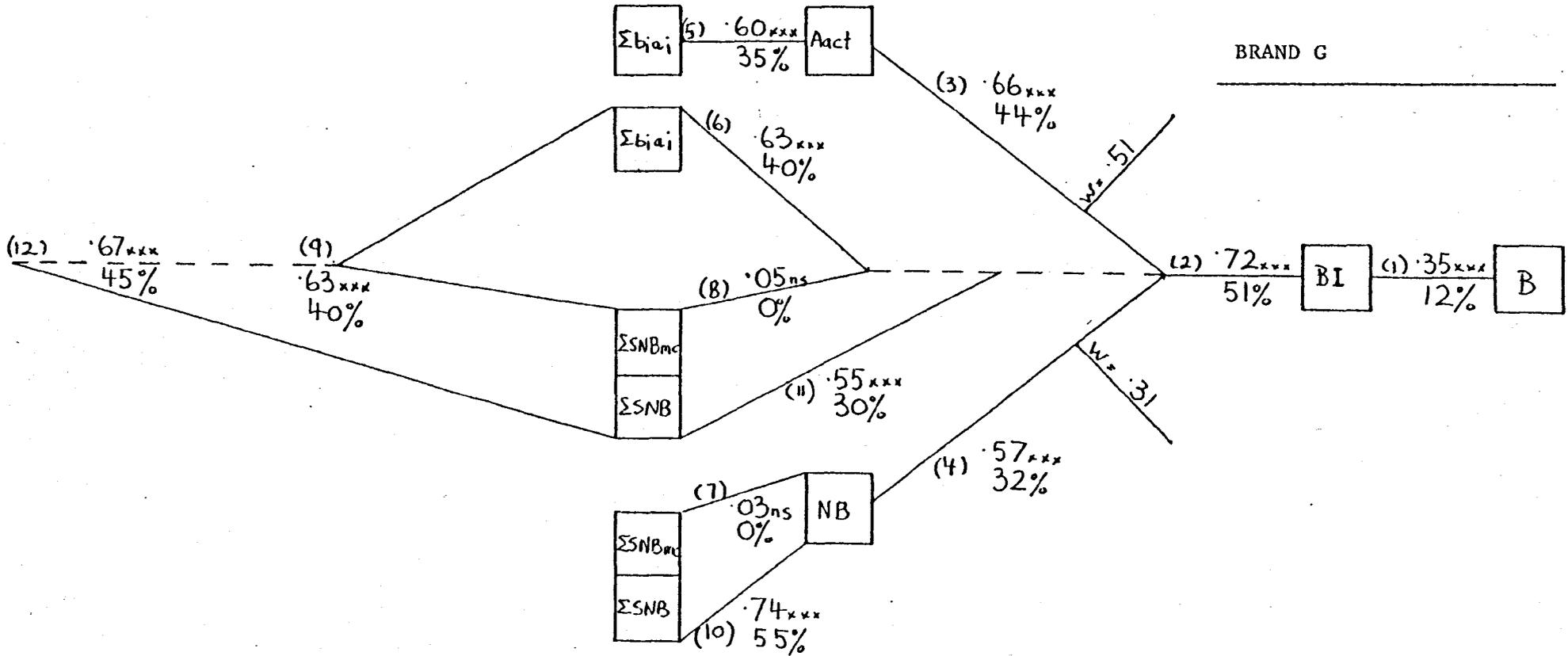
BRAND E

GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION



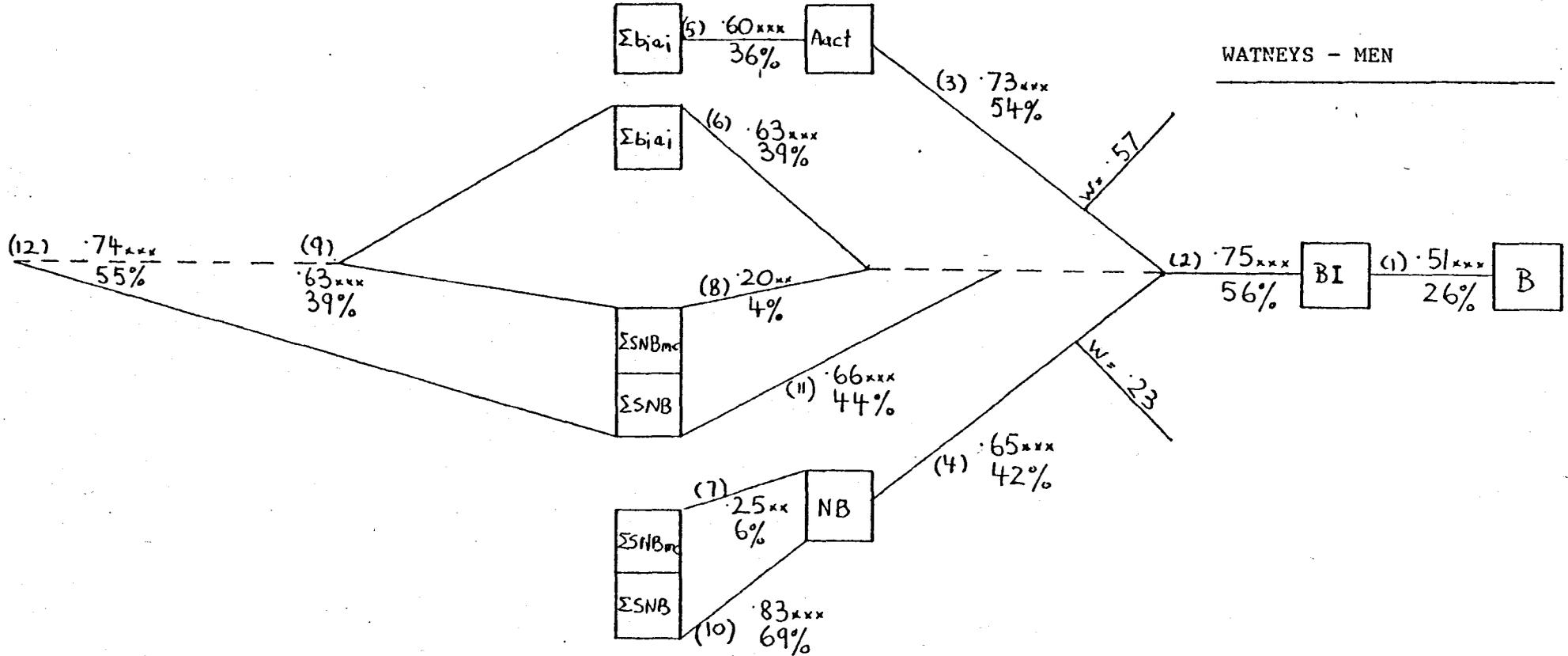
BRAND F

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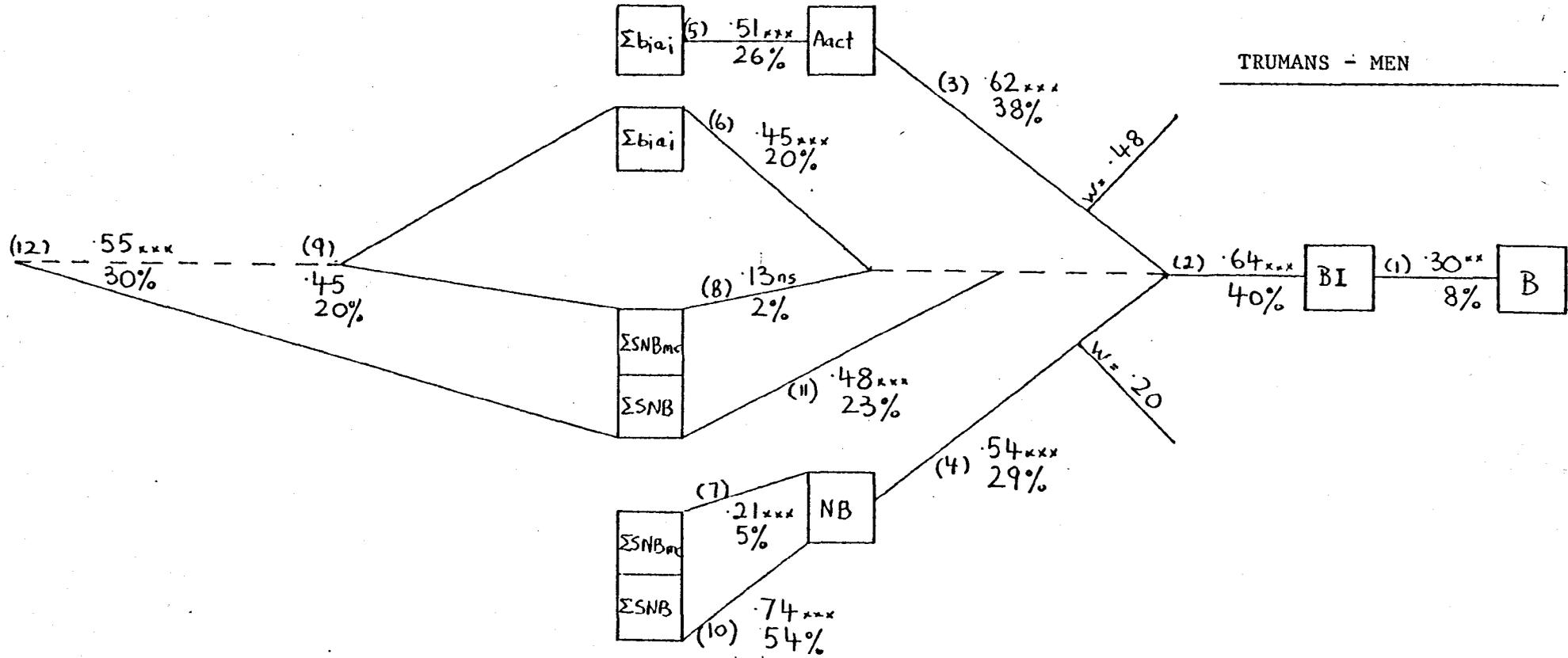


GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION

WATNEYS - MEN

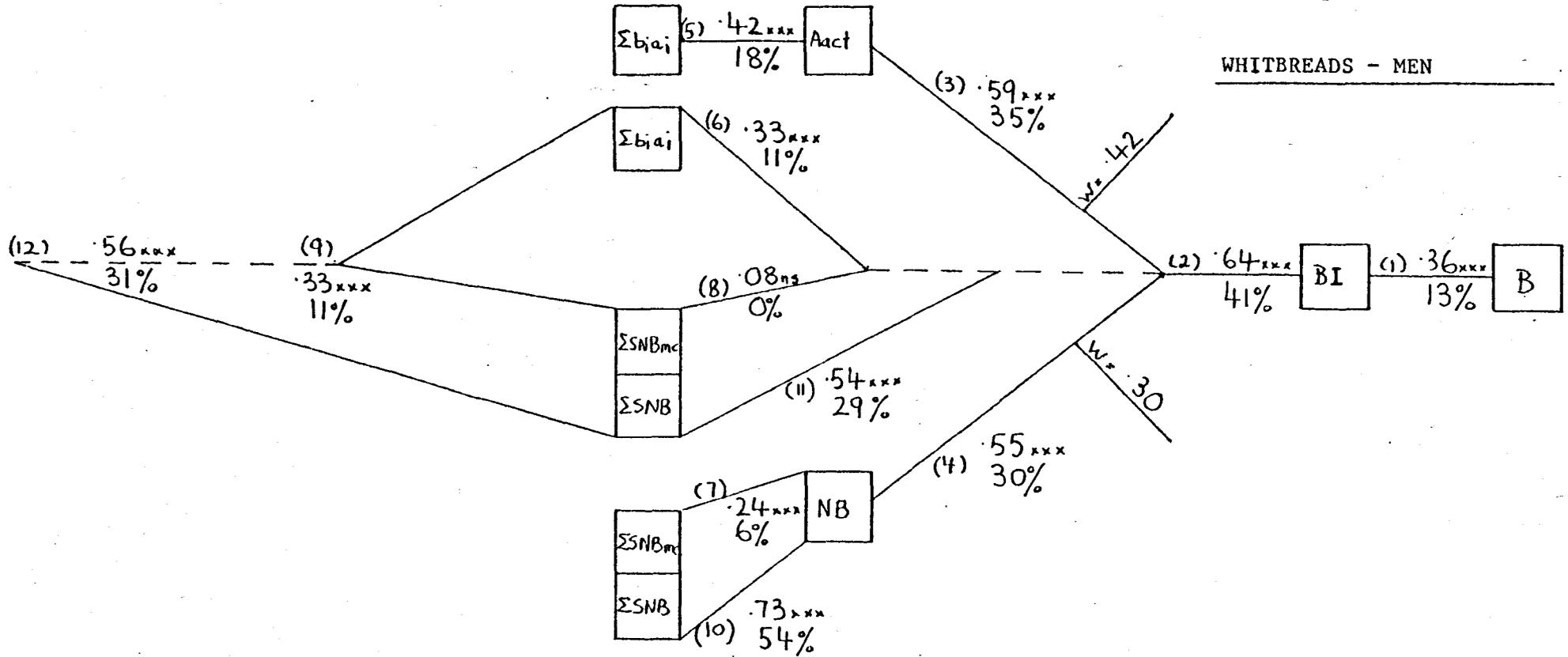


GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION

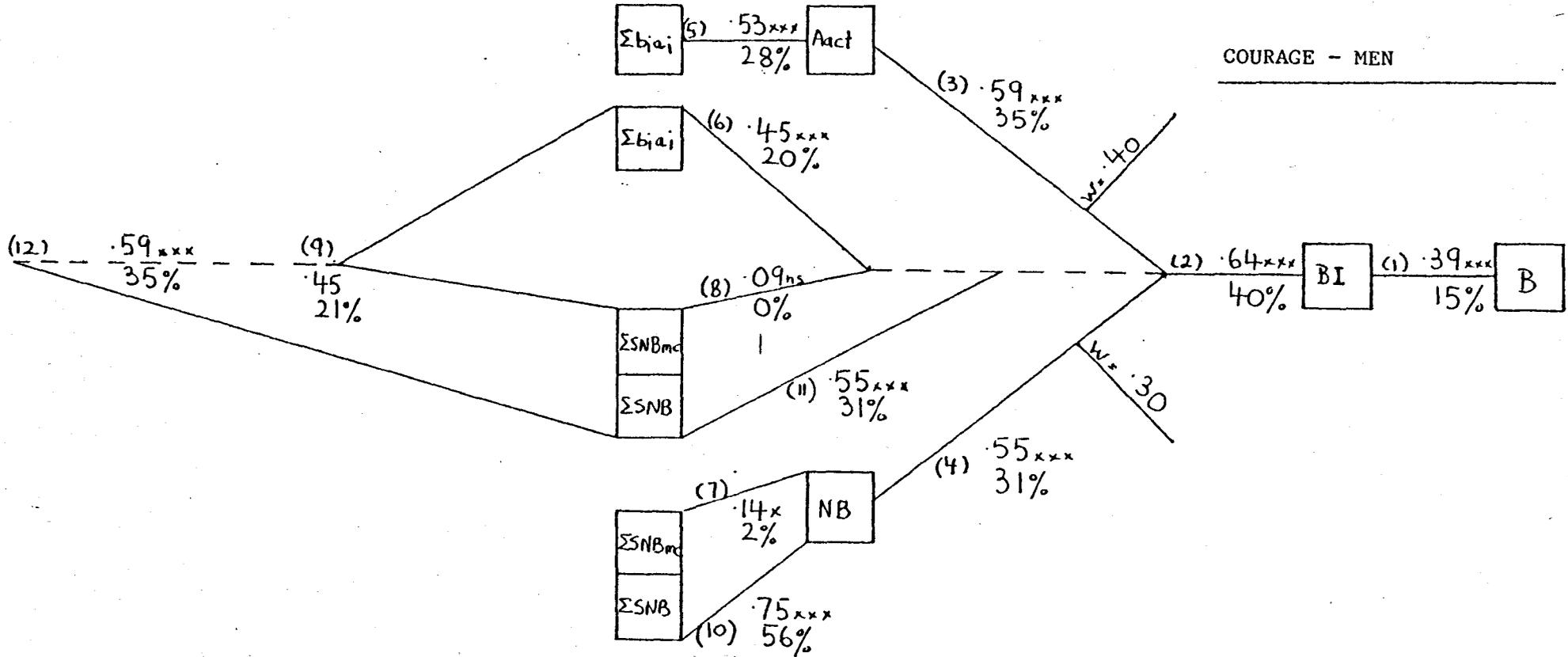


GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION

WHITBREADS - MEN

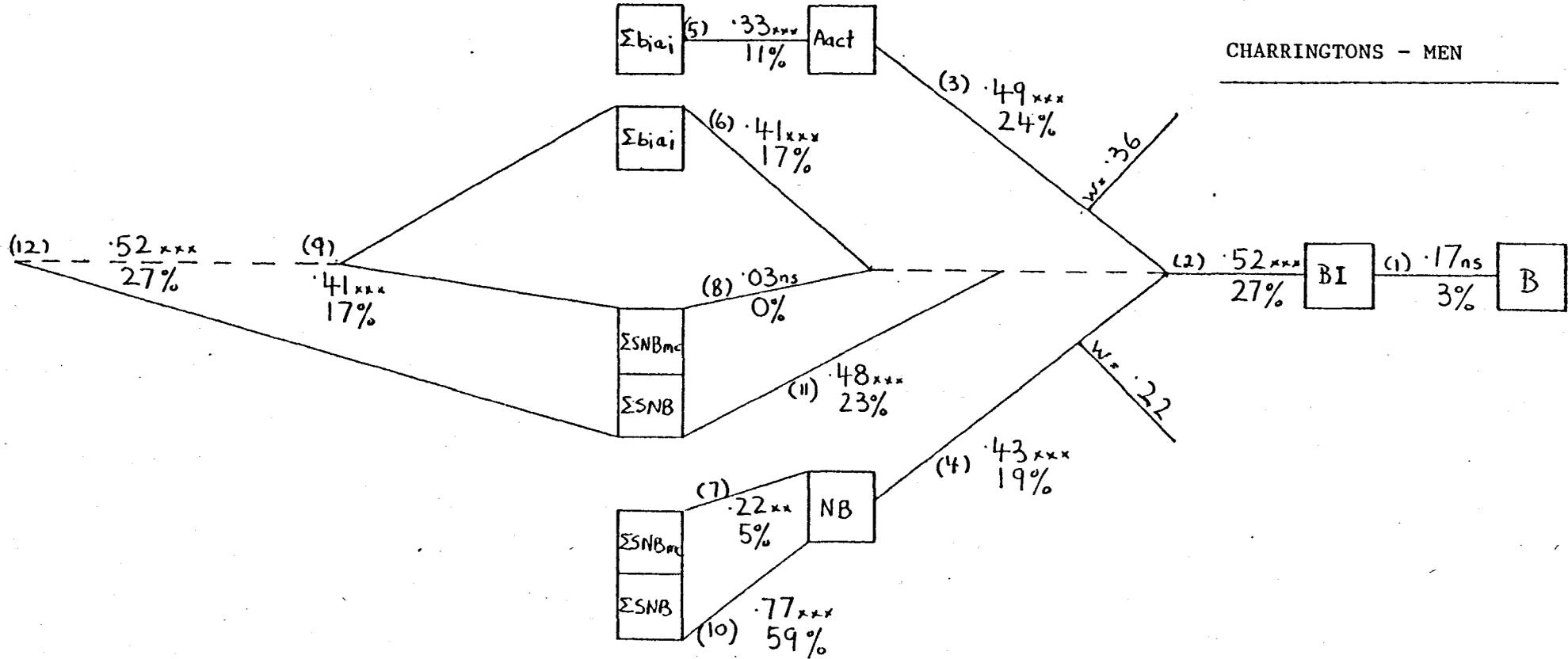


GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION

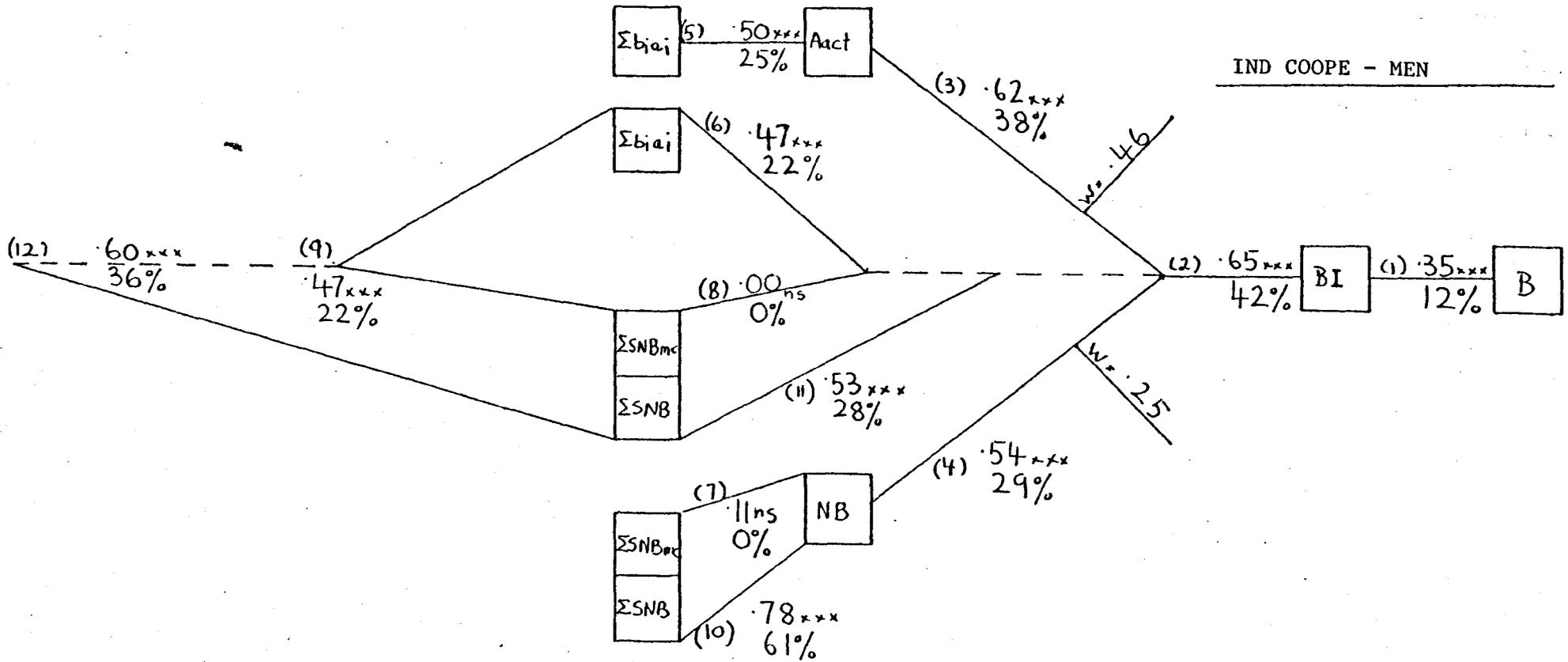


GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION

CHARRINGTONS - MEN

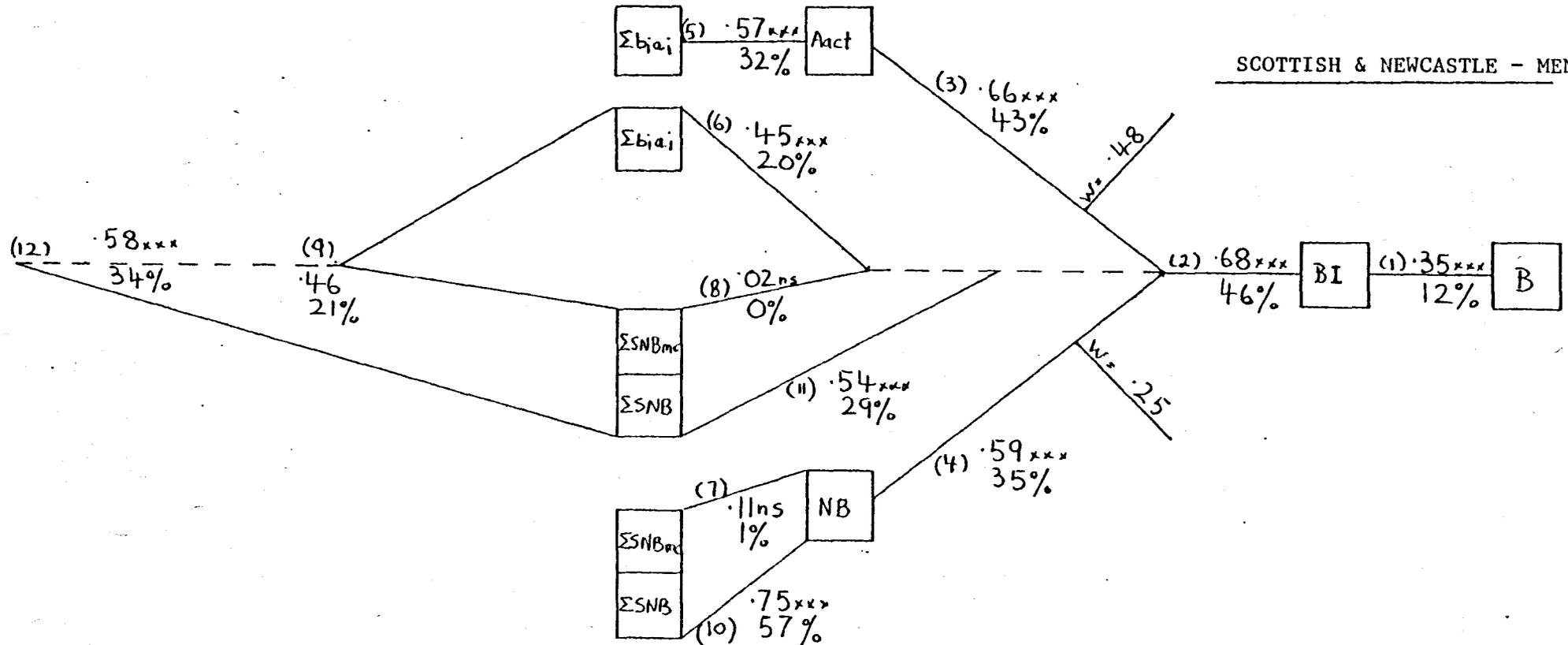


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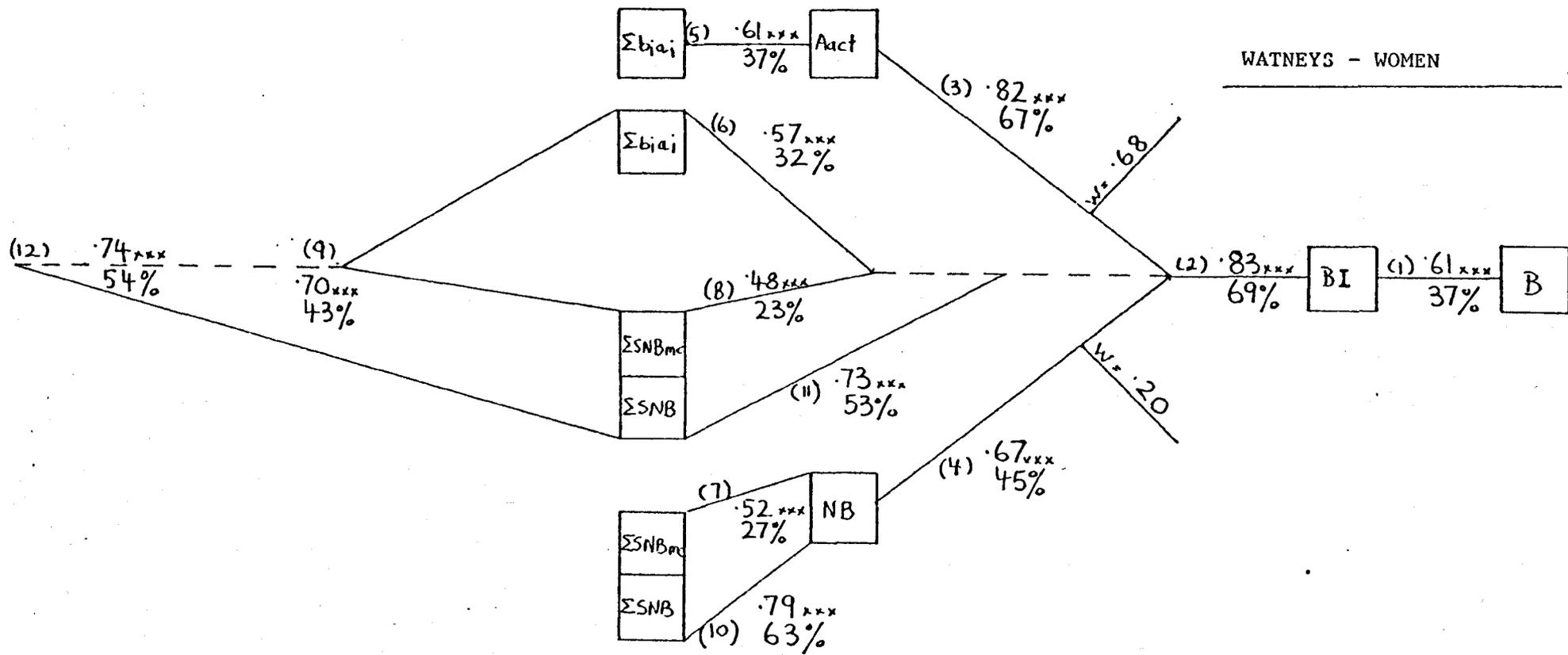


GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION

SCOTTISH & NEWCASTLE - MEN



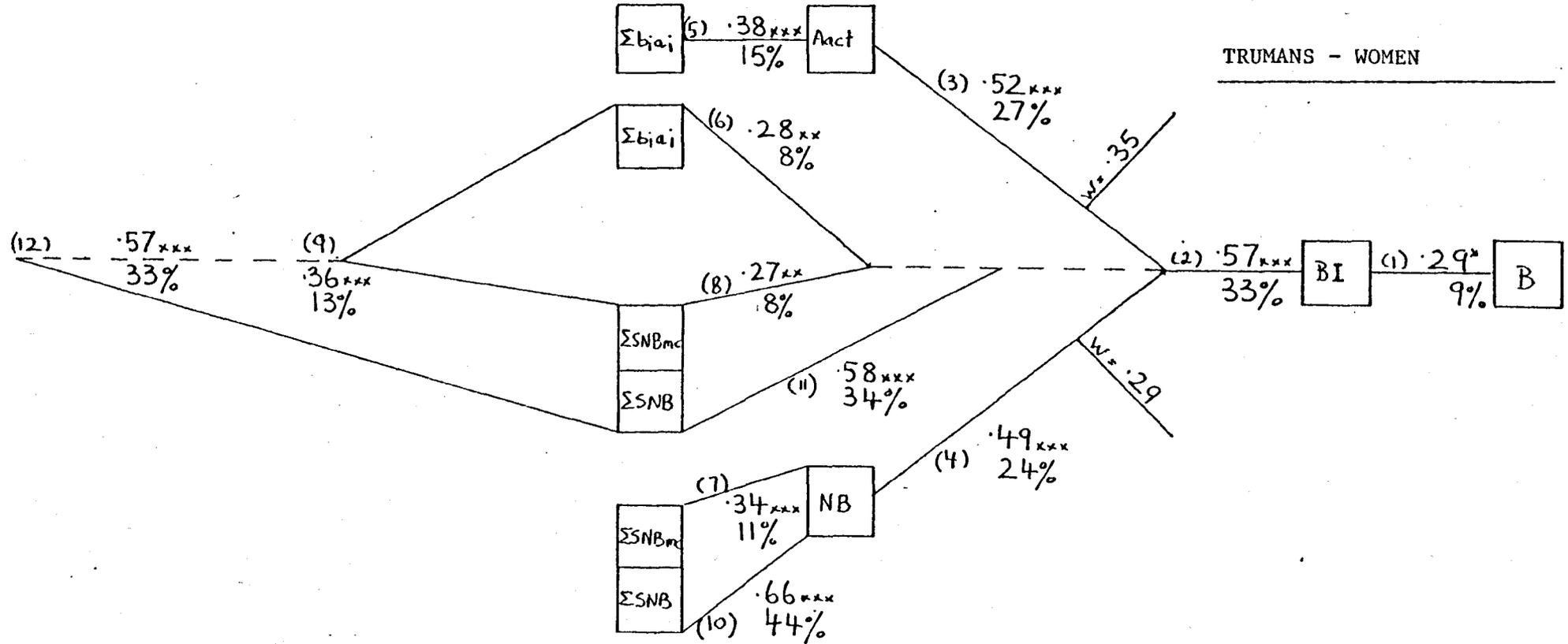
GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION



WATNEYS - WOMEN

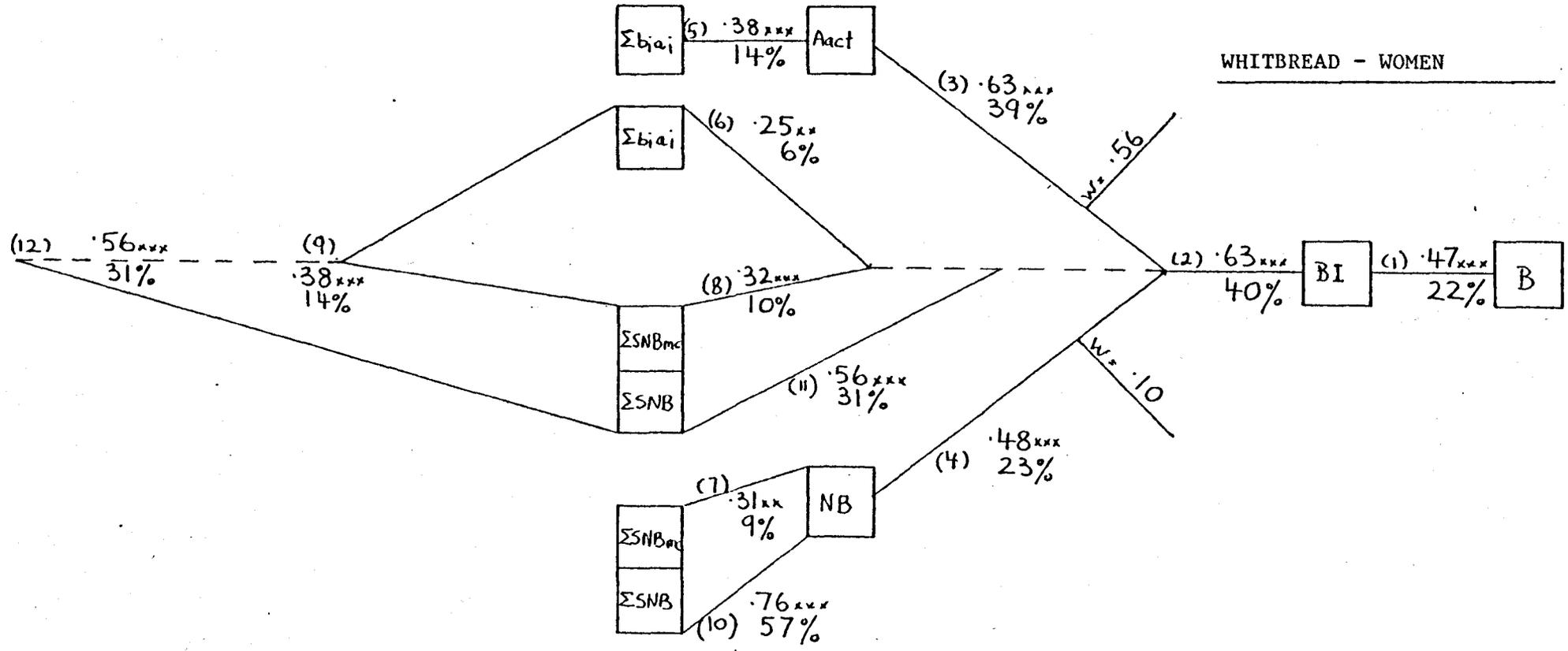
GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION

TRUMANS - WOMEN

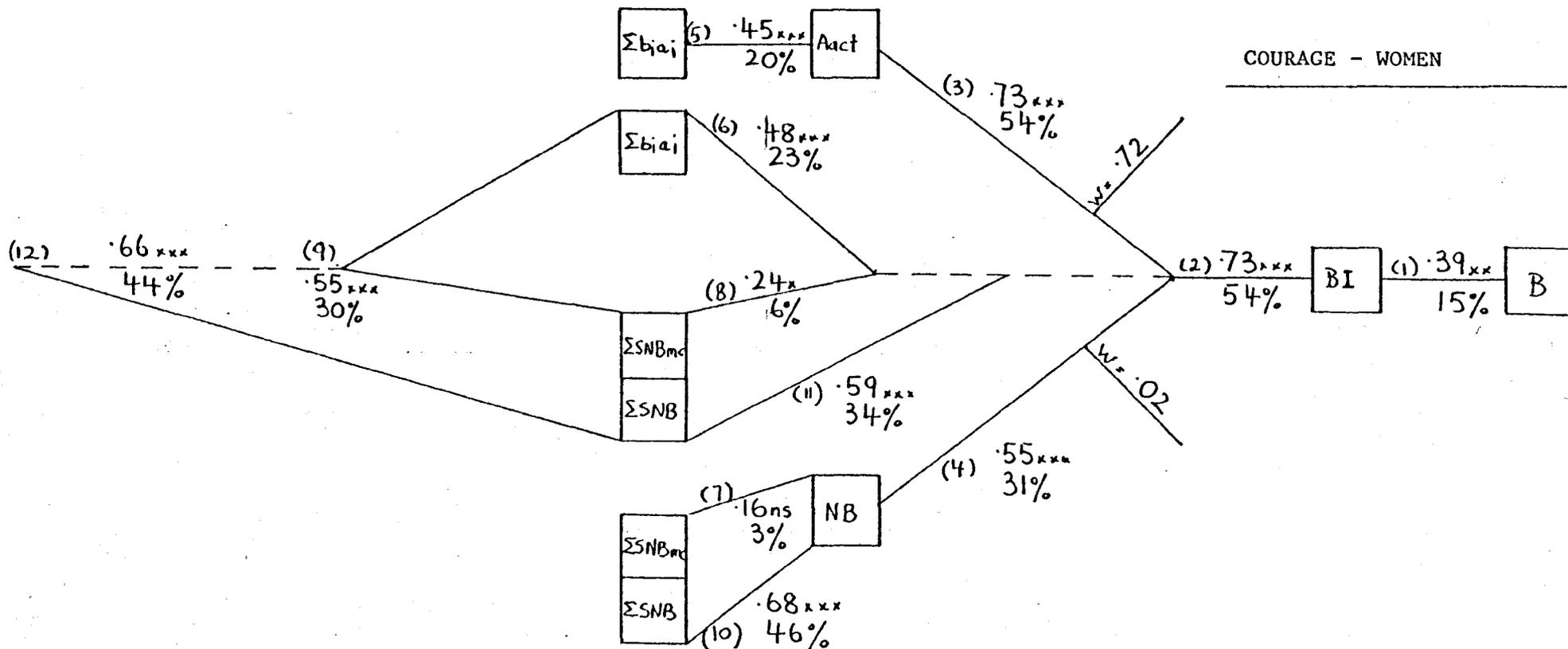


GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION

WHITBREAD - WOMEN

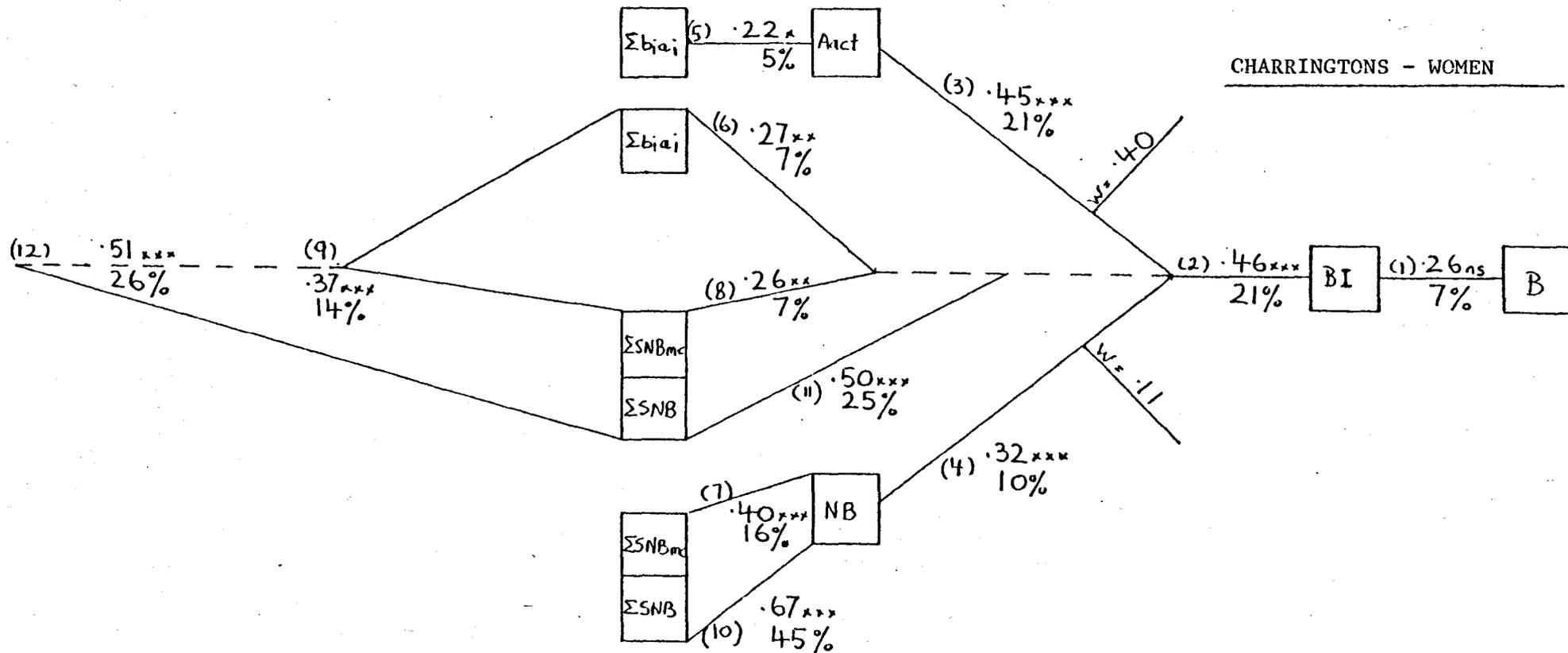


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GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION

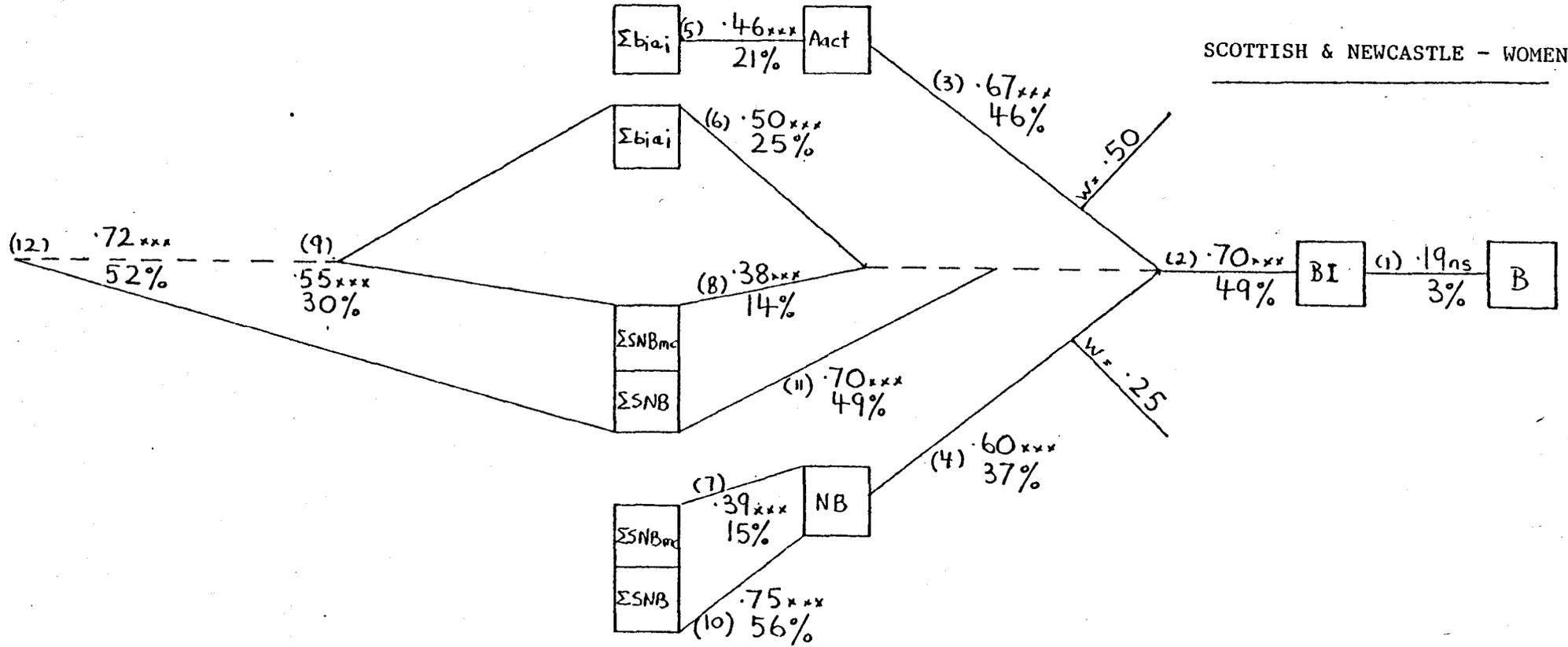
CHARRINGTONS - WOMEN





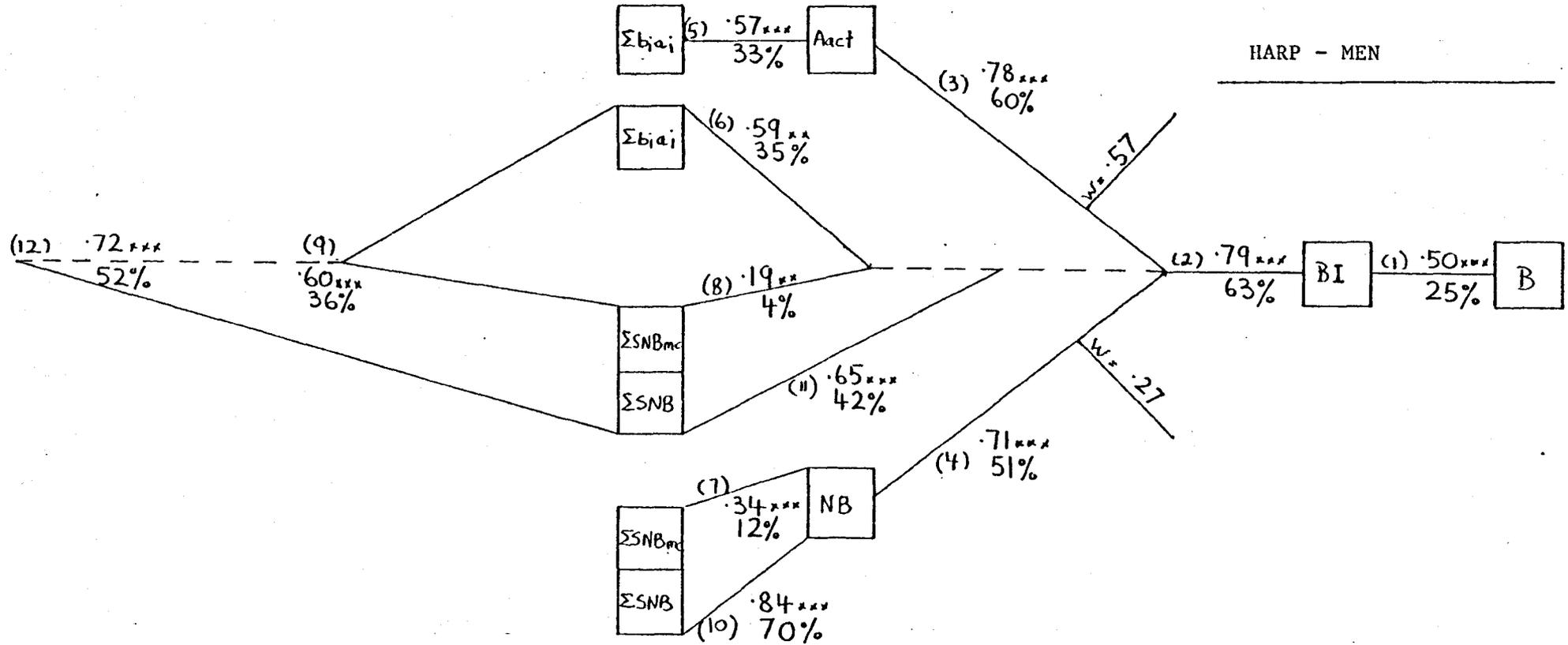
GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION

SCOTTISH & NEWCASTLE - WOMEN

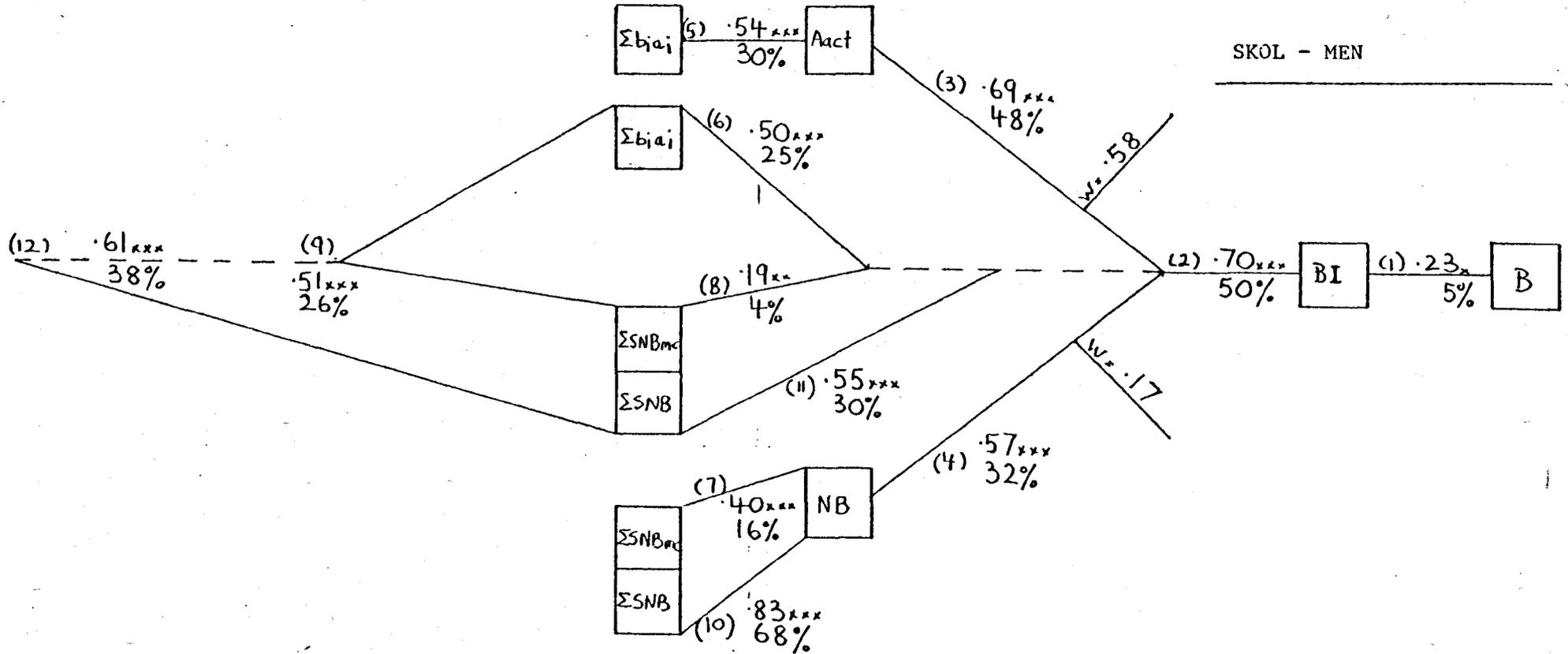


GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION

HARP - MEN

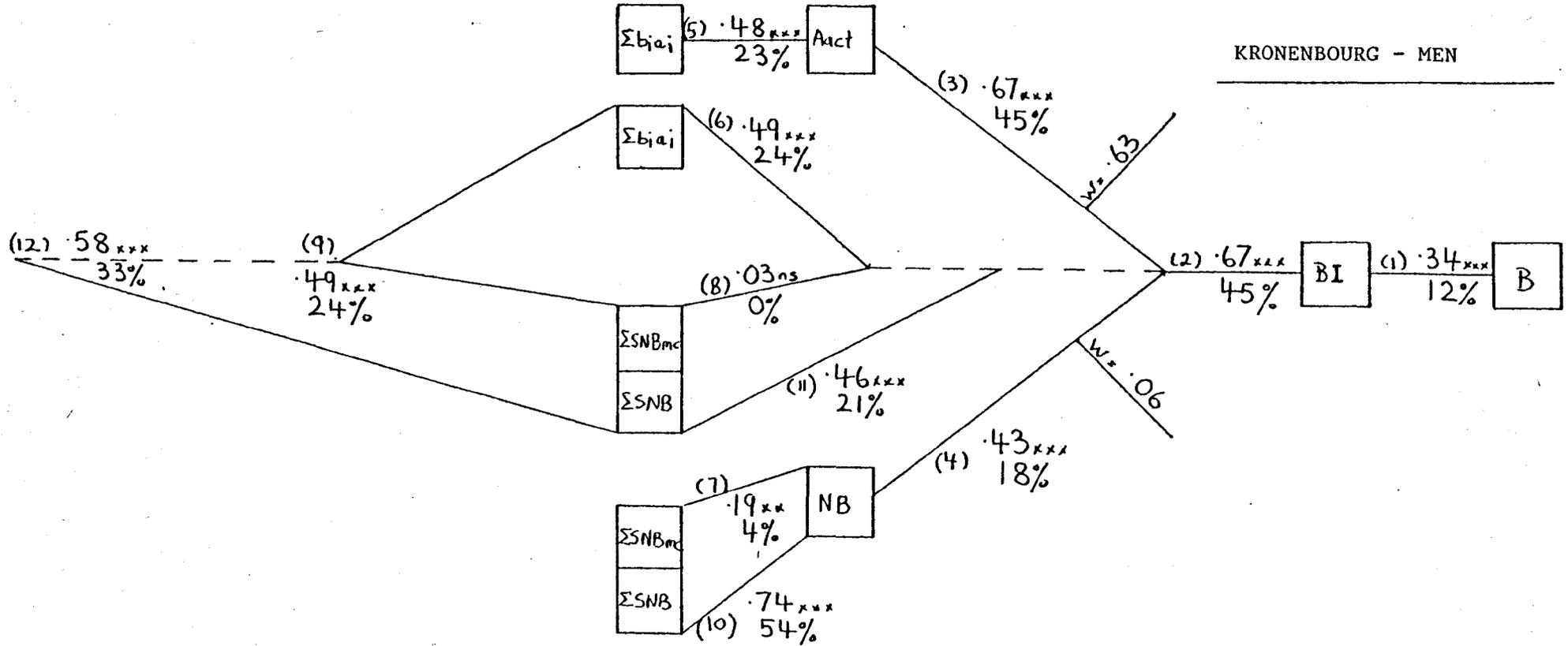


GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION



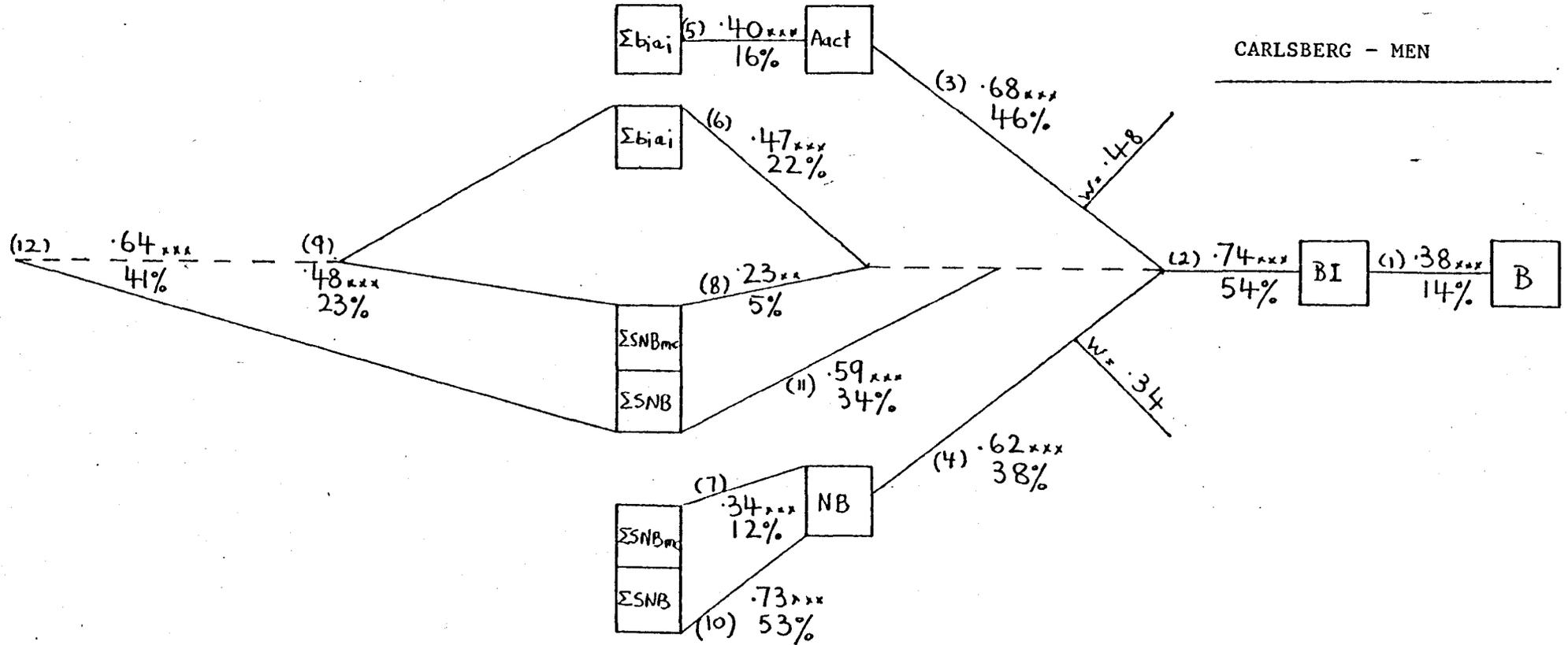
GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION

KRONENBOURG - MEN

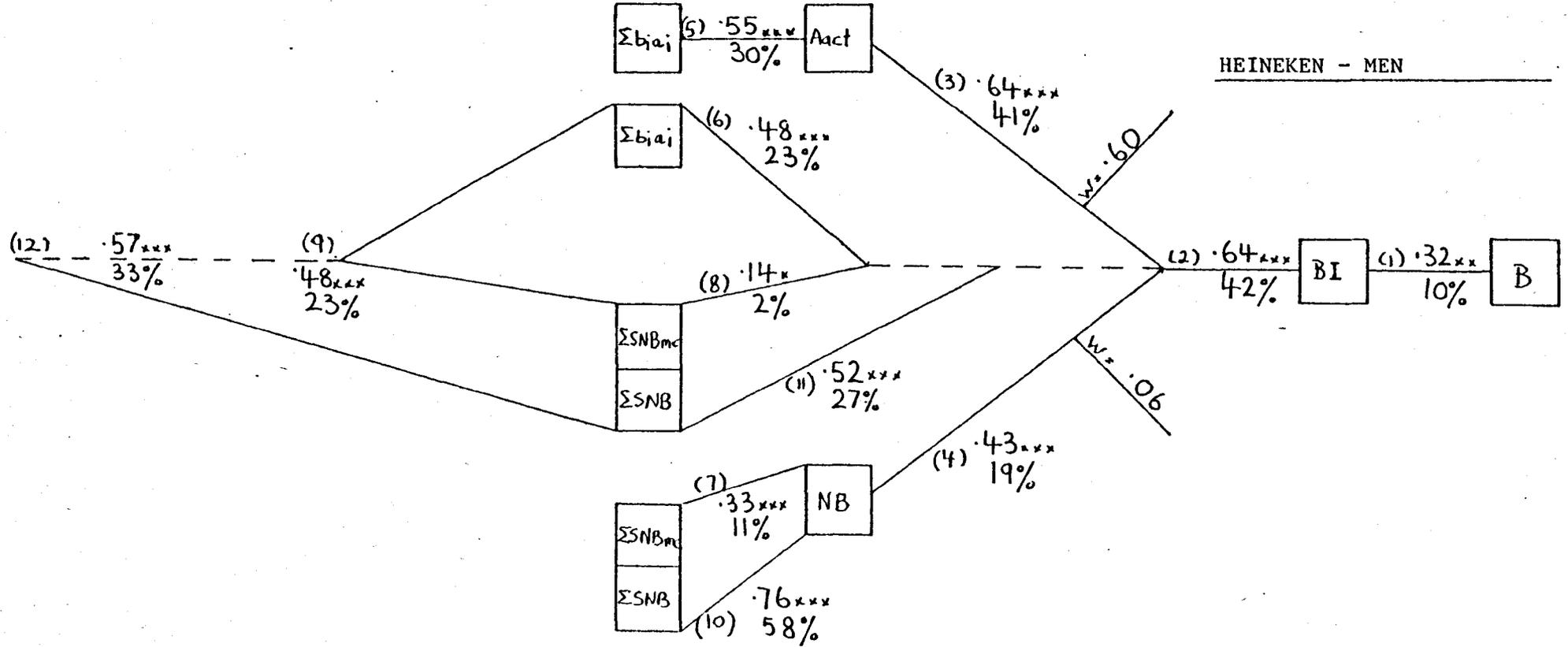


GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION

CARLSBERG - MEN



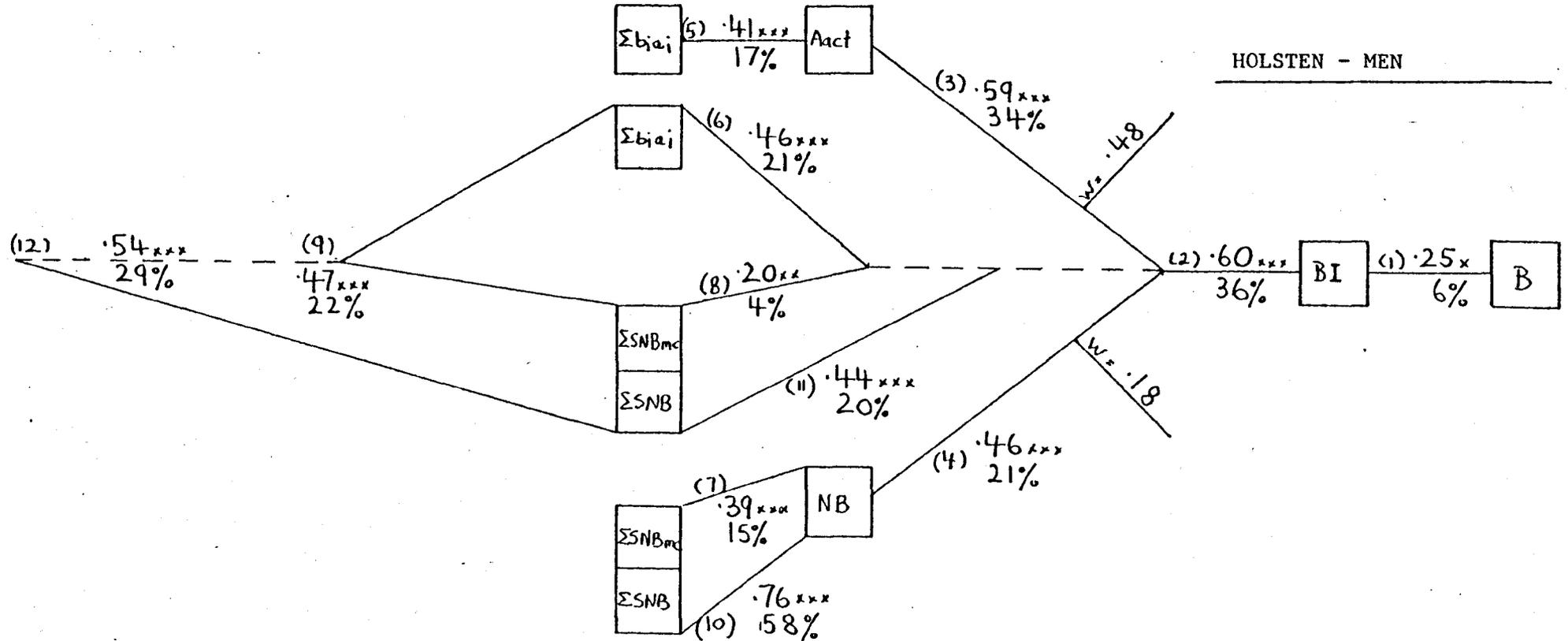
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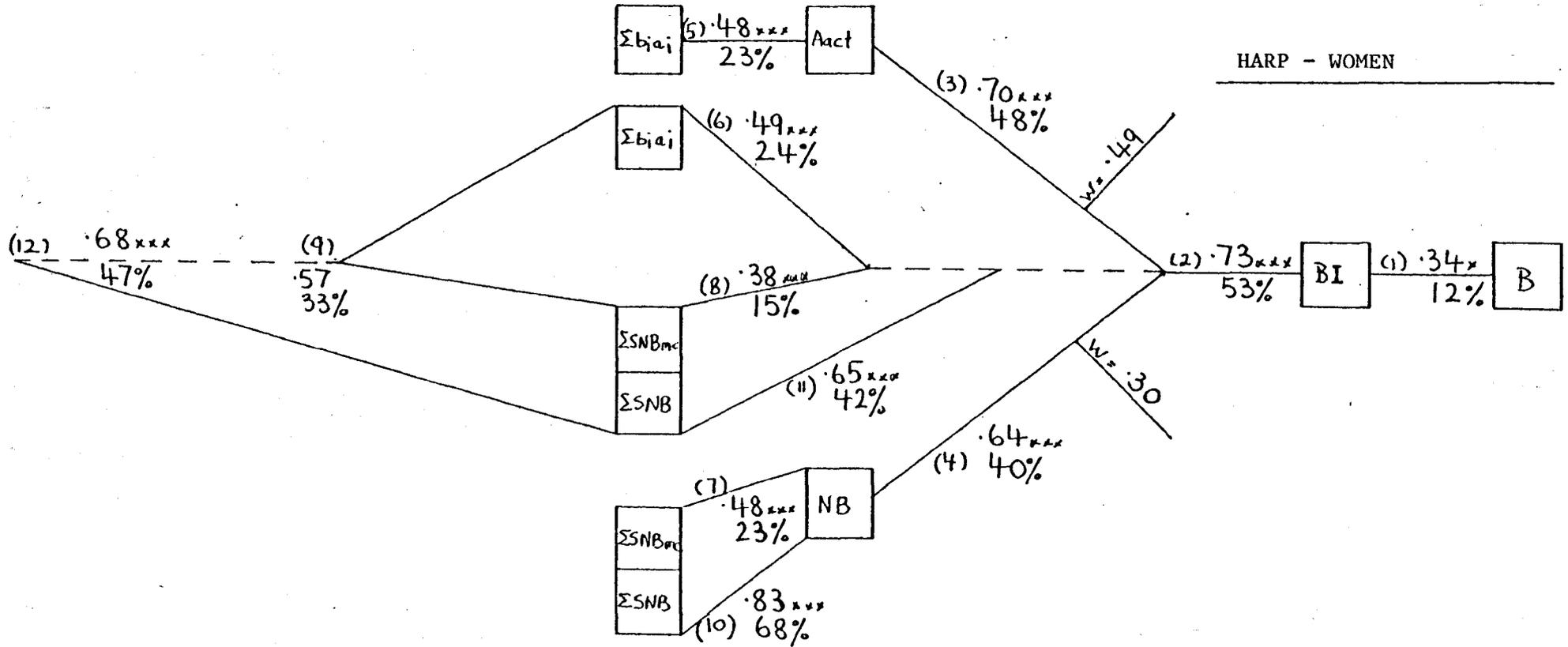
HEINEKEN - MEN

GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION

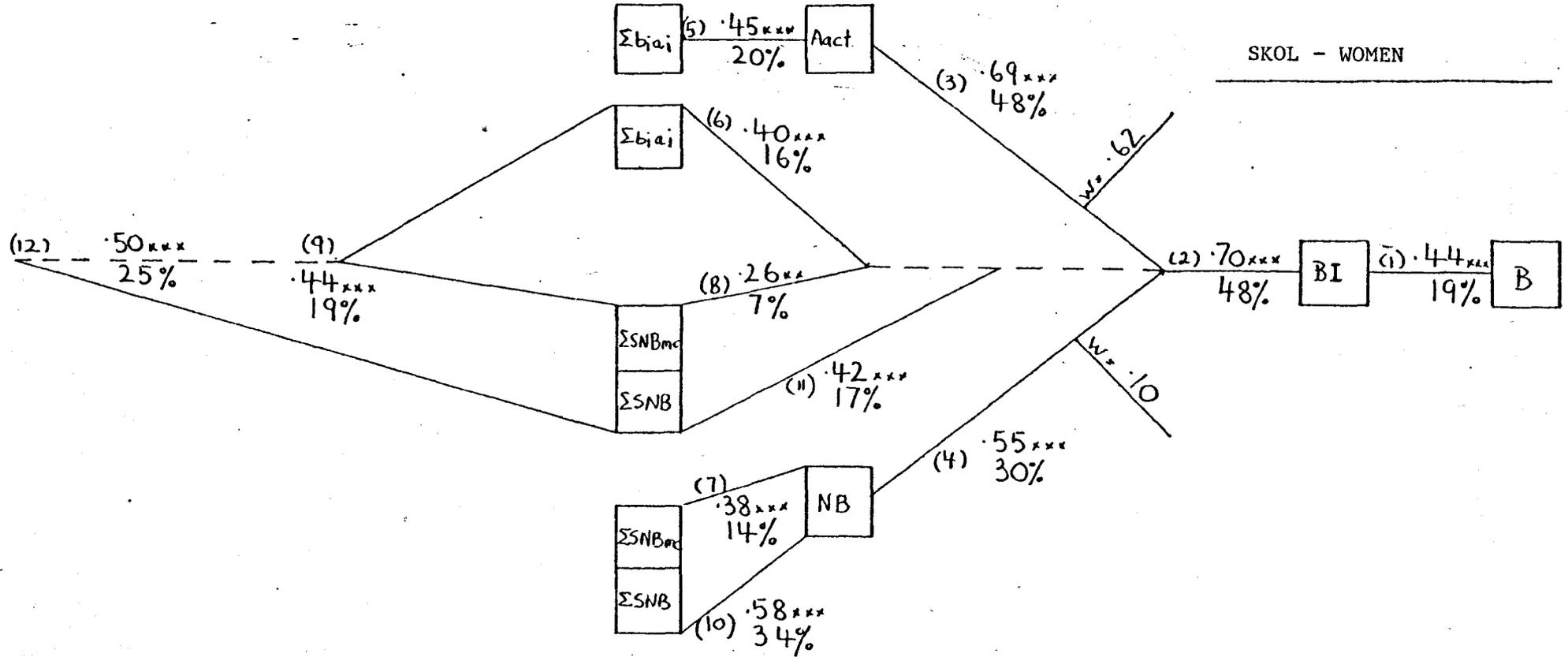
HOLSTEN - MEN



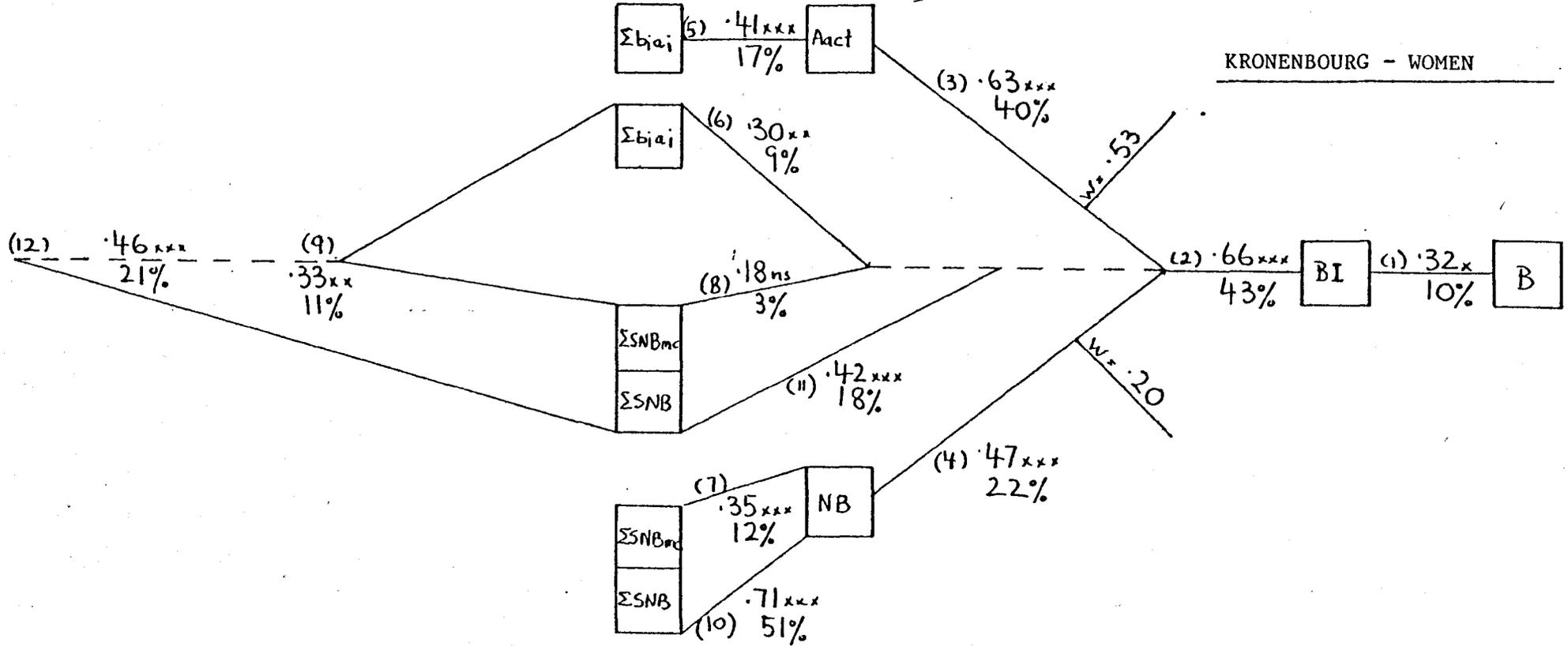
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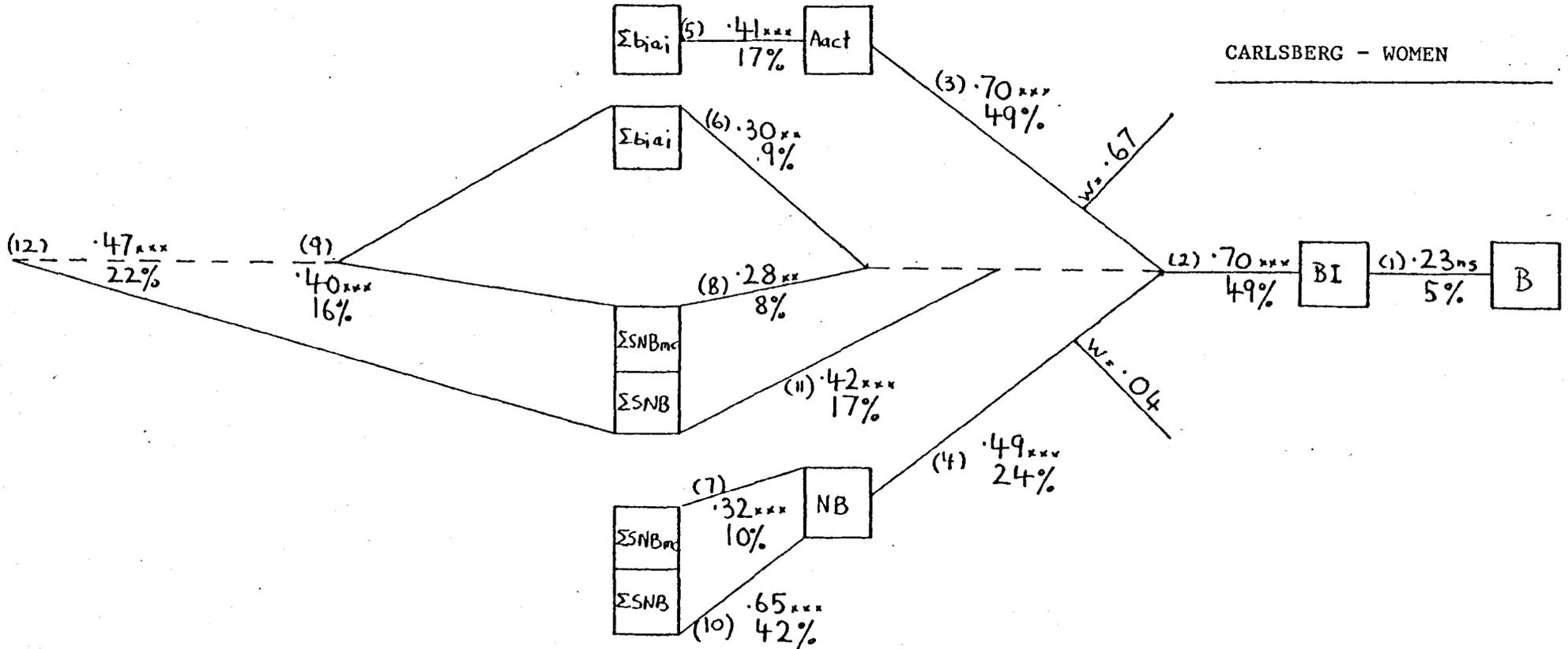


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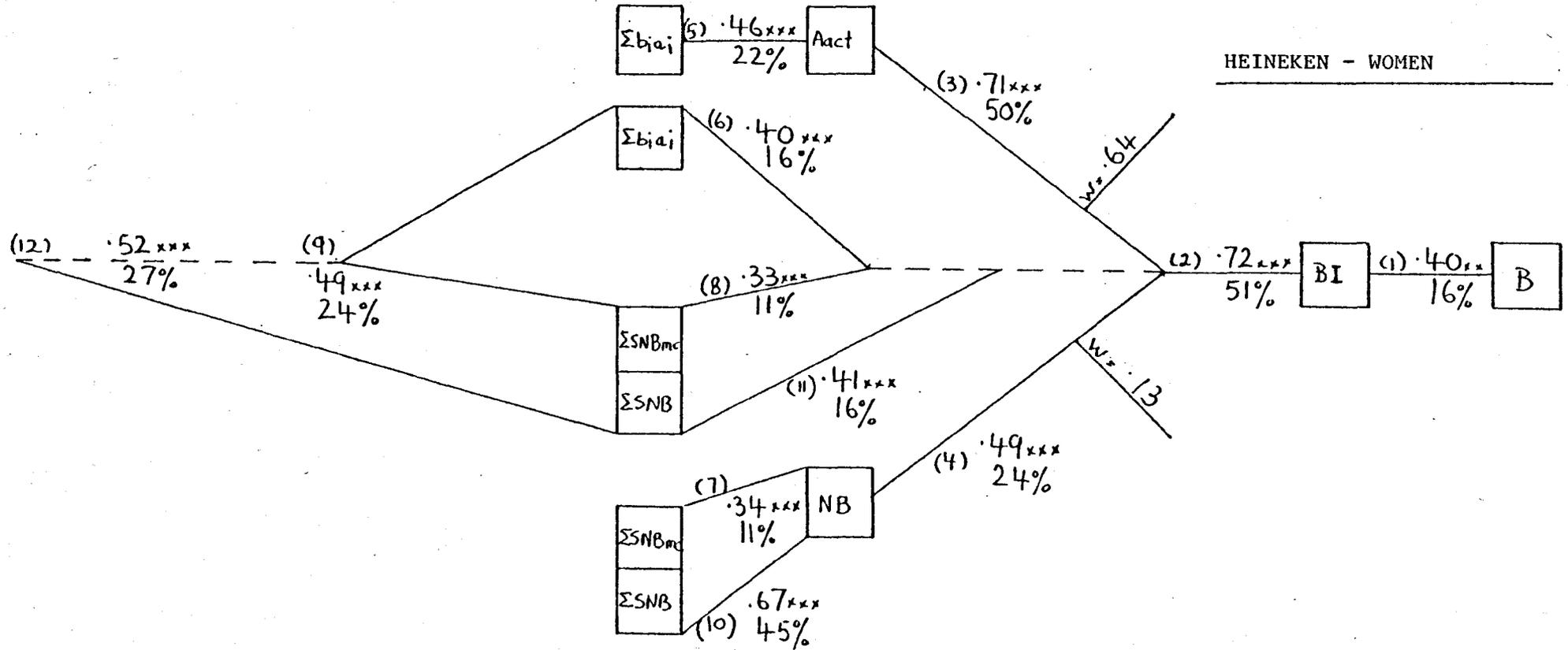


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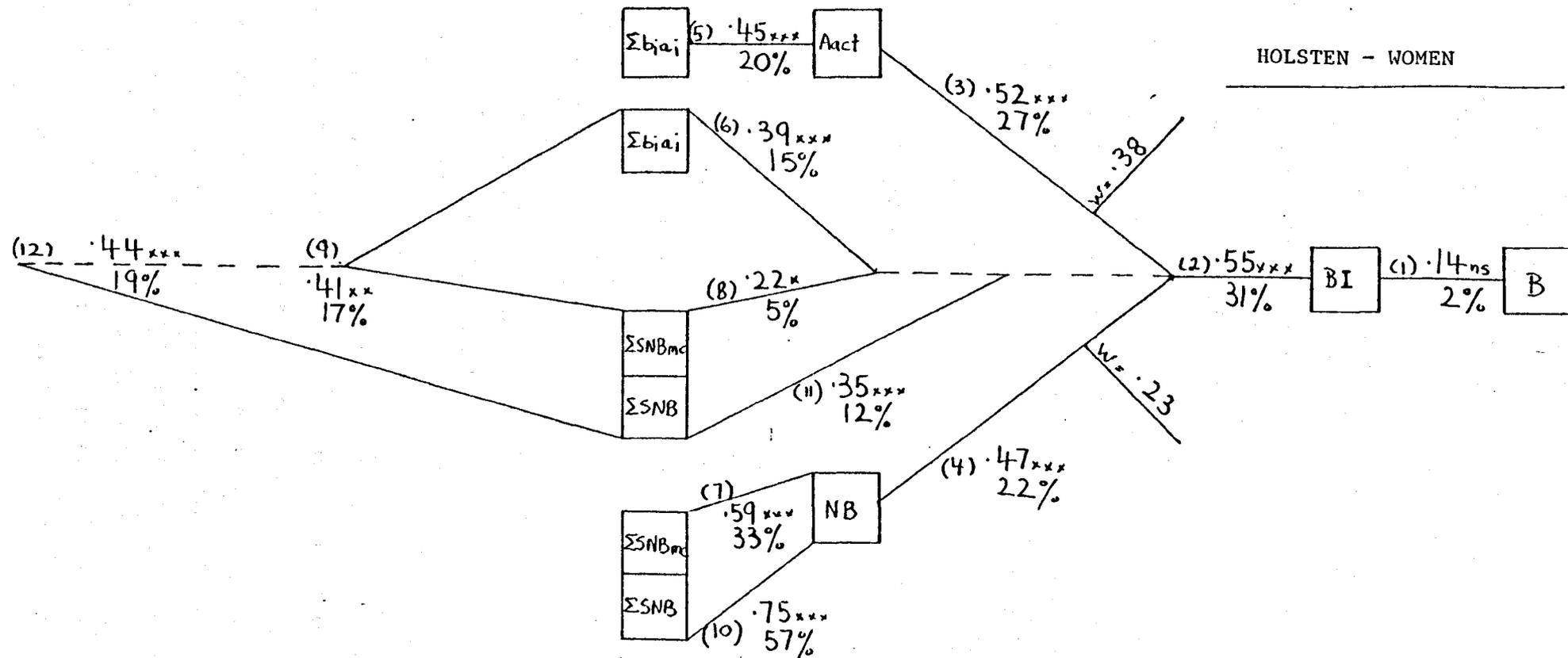
CARLSBERG - WOMEN



GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION



GENERALISED CHART OF RELATIONSHIPS IN THEORY OF REASONED ACTION



APPENDIX 4(vi)

SUB-SECTOR OF CIGARETTE MARKET: DETAILED ANALYSIS OF BI AND B  
BRAND A: ALTERNATIVE MEASURES OF B

SUB-SECTOR OF CIGARETTE MARKET: DETAILED ANALYSIS OF BI AND B

For the sub-sector of the cigarette market, the postcard measure of Behaviour (B) was looked at in more detail, in conjunction with the Behavioural Intention (BI) measure from the Stage II questionnaire. The analysis was undertaken on the sample of 144 who replied to the postcard.

It will be recalled that Behavioural Intention (BI) was rated on a 7 point scale (+3 to -3) on the questionnaire and for this analysis the +3 scores only were extracted and compared with the B measure from the postcard. The assumption behind this analysis was that those scoring a brand +3 for Behavioural Intention (BI), would be more likely to carry out their intentions and actually buy the brand, than those who scored their intentions at less than +3:

<u>All those scoring BI +3 for 1 brand only</u>	<u>78</u>
- buying that brand only	55
- buying that brand with other(s)	8
- not buying that brand	15
<u>All those scoring BI +3 for 2 brands</u>	<u>27</u>
- buying those two brands only	8
- buying one of these two brands + other(s)	14
- buying neither of the two brands	5
<u>All those scoring BI +3 for 3 brands</u>	<u>20</u>
- buying all three brands	0
- buying two of the three brands + 1 other	8
- buying 1 of the brands + others	10
- buying none of the three brands	2
<u>All those scoring BI +3 for 3 brands plus</u>	<u>10</u>
<u>All those scoring BI at less than +3 in the</u> <u>case of all brands</u>	<u>9</u>

Respondents had to rate all 7 brands on the questionnaire and the headings in the above table indicate how many respondents gave a top score of +3 to any of the seven brands. 54% gave a top score to 1 brand only, 19% to 2 brands, 14% to 3 brands, 7% to more than 3 brands and 6% to none of the brands. This suggests that Behavioural Intention may capture quite a complex situation, which relates to the real dynamics of the market. Nearly half of the respondents in this example, intended to purchase not one brand but several, and this may indicate that they choose their purchases from a repertoire of favourite brands. Panel data for the same time period

#### APPENDIX 4(vi) cont.

would suggest that the purchase of more than one brand was not uncommon.

Looking at the results in more detail, it can be seen that the Behavioural Intention (BI) - Behaviour (B) link, is also quite a complex one. 78 respondents had given a top score (+3) on BI to one brand only; of these 55 claimed on the postcard to have bought that brand exclusively on the next three purchase occasions, 8 claimed to have bought that brand in conjunction with one or more other brands and 15 did not buy that brand at all. This may suggest that factors at the point of purchase are influential in changing intentions. The actual price charged at the point of purchase might have a powerful influence; discounting was becoming an active factor in the market. The situation is even more complex in those instances, where respondents scored more than 1 brand +3 for Behavioural Intention. It is this complexity which may explain the relative low correlations between BI and B which was achieved when the total range of scores (+3 to -3) for all 7 brands and all 144 respondents was put into the original regression analysis ( $r_{B:BI}$ ). This result may also suggest that relatively simple measures of B and measures restricted in time (to 3 purchase occasions), are not adequate for highly competitive markets in which brand repertoire purchasing may also take place.

#### BRAND A: ALTERNATIVE MEASURES OF B

These measures were built into the questionnaire on the assumption that they might provide a better correlation with Behavioural Intention. But the complexity of the market situation demonstrated above, would indicate that they may not be any more adequate to the task. These alternative measures of Behaviour were:

- (i) a measure of preference, respondents were asked to rank all 7 brands in order of preference:
- (ii) a measure which asked respondents to report the last/next ten packets of cigarettes they had bought from the sub-sector of the market.

These questions can easily be picked out on the questionnaire. The data are reported here for Brand A only. Test runs indicated, that Brand A produced essentially the same type of answers as the other brands and so in order to conserve computer resources, full runs were not undertaken for the remaining brands.

Taking preference as a measure of Behaviour (B), the regression

APPENDIX 4(vi) cont.

rB:BI was run and this produced  $r = .65^{***}$ , ie Behavioural Intention (BI) explained 42% of the variation in Behaviour (B). Preference appears to be a better measure of Behaviour than the postcard B measure, where BI only explained 24% of the variation in B. This might suggest, that a B measure collected on the questionnaire at the same time as the Fishbein measures, might not only be cheaper than the postcard measure of B, but in certain situations might actually be more predictive. But it may still be inadequate, particularly as preference is a measure of stating how acceptable a brand is and therefore more akin to BI than B.

The analysis of the 10 packets question for Brand A took the form of grouping all those giving a low score for BI (-3 to 0) and a high score for BI (+1 to +3) and cross analyse these two groups by those who stated that they last bought 0-7 packets of Brand A or 8-10 packets of Brand A. The results were as follows:

	BI	
	-3 to 0	+1 to +3
0 - 7 packets	69	121
8 - 10 packets	0	56

This analysis was based on 246. The result stresses again the need for disaggregating the data, as the relationships are not simple. 56 respondents intended to buy (BI: +1 to +3) Brand A and they did not only buy the brand, but bought large quantities of it (8-10 packets), whereas no packets at all were bought, by respondents whose intentions were weak (-3 to 0). This is a nice clear cut result, but it is not so clear cut when smaller quantities of the brand are involved. 121 respondents with positive intentions, bought between 0-7 packets and also 69 respondents claimed to have bought that amount, yet their intentions had been weak (-3 to 0). This is probably a more accurate measure of behaviour than preference, but to be sure of this, it would have to be correlated with panel data.

APPENDIX 5(i)

SUB-SECTOR OF CIGARETTE MARKET: BRANDS A-G:  $b_i a_i$ ,  $b_i$ ,  $a_i$  & SNB/mc scores

BRAND A

	$b_i a_i$ Scale +9 to -9	$b_i$ Scale +3 to -3	$a_i$ Scale +3 to -3
Too strong and harsh	-0.15	-1.58	0.11
Reasonably priced	2.67	1.38	1.65
Good taste/flavour	4.04	1.63	2.38
A pleasant cigarette	4.34	1.75	2.39
Attractive pack	3.54	2.11	1.47
A satisfying, sus- taining cigarette	3.87	1.59	2.39
OK to offer around	4.33	2.11	1.80
Reliable name and reputation	5.15	2.37	2.03
A cigarette to be seen with	2.89	1.75	1.31
Buy it only when on offer	1.78	-0.98	-0.42
Increasing in popularity	1.86	1.61	1.15

NORMATIVE SCORES

NB	1.49
SNB <sub>1</sub>	1.18
SNB <sub>2</sub>	1.26
SNB <sub>3</sub>	1.85
SNBmc <sub>1</sub>	0.92
SNBmc <sub>2</sub>	-0.69
SNBmc <sub>3</sub>	-2.11

KEY: SNB<sub>1</sub> Family

SNB<sub>2</sub> Friends and neighbours

SNB<sub>3</sub> Smokers who want to impress people

BRAND B

	$b_i$	$a_i$	
	Scale +9 to -9	Scale +3 to -3	Scale +3 to -3
Too strong and harsh	-0.05	-1.13*	0.11
Reasonably priced	1.53	0.72	1.65*
Good taste/flavour	2.66	1.05	2.38*
A pleasant cigarette	2.74	1.09	2.39*
Attractive pack	3.28	1.89*	1.47
A satisfying, sustaining cigarette	2.43	0.90	2.39*
OK to offer around	3.52	1.63	1.80(ns)
Reliable name and reputation	4.31	1.98	2.03(ns)
A cigarette to be seen with	2.30	1.20	1.31(ns)
Buy it only when on offer	1.15	-0.71	-0.42(ns)
Increasing in popularity	0.99	0.65	1.15*

NORMATIVE SCORES

NB	0.93
SNB <sub>1</sub>	0.63
SNB <sub>2</sub>	0.90
SNB <sub>3</sub>	1.68
SNBmc <sub>1</sub>	0.46
SNBmc <sub>2</sub>	-0.38
SNBmc <sub>3</sub>	-2.10

KEY: \* significant difference between  $b_i$  and  $a_i$  scores at 5% level or above;  
 ns = non-significant difference.

BRAND C

	$b_i a_i$	$b_i$	$a_i$
	<u>Scale +9 to -9</u>	<u>Scale +3 to -3</u>	<u>Scale +3 to -3</u>
Too strong and harsh	-0.13	-1.01	0.11
Reasonably priced	2.69	1.25	1.65
Good taste/flavour	2.77	1.06	2.38
A pleasant cigarette	3.04	1.15	2.39
Attractive pack	2.60	1.13	1.47
A satisfying, sus- taining cigarette	2.89	1.08	2.39
OK to offer around	3.41	1.56	1.80
Reliable name and reputation	4.51	1.99	2.03
A cigarette to be seen with	1.71	0.76	1.31
Buy it only when on offer	1.02	-0.61	-0.42
Increasing in popularity	1.17	1.00	1.15

NORMATIVE SCORES

NB	1.06
SNB <sub>1</sub>	0.67
SNB <sub>2</sub>	0.86
SNB <sub>3</sub>	0.95
SNBmc <sub>1</sub>	0.91
SNBmc <sub>2</sub>	-0.22
SNBmc <sub>3</sub>	-0.28

BRAND D

	$b_i a_i$ Scale +9 to -9	$b_i$ Scale +3 to -3	$a_i$ Scale +3 to -3
Too strong and harsh	0.13	-0.04	0.11
Reasonably priced	0.99	0.49	1.65
Good taste/flavour	-0.20	-0.12	2.38
A pleasant cigarette	-0.03	-0.06	2.39
Attractive pack	1.69	0.98	1.47
A satisfying, sus- taining cigarette	-0.13	-0.14	2.39
OK to offer around	1.59	0.55	1.80
Reliable name and reputation	1.42	0.58	2.03
A cigarette to be seen with	0.63	0.09	1.31
Buy it only when on offer	0.81	-0.88	-0.42
Increasing in popularity	0.38	0.15	1.15

NORMATIVE SCORES

NB	-0.27
SNB <sub>1</sub>	-0.43
SNB <sub>2</sub>	-0.04
SNB <sub>3</sub>	0.30
SNBmc <sub>1</sub>	0.35
SNBmc <sub>2</sub>	0.46
SNBmc <sub>3</sub>	-0.16

BRAND E

	$b_i a_i$	$b_i$	$a_i$
	<u>Scale +9 to -9</u>	<u>Scale +3 to -3</u>	<u>Scale +3 to -3</u>
Too strong and harsh	-0.07	-0.32	0.11
Reasonably priced	2.30	1.09	1.65
Good taste/flavour	0.60	0.26	2.38
A pleasant cigarette	0.85	0.31	2.39
Attractive pack	1.20	0.63	1.47
A satisfying, sus- taining cigarette	0.90	0.29	2.39
OK to offer around	1.95	0.85	1.80
Reliable name and reputation	3.76	1.66	2.03
A cigarette to be seen with	1.06	0.15	1.31
Buy it only when on offer	1.13	-0.75	-0.42
Increasing in popularity	1.28	0.73	1.15

NORMATIVE SCORES

NB	0.15
SNB <sub>1</sub>	0.00
SNB <sub>2</sub>	0.26
SNB <sub>3</sub>	-0.17
SNBmc <sub>1</sub>	0.35
SNBmc <sub>2</sub>	-0.11
SNBmc <sub>3</sub>	0.50

BRAND F

	$b_i a_i$ Scale +9 to -9	$b_i$ Scale +3 to -3	$a_i$ Scale +3 to -3
Too strong and harsh	-0.08	-0.96	0.11
Reasonably priced	2.39	1.22	1.65
Good taste/flavour	2.30	0.92	2.38
A pleasant cigarette	2.40	0.99	2.39
Attractive pack	2.37	1.16	1.47
A satisfying, sus- taining cigarette	2.39	0.89	2.39
OK to offer around	3.29	1.66	1.80
Reliable name and reputation	4.33	2.01	2.03
A cigarette to be seen with	1.95	0.76	1.31
Buy it only when on offer	1.36	-0.87	-0.42
Increasing in popularity	1.47	0.90	1.15

NORMATIVE SCORES

NB	0.75
SNB <sub>1</sub>	0.55
SNB <sub>2</sub>	0.74
SNB <sub>3</sub>	0.68
SNBmc <sub>1</sub>	0.77
SNBmc <sub>2</sub>	-0.12
SNBmc <sub>3</sub>	-0.58

BRAND G

	$b_i a_i$	$b_i$	$a_i$
	<u>Scale +9 to -9</u>	<u>Scale +3 to -3</u>	<u>Scale +3 to -3</u>
Too strong and harsh	-0.01	-0.96	0.11
Reasonably priced	1.86	0.89	1.65
Good taste/flavour	2.23	0.85	2.38
A pleasant cigarette	2.43	0.96	2.39
Attractive pack	2.62	1.52	1.47
A satisfying, sus- taining cigarette	2.46	0.96	2.39
OK to offer around	3.44	1.60	1.80
Reliable name and reputation	4.13	1.91	2.03
A cigarette to be seen with	1.80	1.04	1.31
Buy it only when on offer	1.22	-0.75	-0.42
Increasing in popularity	1.09	0.60	1.15

NORMATIVE SCORES

NB	0.79
SNB <sub>1</sub>	0.49
SNB <sub>2</sub>	0.76
SNB <sub>3</sub>	1.31
SNBmc <sub>1</sub>	0.59
SNBmc <sub>2</sub>	-0.18
SNBmc <sub>3</sub>	-1.63

APPENDIX 5(ii)  
ASSOCIATION GRID

N = 246

<u>BELIEF</u>	-----BRAND-----							
	A	B	C	D	E	F	G	None
1	56	67	12	13	2	9	40	3
2	45	61	10	24	2	4	33	4
3	80	57	9	17	3	4	37	5
4	17	17	26	7	69	46	15	9
5	54	34	24	13	11	26	42	13
6	24	22	17	37	7	11	27	8
7	53	52	13	16	5	10	34	10
8	46	33	15	6	10	17	23	2
9	33	14	33	8	56	52	20	3
10	45	24	32	13	23	25	26	5
11	49	30	20	7	17	28	22	10
12	22	10	18	9	43	31	15	7
13	31	17	25	18	40	28	28	8
14	4	30	43	25	31	39	33	7
15	50	39	19	12	13	23	28	5
16	57	37	32	15	26	36	33	2
17	48	25	20	6	16	28	18	6
18	22	11	20	29	26	22	19	7

KEY: Figures in table are percentages.

APPENDIX 5(iii)

BEERS AND LAGERS:  $b_i a_i$ ,  $b_i$  and  $a_i$  scores

<u>BEER-WATNEYS-MEN</u>	$b_i a_i$	$b_i$	$a_i$
<u>BUYING</u>	Scale +9 to -9	Scale +3 to -3	Scale +3 to -3
a good quality beer	2.26*	0.83	2.54*
a well-known beer	2.87*	2.02*	1.31
a beer which offers good value for money	2.05	0.80	2.36*
a beer that tastes good	1.95	0.66	2.70*
a popular beer	1.77	1.43*	0.96
a strong beer	-0.07	0.03	1.79*
having difficulty to obtain it	1.76	-1.38*	-0.92
the beer which says 'what we want is Watneys'	1.31	0.82*	-0.08
the beer with the red barrel	1.34	1.02*	-0.08
Sig. diff.	0.73		

BEER-WATNEYS-WOMEN

BUYING -

a good quality beer	3.09*	1.26	2.51*
a well-known beer	3.35*	1.94	1.66ns
a beer which offers good value for money	2.87*	1.11	2.38*
a beer that tastes good	3.02*	1.19	2.59*
a popular beer	1.97	1.56	1.22ns
a strong beer	0.12	0.18	1.45*
having difficulty to obtain it	2.91*	-1.71	-1.49ns
the beer which says 'what we want is Watneys'	1.68	1.20*	0.25
the beer with the red barrel	1.30	1.48*	0.27
Sig. diff.	1.05		

KEY:  $b_i a_i$  scores: the top belief is \* and other beliefs which are not significantly different from it (at 5%+ level) are also \*; this is based on the pooled SE between the total set of beliefs.

$b_i$  or  $a_i$  scores: \* denote sig. diff. between them at 5% level or above; ns = not significant.

BEER-TRUMANS- MEN

BUYING-	$b_i a_i$	$b_i$	$a_i$
	Scale +9 to -9	Scale +3 to -3	Scale +3 to -3
a good quality beer	2.83*	1.07	2.54*
a well-known beer	2.35*	1.66*	1.31
a beer which offers good value for money	2.33*	0.89	2.36*
a beer that tastes good	2.76*	0.96	2.70*
a popular beer	1.28	1.12	0.96
a strong beer	1.12	0.61	1.79
having difficulty to obtain it	1.16	-0.91	-0.92
the beer with more hops in	1.12	0.54	0.41
Sig. diff.	0.70		

BEER-TRUMANS-WOMEN

BUYING -

a good quality beer	2.67*	1.06	2.51*
a well-known beer	2.55*	1.58	1.66ns
a beer which offers good value for money	2.51*	0.97	2.38*
a beer that tastes good	2.72*	1.05	2.59*
a popular beer	1.60	1.18	1.22
a strong beer	0.90	0.48	1.45
having difficulty to obtain it	1.13	-0.83	-1.49
the beer with more hops in	1.31	0.56	0.37
Sig. diff.	0.85		

BEER-WHITBREAD-MEN

	$b_i$	$b_i$	$a_i$
<u>BUYING -</u>	<u>Scale +9 to -9</u>	<u>Scale +3 to -3</u>	<u>Scale +3 to -3</u>
a good quality beer	2.87*	1.11	2.54*
a well-known beer	2.29*	1.62*	1.31
a beer which offers good value for money	2.15	0.86	2.36
a beer that tastes good	2.67*	0.96	2.70*
a popular beer	1.40	1.33	0.96
a strong beer	0.92	0.46	1.79
having difficulty to obtain it	1.08	-0.77	-0.92
the pint that thinks its a quart	1.43	0.31	0.05
the beer with the Tankard and Trophy emblem	1.30	0.98	0.28
Sig. diff.	0.65		

BEER-WHITBREAD-WOMEN

<u>BUYING -</u>			
a good quality beer	2.67*	1.08	2.51*
a well-known beer	2.39*	1.40	1.66ns
a beer which offers good value for money	2.51*	0.95	2.38*
a beer that tastes good	3.01*	1.08	2.59*
a popular beer	1.58	1.14	1.22
a strong beer	0.84	0.47	1.45
having difficulty to obtain it	1.76	-0.92	-1.49
the pint that thinks its a quart	0.74	0.59	0.23
the beer with the Tankard and Trophy emblem	0.71	0.86	0.21
Sig. diff.	0.84		

BEER-COURAGE-MEN

	$b_i a_i$	$b_i$	$a_i$
<u>BUYING-</u>	Scale +9 to -9	Scale +3 to -3	Scale +3 to -3
a good quality beer	2.56*	0.92	2.54*
a well-known beer	2.36*	1.51	1.31ns
a beer which offers good value for money	1.95*	0.78	2.36*
a beer that tastes good	2.19*	0.82	2.70*
a popular beer	1.57	1.08	0.96
a strong beer	0.99	0.47	1.79
having difficulty to obtain it	1.00	-0.84	-0.92
the beer with the cockerel emblem	1.33	0.93	0.15
Sig. diff.	0.68		

BEER-COURAGE-WOMEN

<u>BUYING -</u>	$b_i a_i$	$b_i$	$a_i$
a good quality beer	3.09*	1.21	2.51*
a well-known beer	2.73*	1.55	1.66ns
a beer which offers good value for money	2.30*	0.85	2.38*
a beer that tastes good	2.65*	0.96	2.59*
a popular beer	1.57	1.21	1.22
a strong beer	0.96	0.56	1.45
having difficulty to obtain it	1.87	-1.08	-1.49
the beer with the cockerel emblem	1.36	1.10	0.49
Sig. diff.	0.86		

BEER-BASS. CHARR.-MEN

<u>BUYING-</u>	$b_i a_i$ Scale +9 to -9	$b_i$ Scale +3 to -3	$a_i$ Scale +3 to -3
a good quality beer	1.56*	0.54	2.54*
a well-known beer	1.42*	1.08	1.31ns
a beer which offers good value for money	0.95*	0.39	2.36*
a beer that tastes good	1.29*	0.46	2.70*
a popular beer	0.92	0.82	0.96
a strong beer	0.81	0.37	1.79
having difficulty to obtain it	0.61	-0.59	-0.92
the beer with the Toby jug	1.11	0.68	-0.01
Sig. diff.	0.62		

BEER-BASS. CHARR.-WOMEN

<u>BUYING -</u>	$b_i a_i$	$b_i$	$a_i$
a good quality beer	2.05*	0.81	2.51*
a well-known beer	1.95*	1.23	1.66*
a beer which offers good value for money	1.77*	0.69	2.38*
a beer that tastes good	1.85*	0.71	2.59*
a popular beer	1.20	0.91	1.22
a strong beer	0.47	0.31	1.45
having difficulty to obtain it	1.54*	-0.94	-1.49*
the beer with the Toby jug	0.44	0.73	0.16
Sig. diff.	0.85		

BEER-IND COOPE-MEN

	$b_i a_i$	$b_i$	$a_i$
<u>BUYING -</u>	Scale +9 to -9	Scale +3 to -3	Scale +3 to -3
a good quality beer	2.53*	0.95	2.54*
a well-known beer	2.06*	1.50	1.31ns
a beer which offers good value for money	2.02*	0.81	2.36*
a beer that tastes good	2.64*	0.93	2.70*
a popular beer	1.41	1.07	0.96
a strong beer	0.59	0.28	1.79
having difficulty to obtain it	1.11	-1.10	-0.92
Sig. diff.	0.68		

BEER-IND COOPE-WOMEN

<u>BUYING -</u>	$b_i a_i$	$b_i$	$a_i$
a good quality beer	2.76*	1.11	2.51*
a well-known beer	2.51*	1.60	1.66ns
a beer which offers good value for money	2.41*	0.95	2.38*
a beer that tastes good	2.71*	1.06	2.59*
a popular beer	1.86*	1.29	1.22ns
a strong beer	0.58	0.43	1.45
having difficulty to obtain it	2.06*	-1.15	-1.49ns
Sig. diff.	0.94		

BEER-S&N-MEN

<u>BUYING -</u>	$b_i a_i$ Scale +9 to -9	$b_i$ Scale +3 to -3	$a_i$ Scale +3 to -3
a good quality beer	3.88*	1.48	2.54*
a well-known beer	1.30	1.08	1.31
a beer which offers good value for money	2.64	1.02	2.36
a beer that tastes good	3.81*	1.39	2.70*
a popular beer	0.61	0.80	0.96
a strong beer	2.70	1.47	1.79
having difficulty to obtain it	-0.07	-0.06	-0.92
Sig. diff.	0.71		

BEER-S&N-WOMEN

<u>BUYING -</u>	$b_i a_i$ Scale +9 to -9	$b_i$ Scale +3 to -3	$a_i$ Scale +3 to -3
a good quality beer	2.67*	1.00	2.51*
a well-known beer	1.72*	0.86	1.66*
a beer which offers good value for money	2.06*	0.82	2.38*
a beer that tastes good	2.25*	0.88	2.59*
a popular beer	1.16	0.61	1.22
a strong beer	1.83*	1.05	1.45*
having difficulty to obtain it	0.32	-0.18	-1.49
Sig. diff.	0.97		

LAGER-HARP-MEN

	$b_i a_i$	$b_i$	$a_i$
<u>BUYING-</u>	Scale +9 to -9	Scale +3 to -3	Scale +3 to -3
a lager which offers good value for money	2.71*	0.97	2.34*
a good quality lager	2.47*	0.93	2.46*
a lager that tastes good	2.65*	0.97	2.61*
a strong lager	0.73	0.31	1.83*
a refreshing and thirst quenching lager	2.89*	1.08	2.29*
a lager with a foreign name	-0.07	-0.96*	0.47
a lager which is easily available	2.83*	1.52	1.71ns
a Pils lager	0.38	-0.36	0.46*
a popular lager	1.39	1.12	0.96ns
a lager which is not well-known	0.60	-1.09*	-0.35
a British made lager	0.41	0.97*	0.24
the lager from Guinness and Park Royal	0.71	0.46*	-0.10
Sig. diff.	0.70		

LAGER-HARP-WOMENBUYING-

a lager which offers good value for money	3.95*	1.47	2.56*
a good quality lager	3.86*	1.46	2.53*
a lager that tastes good	3.69*	1.36	2.70*
a strong lager	1.41	0.74	1.74*
a refreshing and thirst quenching lager	3.97*	1.49	2.48*
a lager with a foreign name	0.03	-0.53	0.48*
a lager which is easily available	3.96*	1.73	2.05ns
a Pils lager	0.85	-0.34	0.16*
a popular lager	2.25	1.47	1.20ns
a lager which is not well-known	1.24	-1.45*	-0.58
a British made lager	0.36	0.72*	0.23
the lager from Guinness and Park Royal	1.17	0.33	0.11ns
Sig. diff.	0.98		

LAGER-SKOL-MEN

	b <sub>i</sub> a <sub>i</sub>	b <sub>i</sub>	a <sub>i</sub>
<u>BUYING -</u>	<u>Scale +9 to -9</u>	<u>Scale +3 to -3</u>	<u>Scale +3 to -3</u>
a lager which offers good value for money	2.45*	0.88	2.34*
a good quality lager	2.74*	1.02	2.46*
a lager that tastes good	2.58*	0.92	2.61*
a strong lager	0.87	0.40	1.83
a refreshing and thirst quenching lager	2.85*	1.16	2.29*
a lager with a foreign name	0.89	0.83	0.47
a lager which is easily available	2.82*	1.45	1.71ns
a Pils lager	0.72	-0.26	0.46
a popular lager	1.33	1.12	0.96
a lager which is not well-known	0.73	-1.30	-0.35
a British made lager	0.35	0.12	0.24
Sig. diff.	0.68		

LAGER-SKOL- WOMENBUYING -

a lager which offers good value for money	3.88*	1.47	2.56*
a good quality lager	3.69*	1.42	2.53*
a lager that tastes good	3.81*	1.41	2.70*
a strong lager	1.02	0.58	1.74
a refreshing and thirst quenching lager	3.90*	1.44	2.48*
a lager with a foreign name	0.67	0.81	0.48
a lager which is easily available	3.55*	1.57	2.05*
a Pils lager	0.60	-0.33	0.16
a popular lager	1.99	1.43	1.20
a lager which is not well-known	1.13	-1.47	-0.58
a British made lager	0.06	-0.15	0.23
Sig. diff.	0.92		

LAGER-KRONENBOURG-MEN

	$b_i a_i$	$b_i$	$a_i$
<u>BUYING -</u>	<u>Scale +9 to -9</u>	<u>Scale +3 to -3</u>	<u>Scale +3 to -3</u>
a lager which offers			
good value for money	3.15*	1.13	2.34*
a good quality lager	3.61*	1.37	2.46*
a lager that tastes			
good	3.62*	1.33	2.61*
a strong lager	2.69	1.20	1.83
a refreshing and thirst			
quenching lager	3.23*	1.29	2.29*
a lager with a foreign			
name	1.35	1.41	0.47
a lager which is easily			
available	1.62	0.79	1.71
a Pils lager	1.04	0.01	0.46
a popular lager	1.37	0.77	0.96
a lager which is not			
well-known	0.36	-0.62	-0.35
a British made lager	0.10	-0.78	0.24
Sig. diff.	0.64		

LAGER-KRONENBOURG-WOMENBUYING -

a lager which offers			
good value for money	3.11*	1.16	2.56*
a good quality lager	3.43*	1.28	2.53*
a lager that tastes			
good	3.34*	1.22	2.70*
a strong lager	2.37	1.11	1.74
a refreshing and thirst			
quenching lager	3.32*	1.28	2.48*
a lager with a foreign			
name	1.17	1.32	0.48
a lager which is easily			
available	2.02	0.79	2.05
a Pils lager	0.60	-0.17	0.16
a popular lager	1.49	0.78	1.20
a lager which is not			
well-known	0.84	-0.65	-0.58
a British made lager	0.12	-0.86	0.23
Sig. diff.	0.92		

<u>LAGER-CARLSBERG-MEN</u>	$b_i a_i$	$b_i$	$a_i$
<u>BUYING -</u>	Scale +9 to -9	Scale +3 to -3	Scale +3 to -3
a lager which offers good value for money	3.79*	1.39	2.34*
a good quality lager	4.11*	1.55	2.46*
a lager that tastes good	4.44*	1.59	2.61*
a strong lager	2.58	1.17	1.83
a refreshing and thirst quenching lager	3.83*	1.51	2.29*
a lager with a foreign name	1.22	1.32	0.47
a lager which is easily available	3.10	1.65	1.71
a Pils lager	1.03	0.26	0.46
a popular lager	1.91	1.38	0.96
a lager which is not well-known	1.07	-1.20	-0.35
a British made lager	0.08	-0.45	0.24
the best lager in the world	1.12	0.15	1.05
Danish lager brewed in England by Danes	1.49	0.86	0.71
Sig. diff.	0.69		

LAGER-CARLSBER-WOMEN

BUYING -

a lager which offers good value for money	4.46*	1.65	2.56*
a good quality lager	4.71*	1.79	2.53*
a lager that tastes good	4.83*	1.74	2.70*
a strong lager	2.38	1.15	1.74
a refreshing and thirst quenching lager	4.39*	1.63	2.48*
a lager with a foreign name	0.99	1.29	0.48
a lager which is easily available	3.57	1.68	2.05
a Pils lager	0.84	-0.22	0.16
a popular lager	1.88	1.38	1.20
a lager which is not well-known	1.17	-1.26	-0.58
a British made lager	0.13	-0.76	0.23
the best lager in the world	1.05	0.31	1.00
Danish lager brewed in England by Danes	1.25	0.96	0.49
Sig. diff.	0.96		

LAGER-HEINEKEN-MEN

BUYING -	b. a. i i	b. i	a. i
	Scale +9 to -9	Scale +3 to -3	Scale +3 to -3
a lager which offers good value for money	3.61*	1.33	2.34*
a good quality lager	3.76*	1.42	2.46*
a lager that tastes good	3.85*	1.38	2.61*
a strong lager	2.32	1.04	1.83
a refreshing and thirst quenching lager	3.74*	1.44	2.29*
a lager with a foreign name	1.40	1.32	0.47
a lager which is easily available	2.92	1.50	1.71
a Pils lager	0.63	0.09	0.46
a popular lager	1.72	1.29	0.96
a lager which is not well-known	0.77	-1.08	-0.35
a British made lager	0.17	-0.49	0.24
the lager which 'refreshes the parts other beers cannot reach'	2.06	0.90	0.65
Sig. diff.	0.67		

LAGER-HEINEKEN-WOMENBUYING -

a lager which offers good value for money	4.64*	1.71	2.56*
a good quality lager	4.90*	1.83	2.53*
a lager that tastes good	5.10*	1.83	2.70*
a strong lager	2.45	1.14	1.74
a refreshing and thirst quenching lager	4.49*	1.68	2.48*
a lager with a foreign name	1.26	1.39	0.48
a lager which is easily available	3.93	1.79	2.05
a Pils lager	0.61	-0.31	0.16
a popular lager	2.41	1.49	1.20
a lager which is not well-known	1.50	-1.35	-0.58
a British made lager	0.50	-0.83	0.23
the lager which 'refreshes the parts other beers cannot reach'	2.66	1.32	0.78
Sig. diff.	0.96		

LAGER-HOLSTEN-MEN

	$b_i$	$a_i$	$b_i$	$a_i$
<u>BUYING -</u>	Scale +9 to -9	Scale +3 to -3	Scale +3 to -3	Scale +3 to -3
a lager which offers good value for money	1.92	0.64	2.34	
a good quality lager	2.50*	0.94	2.46*	
a lager that tastes good	2.38*	0.85	2.61*	
a strong lager	1.80	0.83	1.83	
a refreshing and thirst quenching lager	2.37*	0.90	2.29*	
a lager with a foreign name	1.09	0.90	0.47	
a lager which is easily available	1.16	0.42	1.71	
a Pils lager	0.82	0.35	0.46	
a popular lager	0.88	0.39	0.96	
a lager which is not well-known	0.16	-0.26	-0.35	
a British made lager	-0.06	-0.70	0.24	
a German lager	0.97	0.64	0.49	
a lager with a diet version	0.85	0.14	-0.39	
Sig. diff.	0.61			

LAGER-HOLSTEN-WOMEN

<u>BUYING -</u>	$b_i$	$a_i$	$b_i$	$a_i$
	Scale +9 to -9	Scale +3 to -3	Scale +3 to -3	Scale +3 to -3
a lager which offers good value for money	2.13*	0.76	2.56*	
a good quality lager	2.69*	1.08	2.53*	
a lager that tastes good	2.57*	0.96	2.70*	
a strong lager	1.51	0.78	1.74	
a refreshing and thirst quenching lager	2.39*	0.96	2.48*	
a lager with a foreign name	1.30	1.16	0.48	
a lager which is easily available	1.09	0.59	2.05	
a Pils lager	0.70	0.34	0.16	
a popular lager	0.87	0.65	1.20	
a lager which is not well-known	0.65	-0.34	-0.58	
a British made lager	0.38	-0.59	0.23	
a German lager	1.04	0.98	0.48	
a lager with a diet version	0.71	0.18	-0.24	
Sig. diff.	0.90			

APPENDIX 5(iii) cont.

DRINKS MARKETS: COMMENTARY ON MEAN SCORE (b<sub>i</sub>) AND FISHBEIN b<sub>1a</sub> ANALYSES

MEAN SCORES - BEERS

For each brand the mean scores for the beliefs are presented separately and not in two ways as was done for the cigarette market in the main commentary. This method of presentation has been followed here because

- the number of beliefs per brand varies, as in these markets (unlike the cigarette market) we have many brand specific beliefs. These relate to the past promotional effort of the brands and are unique to that brand.

-The total number of beliefs per brand can be larger than in the cigarette study and this makes it more difficult to focus on the belief structure of a given brand, if that data is presented belief by belief.

The beliefs for the different brewers' beers are given in Appendix 5(iv). Ignoring the belief having difficulty to obtain it, as none of the brands were really difficult to obtain, the remaining scores were examined as follows. The top score and only the one(s) not significantly different from it are commented upon, as they underpin the attitude structure for a given brand most strongly. For Watneys and Ind Coope the top belief for both men and women is buying a well-known beer and amongst women the top place for Ind Coope is shared by buying a popular beer. For Trumans the top belief for men and women is again buying a well-known beer and all the other beliefs are significantly different from this one. For Whitbread the same holds true amongst men, but amongst women there are 4 beliefs which are not significantly different from the top one, which is buying a well-known beer. For Courage top rank goes to buying a well-known beer for men and to this belief must be added buying a popular beer and buying a good quality beer for women. For Bass Charrington the top two beliefs are not different from one another, amongst both men and women and they are: buying a well-known beer and buying a popular beer. For S & N the top three beliefs hang together for men: buying a good quality beer, buying a strong beer and buying a beer that tastes good. For women the top belief is buying a strong beer and 4 other beliefs are not significantly different from it. This last brand is clearly the most different on the basic seven beliefs, but some of the other brewers' images stand out better when the brewers' specific promotional beliefs are taken into account. Amongst women more beliefs come into an equal position with the belief in the top rank than for men; this would suggest that salience for them is a more complex phenomenon. The main

Objectives of the promotional campaign for a particular brewers' beers would suggest which beliefs to improve. There is also the additional point that in some instances brewers are promoting all their beers together (and this data would help in this respect) whereas others are promoting different beer brands. Not knowing the full circumstances, marketing advice for this data is difficult to produce, particularly as the overall measure (Aact) shows all the brewers' beers to be very close. It should also be noted that a strong beer appears to be a positive belief (all the scores are positive and so are the  $a_i$  scores for it). A low score may not mean it needs improving - the optimum may vary for different brewers' beers. The mean scores give little help here; the Fishbein  $b_i a_i$  analysis is more illuminating as will be demonstrated below. Also there is very little difference between the beers on having difficulty to obtain it; although a salient belief, it appears almost redundant in practice.

Bearing in mind that the scores range from +3 to -3 for these means, they are all on the low side and this suggests that images for all the brewers' beers in the take-home market are weak and offer a real opportunity for improvement. This is further underlined by the fact that the beliefs which appear to work most effectively are fairly general items like well-known and popular, ie items which require little personal experience of the beers.

#### THE FISHBEIN $b_i a_i$ ANALYSIS - BEERS

The scores are given in Appendix 5(iii). Again the  $b_i a_i$  scores underline the fact that the scores are on the low side in this market. For each brand the top  $b_i a_i$  score will be presented and any equal to it. A full analysis of all  $b_i a_i$  scores is given only for the first brewers' beer: Watneys.

For Watneys the top  $b_i a_i$  score and those equal to it are:

	<u><math>b_i a_i</math></u>	<u><math>b_i</math></u>	<u><math>a_i</math></u>
<u>MEN</u>			
buying a well-known beer	2.87	2.02*	1.31
buying a good quality beer	2.26	0.83	2.54*
<u>WOMEN</u>			
buying a well-known beer	3.35	1.94	1.66ns
buying a good quality beer	3.09	1.26	2.51*
buying a beer that tastes good	3.02	1.19	2.59*
having difficulty to obtain it	2.91	-1.71	-1.49ns
buyg. a beer wh. offers gvfm.	2.87	1.11	2.38*

Key:  $\dot{g}vfm$  = good value for money

\* difference between  $b_i$  and  $a_i$  scores significant at 5% level or above.

ns = not significant.

Amongst men two  $b_i a_i$  beliefs are close at the top and indicate that Watneys is very well known, but could be improved in terms of quality. For women more  $b_i a_i$  beliefs are equal to the top one than for men and of these two need no improvement (well-known and difficult to obtain) whereas the others could all be improved, as the  $a_i$  scores are larger than the  $b_i$  scores: good quality, tastes good and good value for money.

For the remaining beliefs amongst men four need no improvement (popular, difficult to obtain, what we want is Watneys and the beer with the red barrel) but value for money, good taste and strength could be improved. For the remaining beliefs amongst women, the two advertising slogans and popular need no improvements, but strength does.

Comparing this detailed analysis with the mean score data only, it is more informative in the case of the  $b_i a_i$  analysis, indicating more precisely which beliefs could be improved. For example, amongst men the mean score data suggest that good quality beer is a belief which works at a low level for Watneys' beers and as there are other mean scores which are equally low, it is difficult to decide what emphasis to place on the improvement of this compared with other beliefs. The Fishbein  $b_i a_i$  analysis on the other hand, raises the  $b_i a_i$  score for good quality beer to the top of the  $b_i a_i$  beliefs and this would suggest that improving this belief should have priority over others.

For Watneys, like for Brand A in the main commentary, the data were presented in considerable detail. For the remaining brewers' beers, the same detailed analysis was undertaken and it pointed to very similar conclusions. They are therefore not repeated here and only the top  $b_i a_i$  scores will be considered for each brewers' beers.

For Trumans the top  $b_i a_i$  scores are:

	<u><math>b_i a_i</math></u>	<u><math>b_i</math></u>	<u><math>a_i</math></u>
<u>MEN</u>			
buying a good quality beer	2.83	1.07	2.54*
buying a beer that tastes good	2.76	0.96	2.70*
buying a well-known beer	2.35	1.66*	1.31
buying a beer which offers good value for money	2.33	0.89	2.36*

WOMEN

buying a beer that tastes good	2.72	1.05	2.59*
buying a good quality beer	2.67	1.06	2.51*
buying a well-known beer	2.55	1.58	1.66ns
buying a beer which offers good value for money	2.51	0.97	2.38*

For men all the  $b_i$  and  $a_i$  scores were significantly different; all beliefs with the exception of well-known, could be improved. For women, the differences were not significant for well-known, all the rest were and they suggest the possibility of improving this brewers' beers along these dimensions.

The  $b_i, a_i$  scores that work strongly for Whitbreads' beers are:

MEN

buying a good quality beer	2.87	1.11	2.54*
buying a beer that tastes good	2.67	0.96	2.70*
buying a well-known beer	2.29	1.62*	1.31

WOMEN

buying a beer that tastes good	3.01	1.08	2.59*
buying a good quality beer	2.67	1.08	2.51*
buying a beer which offers good value for money	2.51	0.95	2.38*
buying a well-known beer	2.39	1.40	1.66ns

For men the first two beliefs could be improved; for women the difference for well-known is not significant, but the rest might be improved.

Four  $b_i, a_i$  scores contribute most to the image of Courage beers:

MEN

buying a good quality beer	2.56	0.92	2.54*
buying a well-known beer	2.36	1.51	1.31ns
buying a beer that tastes good	2.19	0.82	2.70*
buying a beer which offers good value for money	1.95	0.78	2.36*

WOMEN

buying a good quality beer	3.09	1.21	2.51*
buying a well-known beer	2.73	1.55	1.66ns
buying a beer that tastes good	2.65	0.96	2.59*
buying a beer that offers good value for money	2.30	0.85	2.38*

This is the second example where the same beliefs work for both men and women. Trumans' beers was the first instance of this. For both men and

women the difference for well-known is not significant, the rest are and they could all be improved.

The same four beliefs work hard for Bass Charringtons for men, but for women it is five beliefs:

MEN

buying a good quality beer	1.56	0.54	2.54*
buying a well-known beer	1.42	1.08	1.31ns
buying a beer that tastes good	1.29	0.46	2.70*
buying a beer which offers good value for money	0.95	0.39	2.36*

WOMEN

buying a good quality beer	2.05	0.81	2.51*
buying a well-known beer	1.95	1.23	1.66*
buying a beer that tastes good	1.85	0.71	2.59*
buying a beer which offers good value for money	1.77	0.69	2.38*
having difficulty to obtain it	1.54	-0.94	-1.49*

All the  $b_{i1}$  score differences are significant, except for well-known amongst men; these scores suggest that there is room for improvement.

The  $b_{i1}$  scores for Ind Coope with the most positive effect on overall attitude are:

MEN

buying the beer that tastes good	2.64	0.93	2.70*
buying a good quality beer	2.53	0.95	2.54*
buying a well-known beer	2.06	1.50	1.31ns
buying a beer which offers good value for money	2.02	0.81	2.36*

WOMEN

buying a good quality beer	2.76	1.11	2.51*
buying a beer that tastes good	2.71	1.06	2.59*
buying a well-known beer	2.51	1.60	1.66ns
buying a beer which offers good value for money	2.41	0.95	2.38*
having difficulty to obtain it	2.06	-1.15	-1.49ns
buying a popular beer	1.86	1.29	1.22ns

Amongst men, all the differences are significant, except for well-known and all the former point to the fact that the beers could be improved on these beliefs. Amongst women, well-known, popular and having difficulty to obtain it are not significant, the rest could be improved.

For Scottish and Newcastle the following beliefs emerge strongly:

MEN

buying a good quality beer	3.88	1.48	2.54*
buying a beer that tastes good	3.81	1.39	2.70*

WOMEN

buying a good quality beer	2.67	1.00	2.51*
buying a beer that tastes good	2.25	0.88	2.59*
buying a beer which offers good value for money	2.06	0.82	2.38*
buying a strong beer	1.83	1.05	1.45*
buying a well-known beer	1.72	0.86	1.66*

All these differences are significant and they show the brewers' beers less satisfactory than they might be.

MEAN SCORES - LAGERS

Some brands are well-known (Harp, Skol and Carlsberg) and even the others are reasonably well-known. For the other beliefs the picture that emerges is as follows. For Harp the top mean score amongst men and women is a lager which is easily available, amongst the former it is significantly different from all the other beliefs, but amongst women five other beliefs share its top place. For Skol, a lager which is easily available is top amongst men; amongst women a lager which is easily available shares top place with five other beliefs. For Kronenbourg, buying a lager with a foreign name, is the belief with the highest mean score for both men and women. Amongst men this position is shared with 4 other beliefs; 5 amongst women. Men see Carlsberg as the lager which is easily available, tastes good, is of good quality, refreshing and thirst quenching, offers good value for money and is popular. Women see a good quality lager, that tastes good, is easily available, offers good value for money, is refreshing and thirst quenching. Heineken is seen by men as easily available, as well as refreshing and thirst quenching, of good quality and taste, offers good value for money, has a foreign name and is popular. Women by contrast see it essentially as a good quality lager with a good taste which is easily available, offers good value for money, is refreshing and thirst quenching and popular. Finally Holsten is seen as a good quality lager by men, which is also refreshing and thirst quenching, has a foreign name, tastes good and is strong. Women see it as a lager with a foreign name, as well as a lager of good quality, which is German, tastes good and is refreshing and thirst quenching.

In terms of overall attitude (Aact) Carlsberg and Heineken stand out

amongst the men whereas these two brands and Harp and Skol are not significantly different from one another amongst the women. Even the beliefs that top the list for each brand have fairly low mean scores, although they are higher than for brewers' beers. In terms of marketing advice, clearly some of these beliefs could be improved, depending on the particular strategy for the brand, and there is certainly room for improving those beliefs which come lower down in the rank order for each brand than those described here. The above commentary suggests that the way the beliefs are endorsed for each brand differs and that there are real differences between men and women in this market (Appendix 5(iv)).

THE FISHBEIN  $b_{ii}$  ANALYSIS - LAGERS

In the case of the first lager brand Harp, the  $b_{ii}$  scores contributing most to overall attitude are:

	<u><math>b_{ii}</math></u>	<u><math>b_i</math></u>	<u><math>a_i</math></u>
<u>MEN</u>			
buying a refreshing and thirst quenching lager	2.89	1.08	2.29*
buying a lager which is easily available	2.83	1.52	1.71ns
buying a lager which offers good value for money	2.71	0.97	2.34*
buying a lager that tastes good	2.65	0.97	2.61*
buying a good quality lager	2.47	0.93	2.46*
<u>WOMEN</u>			
buying a refreshing and thirst quenching lager	3.97	1.49	2.48*
buying a lager which is easily available	3.96	1.73	2.05ns
buying a lager which offers good value for money	3.95	1.47	2.56*
buying a good quality lager	3.86	1.46	2.53*
buying a lager that tastes good	3.69	1.36	2.70*

The same  $b_{ii}$  scores work for both men and women; in both cases the differences between the  $b_i$  and  $a_i$  scores is not significant for easily available. For the rest of the scores there is room for improving the brand. Among the beliefs not listed above, one stands out, namely strength. The brand is not seen as particularly strong. This applies to both men and women.

Compared with the mean score data, this analysis gives more information.

Easy availability is the top belief amongst both men and women; this is the mean score or  $b_i$  score. When compared with the  $a_i$  score, there is no significant difference. The remaining mean or  $b_i$  scores amongst the men are all significantly different from this one and it is possible to argue that they could be improved, but it is only the Fishbein  $b_i a_i$  analysis which suggests (by the size of the  $b_i a_i$  scores) where most of the benefit of improvement might be obtained. Amongst women the top six  $b_i$  scores are not exactly the same beliefs that come top on the  $b_i a_i$  scores and so again the Fishbein  $b_i a_i$  analysis provides some additional guidance as to where improvement might pay off most.

For Skol the top  $b_i a_i$  scores are as follows:

	<u><math>b_i a_i</math></u>	<u><math>b_i</math></u>	<u><math>a_i</math></u>
<u>MEN</u>			
buying a refreshing and thirst quenching lager	2.85	1.16	2.29*
buying a lager which is easily available	2.82	1.45	1.71ns
buying a good quality lager	2.74	1.02	2.46*
buying a lager that tastes good	2.58	0.92	2.61*
buying a lager which offers good value for money	2.45	0.88	2.34*
<u>WOMEN</u>			
buying a refreshing and thirst quenching lager	3.90	1.44	2.48*
buying a lager which offers good value for money	3.88	1.47	2.56*
buying a lager that tastes good	3.81	1.41	2.70*
buying a good quality lager	3.69	1.42	2.53*
buying a lager which is easily available	3.55	1.57	2.05*

All these individual  $b_i$  and  $a_i$  scores are significantly different, except for availability amongst men and and all instances improvement is indicated.

For Kronenbourg we have as top scores:

<u>MEN</u>			
buying a lager that tastes good	3.62	1.33	2.61*
buying a good quality lager	3.61	1.37	2.46*
buying a refreshing and thirst quenching lager	3.23	1.29	2.29*
buying a lager which offers good value for money	3.15	1.13	2.34*

WOMEN

buying a good quality lager	3.43	1.28	2.53*
buying a lager that tastes good	3.34	1.22	2.70*
buying a refreshing and thirst quenching lager	3.32	1.28	2.48*
buying a lager which offers good value for money	3.11	1.16	2.56*

In all instances the  $a_i$  scores are significantly higher than the  $b_i$  scores and point to the possibility of improving the brand.

For Carlsberg four  $b_i a_i$  scores stand out amongst men and women:

MEN

buying a lager that tastes good	4.44	1.59	2.61*
buying a good quality lager	4.11	1.55	2.46*
buying a refreshing and thirst quenching lager	3.83	1.51	2.29*
buying a lager which offers good value for money	3.79	1.39	2.34*

WOMEN

buying a lager that tastes good	4.83	1.74	2.70*
buying a good quality lager	4.71	1.79	2.53*
buying a lager which offers good value for money	4.46	1.65	2.56*
buying a refreshing and thirst quenching lager	4.39	1.63	2.48*

All these  $b_i$  and  $a_i$  differences are significant and in all cases the mean scores ( $b_i$ ) for the brand are lower than the evaluative scores ( $a_i$ ) and this suggests that improvement is possible.

The same four  $b_i a_i$  scores are top for Heineken for both men and women:

MEN

buying a lager that tastes good	3.85	1.38	2.61*
buying a good quality lager	3.76	1.42	2.46*
buying a refreshing and thirst quenching lager	3.74	1.44	2.29*
buying a lager which offers good value for money	3.61	1.33	2.34*

WOMEN

buying a lager that tastes good	5.10	1.83	2.70*
buying a good quality lager	4.90	1.83	2.53*

buying a lager which offers good

value for money	4.64	1.71	2.56*
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buying a refreshing and thirst

quenching lager	4.49	1.68	2.48*
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All the differences between the  $b_i$  and  $a_i$  scores for this brand are again significant and all can be improved.

For Holsten there are three top  $b_i a_i$  scores for men and four for women:

MEN

buying a good quality lager	2.50	0.94	2.46*
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buying a lager that tastes good	2.38	0.85	2.61*
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buying a refreshing and thirst

quenching lager	2.37	0.90	2.29*
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WOMEN

buying a good quality lager	2.69	1.08	2.53*
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buying a lager that tastes good	2.57	0.96	2.70*
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buying a refreshing and thirst

quenching lager	2.39	0.96	2.48*
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buying a lager which offers good

value for money	2.13	0.76	2.56*
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Again all these differences are significant and show that the brand could be improved.

The Fishbein  $b_i a_i$  analysis for the brands suggests that the beliefs which work hard to underpin the overall attitude for each brand vary and also that there are differences in the data between men and women. Even in the top  $b_i a_i$  scores for each brand we find that in most cases the individual  $b_i$  and  $a_i$  differences show up weaknesses that can be improved.

APPENDIX 5(iv)

BEERS AND LAGERS:  $b_i$  scores: male/female  
differences

<u>BEERS - WATNEYS</u>	<u>MEN</u>	<u>WOMEN</u>
<u>BUYING WATNEYS FOR DRINKING AT HOME IS:</u>		
buying a good quality beer	0.83	1.26
buying a well-known beer	<u>2.02</u>	<u>1.94</u>
buying a beer which offers good value for money	0.80	1.11
buying a beer that tastes good	0.66	1.19
buying a popular beer	1.43	1.56*
buying a strong beer	0.03	0.18
means having difficulty to obtain it	-1.38	-1.71
buying the beer which says 'what we want is Watneys'	0.82	1.20
buying the beer with the red barrel	1.02	1.48
Sig. diff.	0.33	0.39

Key: Men: sample size = 196

Women: sample size = 103

Top score is underlined; score(s) not sig. different from top score  
at 5% level or above is \*.

A sig. difference relates to the pooled SE between relevant number of  
beliefs for a given brand.

BEER - TRUMANS

	<u>MEN</u>	<u>WOMEN</u>
<u>BUYING TRUMANS TO DRINK AT HOME IS:</u>		
buying a good quality beer	1.07	1.06
buying a well-known beer	<u>1.66</u>	<u>1.58</u>
buying a beer which offers good value for money	0.89	0.97
buying a beer that tastes good	0.96	1.05
buying a popular beer	1.12	1.18
buying a strong beer	0.61	0.48
means having difficulty to obtain it	-0.91	-0.83
buying the beer with more hops in Sig. diff.	0.54 0.29	0.56 0.34

BEER - WHITBREAD

MEN                      WOMEN

BUYING WHITBREAD TO DRINK AT HOME IS:

buying a good quality beer	1.11	1.08*
buying a well-known beer	<u>1.62</u>	<u>1.40</u>
buying a beer which offers good value for money	0.86	0.95*
buying a beer that tastes good	0.96	1.08*
buying a popular beer	1.33	1.14*
buying a strong beer	0.46	0.47
means having difficulty to obtain it	-0.77	-0.92
buying the pint that thinks its a quart	0.31	0.59
buying the beer with the Tankard and Trophy emblems	0.98	0.86
Sig. diff.	0.29	0.48

BEER - COURAGE

	<u>MEN</u>	<u>WOMEN</u>
<u>BUYING COURAGE TO DRINK AT HOME IS:</u>		
buying good quality beer	0.92	1.21*
buying a well-known beer	<u>1.51</u>	<u>1.55</u>
buying a beer which offers good value for money	0.78	0.85
buying a beer that tastes good	0.82	0.96
buying a popular beer	1.08	1.21*
buying a strong beer	0.47	0.56
means having difficulty to obtain it	-0.84	-1.08
buying the beer with the cockerel emblem	0.93	1.10
Sig. diff.	0.29	0.36

BEER - BASS CHARRINGTON

	<u>MEN</u>	<u>WOMEN</u>
<u>BUYING BASS CHARRINGTON TO DRINK AT HOME IS:</u>		
buying a good quality beer	0.54	0.81
buying a well-known beer	<u>1.08</u>	<u>1.23</u>
buying a beer which offers good value for money	0.39	0.69
buying a beer that tastes good	0.46	0.71
buying a popular beer	0.82*	0.91*
buying a strong beer	0.37	0.31
means having difficulty to obtain it	-0.59	-0.94
buying the beer with the Toby Jug	0.68	0.73
Sig. diff.	0.27	0.33

BEER - IND COOPE

	<u>MEN</u>	<u>WOMEN</u>
<u>BUYING IND COOPE TO DRINK AT HOME IS:</u>		
buying a good quality beer	0.95	1.11
buying a well-known beer	<u>1.50</u>	<u>1.60</u>
buying a beer which offers good value for money	0.81	0.95
buying a beer that tastes good	0.93	1.06
buying a popular beer	1.07	1.29*
buying a strong beer	0.28	0.43
means having difficulty to obtain it	-1.10	-1.15
Sig. diff.	0.28	0.35

BEER - SCOTTISH & NEWCASTLE

	<u>MEN</u>	<u>WOMEN</u>
<u>BUYING SCOTTISH &amp; NEWCASTLE TO DRINK AT HOME IS:</u>		
buying a good quality beer	<u>1.48</u>	1.00*
buying a well-known beer	1.08	0.86*
buying a beer which offers good value for money	1.02	0.82*
buying a beer that tastes good	1.39*	0.88*
buying a popular beer	0.80	0.61
buying a strong beer	1.47*	<u>1.05</u>
means having difficulty to obtain it	-0.06	-0.18
Sig. diff.	0.29	0.37

BEER - Aact

Watneys	0.82	1.18
Trumans	0.78	0.68
Whitbreads	0.90	0.85
Courage	0.82	0.98
Charringtons	0.24	0.32
Ind Coope	0.90	0.96
Scottish and Newcastle	1.10	0.45
Sig. diff.	0.31	0.43

LAGER - HARP

	<u>MEN</u>	<u>WOMEN</u>
<u>BUYING HARP TO DRINK AT HOME IS:</u>		
buying a lager which offers good value for money	0.97	1.47*
buying a good quality lager	0.93	1.46*
buying a lager that tastes good	0.97	1.36*
buying a strong lager	0.31	0.74
buying a refreshing and thirst quenching lager	1.08	1.49*
buying a lager with a foreign name	-0.96	-0.53
buying a lager which is easily available	<u>1.52</u>	<u>1.73</u>
buying a Pils lager	-0.36	-0.34
buying a popular lager	1.12	1.47*
buying a lager which is not well-known	-1.09	-1.45
buying a British made lager	0.97	0.72
buying the lager from Guinness and Park Royal	0.46	0.33
Sig. diff.	0.30	0.39

LAGER -SKOL

	<u>MEN</u>	<u>WOMEN</u>
<u>BUYING SKOL TO DRINK AT HOME IS:</u>		
buying a lager which offers good value for money	0.88	1.47*
buying a good quality lager	1.02	1.42*
buying a lager that tastes good	0.92	1.41*
buying a strong lager	0.40	0.58
buying a refreshing and thirst quenching lager	1.16	1.44*
buying a lager with a foreign name	0.83	0.81
buying a lager which is easily avail- able	<u>1.45</u>	<u>1.57</u>
buying a Pils lager	-0.26	-0.33
buying a popular lager	1.12	1.43*
buying a lager which is not well-known	-1.30	-1.47
buying a British made lager	0.12	-0.15
Sig. diff.	0.29	0.37

LAGER - KRONENBOURG

	<u>MEN</u>	<u>WOMEN</u>
<u>BUYING KRONENBOURG TO DRINK AT HOME IS:</u>		
buying a lager which offers good value for money	1.13	1.16*
buying a good quality lager	1.37*	1.28*
buying a lager that tastes good	1.33*	1.22*
buying a strong lager	1.20*	1.11*
buying a refreshing and thirst quenching lager	1.29*	1.28*
buying a lager with a foreign name	<u>1.41</u>	<u>1.32</u>
buying a lager which is easily available	0.79	0.79
buying a Pils lager	0.01	-0.17
buying a popular lager	0.77	0.78
buying a lager which is not well-known	-0.62	-0.65
buying a British made lager	-0.78	-0.86
Sig. diff.	0.27	0.38

LAGER - CARLSBERG

	<u>MEN</u>	<u>WOMEN</u>
<u>BUYING CARLSBERG TO DRINK AT HOME IS:</u>		
buying a lager which offers good value for money	1.39*	1.65*
buying a good quality lager	1.55*	<u>1.79</u>
buying a lager that tastes good	1.59*	1.74*
buying a strong lager	1.17	1.15
buying a refreshing and thirst quenching lager	1.51*	1.63*
buying a lager with a foreign name	1.32	1.29
buying a lager which is easily available	<u>1.65</u>	1.68*
buying a Pils lager	0.26	-0.22
buying a popular lager	1.38*	1.38
buying a lager which is not well-known	-1.20	-1.26
buying a British made lager	-0.45	-0.76
buying the best lager in the world	0.15	0.31
buying Danish lager brewed in England by Danes	0.86	0.96
Sig. diff.	0.29	0.39

LAGER - HEINEKEN

	<u>MEN</u>	<u>WOMEN</u>
<u>BUYING HEINEKEN TO DRINK AT HOME IS:</u>		
buying a lager which offers good value for money	1.33*	1.71*
buying a good quality lager	1.42*	<u>1.83</u>
buying a lager that tastes good	1.38*	<u>1.83</u>
buying a strong lager	1.04	1.14
buying a refreshing and thirst quenching lager	1.44*	1.68*
buying a lager with a foreign name	1.32*	1.39
buying a lager which is easily available	<u>1.50</u>	1.79*
buying a Pils lager	0.09	-0.31
buying a popular lager	1.29*	1.49*
buying a lager which is not well-known	-1.08	-1.35
buying a British made lager	-0.49	-0.83
buying the lager which 'refreshes the parts other beers cannot reach'	0.90	1.32
Sig. diff.	0.29	0.38

LAGER - HOLSTEN

	<u>MEN</u>	<u>WOMEN</u>
<u>BUYING HOLSTEN TO DRINK AT HOME IS:</u>		
buying the lager which offers good value for money	0.64	0.76
buying a good quality lager	<u>0.94</u>	1.08*
buying a lager that tastes good	0.85*	0.96*
buying a strong lager	0.83*	0.78
buying a refreshing and thirst quenching lager	0.90*	0.96*
buying a lager with a foreign name	0.90*	<u>1.16</u>
buying a lager which is easily available	0.42	0.59
buying a Pils lager	0.35	0.34
buying a popular lager	-0.39	0.65
buying a lager which is not well-known	-0.26	-0.34
buying a British made lager	-0.70	-0.59
buying a German lager	0.64	0.98*
buying a lager with a diet version	0.14	0.18
Sig. diff.	0.28	0.38

LAGER - Aact

Harp	1.02	1.36
Skol	0.98	1.51
Kronenbourg	1.10	0.89
Carlsberg	1.62	1.53
Heineken	1.40	1.72
Holsten	0.56	0.30
Sig. diff.	0.30	0.38

APPENDIX 5(v)

BEERS AND LAGERS: SNB/mc SCORES

	<u>MEN</u>	<u>WOMEN</u>
<u>WATNEYS</u>		
NB	1.00	1.27
SNB <sub>1</sub>	1.16	1.22
SNB <sub>2</sub>	1.01	1.11
SNB <sub>3</sub>	1.07	1.29
SNB <sub>4</sub>	0.61	1.07
SNB <sub>5</sub>	-	1.36
SNBmc <sub>1</sub>	1.33	1.84
SNBmc <sub>2</sub>	1.26	1.79
SNBmc <sub>3</sub>	0.44	1.11
SNBmc <sub>4</sub>	0.57	1.16
SNBmc <sub>5</sub>	-	2.38
KEY: SNB <sub>1</sub> /SNBmc <sub>1</sub> = family		
SNB <sub>2</sub> /SNBmc <sub>2</sub> = friends		
SNB <sub>3</sub> /SNBmc <sub>3</sub> = younger people		
SNB <sub>4</sub> /SNBmc <sub>4</sub> = people who bother about the quality of the beer they drink		
SNB <sub>5</sub> /SNBmc <sub>5</sub> = Husband, applies to WOMEN ONLY.		

TRUMANS

NB	1.12	1.21
SNB <sub>1</sub>	1.21	1.15
SNB <sub>2</sub>	1.11	1.15
SNB <sub>3</sub>	1.12	1.25
SNB <sub>4</sub>	0.93	0.93
SNB <sub>5</sub>	-	1.02
SNBmc <sub>1</sub>	1.40	1.44
SNBmc <sub>2</sub>	1.52	1.48
SNBmc <sub>3</sub>	0.63	0.91
SNBmc <sub>4</sub>	1.06	1.28
SNBmc <sub>5</sub>	-	1.37

	<u>MEN</u>	<u>WOMEN</u>
<u>WHITBREAD</u>		
NB	1.13	1.07
SNB <sub>1</sub>	1.14	1.10
SNB <sub>2</sub>	1.20	1.13
SNB <sub>3</sub>	1.14	1.13
SNB <sub>4</sub>	0.97	1.02
SNB <sub>5</sub>	-	1.06
SNBmc <sub>1</sub>	1.12	1.66
SNBmc <sub>2</sub>	1.23	1.76
SNBmc <sub>3</sub>	0.52	1.01
SNBmc <sub>4</sub>	0.89	1.66
SNBmc <sub>5</sub>	-	1.85
 <u>COURAGE</u>		
NB	0.97	1.13
SNB <sub>1</sub>	0.88	1.12
SNB <sub>2</sub>	1.05	1.12
SNB <sub>3</sub>	1.03	1.13
SNB <sub>4</sub>	0.97	1.12
SNB <sub>5</sub>	-	1.10
SNBmc <sub>1</sub>	0.85	1.70
SNBmc <sub>2</sub>	0.92	1.77
SNBmc <sub>3</sub>	0.56	0.92
SNBmc <sub>4</sub>	0.73	1.05
SNBmc <sub>5</sub>	-	1.90
 <u>BASS CHARRINGTON</u>		
NB	0.64	0.82
SNB <sub>1</sub>	0.68	0.85
SNB <sub>2</sub>	0.72	0.90
SNB <sub>3</sub>	0.81	1.02
SNB <sub>4</sub>	0.52	0.69
SNB <sub>5</sub>	-	0.76
SNBmc <sub>1</sub>	0.69	1.16
SNBmc <sub>2</sub>	0.80	1.20
SNBmc <sub>3</sub>	0.40	0.79
SNBmc <sub>4</sub>	0.42	1.06
SNBmc <sub>5</sub>	-	1.27

	<u>MEN</u>	<u>WOMEN</u>
<u>IND COOPE</u>		
NB	1.10	1.22
SNB <sub>1</sub>	1.04	1.09
SNB <sub>2</sub>	1.08	1.04
SNB <sub>3</sub>	0.97	1.32
SNB <sub>4</sub>	0.87	1.05
SNB <sub>5</sub>	-	1.12
SNBmc <sub>1</sub>	0.86	1.26
SNBmc <sub>2</sub>	0.79	1.23
SNBmc <sub>3</sub>	0.38	0.84
SNBmc <sub>4</sub>	0.36	1.08
SNBmc <sub>5</sub>	-	1.87
<u>SCOTTISH AND NEWCASTLE</u>		
NB	1.23	0.82
SNB <sub>1</sub>	1.13	0.90
SNB <sub>2</sub>	1.23	0.92
SNB <sub>3</sub>	0.97	1.01
SNB <sub>4</sub>	1.54	1.06
SNB <sub>5</sub>	-	0.93
SNBmc <sub>1</sub>	1.01	0.76
SNBmc <sub>2</sub>	0.93	0.85
SNBmc <sub>3</sub>	0.29	0.71
SNBmc <sub>4</sub>	0.82	1.30
SNBmc <sub>5</sub>	-	1.31
<u>HARP</u>		
NB	1.07	1.37
SNB <sub>1</sub>	1.02	1.21
SNB <sub>2</sub>	1.03	1.32
SNB <sub>3</sub>	0.79	1.14
SNB <sub>4</sub>	0.89	1.04
SNB <sub>5</sub>	-	1.24
SNBmc <sub>1</sub>	1.08	1.51
SNBmc <sub>2</sub>	0.93	1.79
SNBmc <sub>3</sub>	0.31	0.56
SNBmc <sub>4</sub>	0.34	1.07
SNBmc <sub>5</sub>	-	2.00

KEY FOR LAGERS: SNB<sub>1</sub>/SNBmc<sub>1</sub> = family  
 SNB<sub>2</sub>/SNBmc<sub>2</sub> = friends  
 SNB<sub>3</sub>/SNBmc<sub>3</sub> = sporty types  
 SNB<sub>4</sub>/SNBmc<sub>4</sub> = people who know a lot about lager  
 SNB<sub>5</sub>/SNBmc<sub>5</sub> = Husband, APPLIES TO WOMEN ONLY.

	<u>MEN</u>	<u>WOMEN</u>
<u>SKOL</u>		
NB	1.04	1.41
SNB <sub>1</sub>	1.08	1.21
SNB <sub>2</sub>	1.06	1.27
SNB <sub>3</sub>	0.85	1.45
SNB <sub>4</sub>	0.88	1.05
SNB <sub>5</sub>	-	1.15
SNBmc <sub>1</sub>	1.24	1.51
SNBmc <sub>2</sub>	0.96	1.80
SNBmc <sub>3</sub>	0.29	0.56
SNBmc <sub>4</sub>	0.34	1.07
SNBmc <sub>5</sub>	-	2.13
 <u>KRONENBOURG</u>		
NB	1.25	1.40
SNB <sub>1</sub>	1.19	1.16
SNB <sub>2</sub>	1.32	1.28
SNB <sub>3</sub>	1.18	1.21
SNB <sub>4</sub>	1.46	1.49
SNB <sub>5</sub>	-	0.93
SNBmc <sub>1</sub>	1.17	1.52
SNBmc <sub>2</sub>	1.27	1.78
SNBmc <sub>3</sub>	0.29	0.16
SNBmc <sub>4</sub>	0.61	1.64
SNBmc <sub>5</sub>	-	1.62

	<u>MEN</u>	<u>WOMEN</u>
<u>CARLSBERG</u>		
NB	1.59	1.55
SNB <sub>1</sub>	1.48	1.28
SNB <sub>2</sub>	1.55	1.44
SNB <sub>3</sub>	1.22	1.29
SNB <sub>4</sub>	1.56	1.45
SNB <sub>5</sub>	-	1.32
SNBmc <sub>1</sub>	1.71	1.84
SNBmc <sub>2</sub>	1.72	2.10
SNBmc <sub>3</sub>	0.41	0.30
SNBmc <sub>4</sub>	0.92	1.50
SNBmc <sub>5</sub>	-	2.23
<u>HEINEKEN</u>		
NB	1.42	1.68
SNB <sub>1</sub>	1.27	1.44
SNB <sub>2</sub>	1.35	1.50
SNB <sub>3</sub>	1.10	1.30
SNB <sub>4</sub>	1.35	1.41
SNB <sub>5</sub>	-	1.45
SNBmc <sub>1</sub>	1.46	2.21
SNBmc <sub>2</sub>	1.56	2.22
SNBmc <sub>3</sub>	0.46	0.19
SNBmc <sub>4</sub>	0.94	1.51
SNBmc <sub>5</sub>	-	2.58
<u>HOLSTEN</u>		
NB	0.77	0.30
SNB <sub>1</sub>	0.73	0.83
SNB <sub>2</sub>	0.94	0.98
SNB <sub>3</sub>	0.92	1.09
SNB <sub>4</sub>	1.12	1.08
SNB <sub>5</sub>	-	0.67
SNBmc <sub>1</sub>	0.74	1.32
SNBmc <sub>2</sub>	1.07	1.44
SNBmc <sub>3</sub>	0.29	0.31
SNBmc <sub>4</sub>	0.57	1.48
SNBmc <sub>5</sub>	-	1.13

APPENDIX 6(i)  
STEPWISE REGRESSION

In this analysis the data analysis tool used was forward stepwise regression by inclusion, based on SPSS. The order of inclusion is determined by the respective contribution of each variable to explained variance.

In the SPSS program, 3 statistical criteria may be used in deciding which variables are to be included; the criteria are established in the parameters section of the regression design statement. The specification is - (n,F,T)

where n = the maximum number of independent variables that will be entered into the equation; F = F ratio computed in a test for significance of a regression coefficient. At each step in the analysis, F ratios are computed for variables not yet in the equation. The F ratio for a given variable is the value that would be obtained if that variable were brought in on the very next step. T = tolerance. The tolerance of an independent variable being considered for inclusion, is the proportion of the variance of that variable not explained by the independent variables, already in the regression equation. The tolerance index has a range from 0 to 1. A tolerance of 0 would indicate that a given variable is a perfect linear combination of the other independent variables; a tolerance of 1.0 that the variable is uncorrelated with the other independent variables; a tolerance inbetween of say .6 means that 60% of the variance of a potential independent variable is unexplained by predictors already in the equation.

The three parameters are optional in the program and as for this research it was necessary to explore the data initially and not approach it with any preconceptions, default values were used instead. These were

n = 80

F = .01

T = .001.

These values place little restriction on the stepwise regression and such a run therefore gives virtually a complete output. It necessitates a subsequent exercise, by computer or otherwise, to reduce the items to a set which gives the best predictors. In this research, the follow-up exercise, was not undertaken by computer, as a very good alternative method was available, and this made it possible to save valuable computer resources.

APPENDIX 6(ii)

A. BRAND A: summative vs. stepwise regressions

WATNEYS AND HARP: summative vs. stepwise regressions

<u>BRAND A</u>	<u>SUMMATIVE</u>	<u>STEPWISE</u>
	<u>REG.</u>	<u>REG.</u>
1/2. BI:Aact, NB	45%	45%
1.Aact: $\sum b_{i a_i}$ /2.Aact: $b_{i a_i}$ , etc.	25%	39%
1.BI: $\sum b_{i a_i}$ /2.BI: $b_{i a_i}$ , etc.	21%	39%
1.NB: $\sum SNB_{mc}$ /2.NB: $SNB_{1,2,3}$	0%	8%
1.BI: $\sum SNB_{mc}$ /2.BI: $SNB_{1,2,3}$	0%	6%
1.BI: $\sum b_{i a_i}, \sum SNB_{mc}$ /2.BI: $b_{i a_i}$ , etc. $SNB_{1,2,3}$	22%	41%
1.NB: $\sum SNB$ /2.NB: $SNB_{1,2,3}$	55%	57%
1.BI: $\sum SNB$ /2.BI: $SNB_{1,2,3}$	18%	18%

KEY: Figures are regression coefficients ( $r/R^2$ ) expressed as percentages.

Regressions 1. are written as summative regressions; regressions 2. are written as stepwise regressions.

Percentages in stepwise regressions relate to the last step computed for a particular regression equation.

	<u>MEN</u>		<u>WOMEN</u>	
	<u>SUMM.</u>	<u>STEP.</u>	<u>SUMM.</u>	<u>STEP.</u>

WATNEYS

1./2.BI:Aact,NB	56%	56%	69%	69%
1.Aact: $\sum b_{i i} a_{i i}$ /2.Aact: $b_{i i} a_{i i}$ , etc.	36%	52%	37%	48%
1.BI: $\sum b_{i i} a_{i i}$ /2.BI: $b_{i i} a_{i i}$ , etc.	39%	47%	32%	45%
1.NB: $\sum$ SNBmc/2.NB:SNBmc <sub>1,2,3</sub>	6%	10%	27%	35%
1.BI: $\sum$ SNBmc/2.BI:SNBmc <sub>1,2,3</sub>	4%	9%	23%	29%
1.BI: $\sum b_{i i} a_{i i}$ , $\sum$ SNBmc/2.BI: $b_{i i} a_{i i}$ , etc.SNBmc <sub>1-3</sub>	39%	49%	44%	57%
1.NB: $\sum$ SNB/2.NB:SNB <sub>1,2,3</sub>	61%	72%	63%	64%
1.BI: $\sum$ SNB/2.BI:SNB <sub>1,2,3</sub>	44%	48%	53%	62%

HARP

1./2.BI:Aact,NB	63%	60%	53%	53%
1.Aact: $\sum b_{i i} a_{i i}$ /2.Aact: $b_{i i} a_{i i}$ , etc.	33%	36%	23%	40%
1.BI: $\sum b_{i i} a_{i i}$ /2.BI: $b_{i i} a_{i i}$ , etc.	35%	40%	24%	40%
1.NB: $\sum$ SNBmc/2.NB:SNBmc <sub>1,2,3</sub>	12%	19%	23%	32%
1.BI: $\sum$ SNBmc/2.BI:SNBmc <sub>1,2,3</sub>	4%	8%	15%	28%
1.BI: $\sum b_{i i} a_{i i}$ , $\sum$ SNBmc/2.BI: $b_{i i} a_{i i}$ , etc.,SNBmc <sub>1-3</sub>	59%	36%	24%	53%
1.NB: $\sum$ SNB/2.NB:SNB <sub>1,2,3</sub>	70%	79%	68%	73%
1.BI: $\sum$ SNB/2.BI:SNB <sub>1,2,3</sub>	42%	50%	42%	43%

KEY: SUMM. = summative regressions

STEP. = stepwise regressions

APPENDIX 6(iii)  
KEY TO APPENDICES 6(iv)(v)(vi)

1. Stepwise regressions (listed at the beginning of Chapter 6) were run for all 3 markets and in the case of the drinks markets twice: once for men and once for women. This produced an enormous amount of data and therefore in its presentation certain reductions have been undertaken. The full step by step output has not been given, but can be obtained by applying to the author.

2. For the equations which deal directly with the attitudinal and normative part of the Fishbein equation, a correlation matrix analysis is produced by the SPSS output. All variables which correlated .5 or above were eliminated from the matrix and the list of the remaining belief items is given. The following steps were gone through in this analysis -

a. correlations (.5 or above) of predictors with criterion variable were noted, also intercorrelations between these predictors. Retained was the predictor with the highest correlation with the criterion, others which correlated also .5 or above with the criterion were removed, if the intercorrelation between them and the retained predictor was .5 or above.

b. intercorrelations among the remaining predictors was checked and if .5 or above, were removed.

An example is given for Brand A, regression 2. These analyses have not been shown for any other regression runs or brands, as the volume is so great; but they can be obtained by application to the author.

3. For all equations run, an analysis called Variables in Equation is presented. For exact method used, see text. Variables are shown till the first item appears which is not significant. In some instances after the first non-significant item, variables appear which are significant again. This analysis stopped at the first non-significant item, as the object was to obtain a good tight predictor set.

4. Significance testing undertaken of stepwise regressions and Variables in Equation was according to F values and appropriate degrees of freedom:

\*\*\* = 0.1% level

\*\* = 1% level

\* = 5% level.

5. Number of beliefs in full salient set

SUB-SECTOR OF CIGARETTE MARKET:

All Brands A-G have 11 attitudinal beliefs ( $b_i, b_i, a_i, a_i$ ) and 3 normative beliefs.

BREWERS' BEERS

<u>BRAND</u>	<u>MEN</u>		<u>WOMEN</u>	
	Attitudinal	Normative	Attitudinal	Normative
	Beliefs	Beliefs	Beliefs	Beliefs
Watneys	9	4	9	5
Trumans	8	4	8	5
Whitbreads	9	4	9	5
Courage	8	4	8	5
Charringtons	8	4	8	5
Ind Coope	7	4	7	5
S&N	7	4	7	5
<u>LAGERS</u>				
Harp	12	4	12	5
Skol	11	4	11	5
Kronenbourg	11	4	11	5
Carlsberg	13	4	13	5
Heineken	12	4	12	5
Holsten	13	4	13	5

6. Notation for stepwise regression

In these tables abbreviations have been used to describe the variables included in the regressions. For e.g. Aact: $b_i a_i, b_i a_i$ , etc. implies that a string of  $b_i a_i$  variables is involved, ie the number in the salient set listed above. For normative variables e.g. SNB<sub>1,2,3</sub>, the numbers involved have usually been listed like in this example.

APPENDIX 6(iv)

SUB-SECTOR OF CIGARETTE MARKET: STEPWISE REGRESSIONS

BRAND A

1. BI: Aact, NB

VARIABLES IN EQUATION (VIE)

Step 1 Aact Overall Attitude F= 172.5\*\*\*  
Step 2 NB General Norm F= 15.2\*\*\*

2. Aact:  $b_{i i}$ ,  $b_{i i}$ , etc.

CORRELATION MATRIX: .5 or above (CM)

Aact and NV170 Good taste/flavour	=.54	] .78 ]	.77 ]	.74
NV171 A pleasant cigarette	=.57			
NV173 A satisfying, sustaining cigarette	=.57			

Also

NV174 OK to offer around and NV176 a cigarette to be seen with =.53

Therefore NV171, NV174, not NV170, NV173, NV176 and all others:

- a pleasant cigarette
- OK to offer around
- reasonably priced
- buy it only when on offer
- too strong and harsh
- increasing in popularity
- reliable name and reputation
- attractive pack

VARIABLES IN EQUATION (VIE)

Step 1 NV171 A pleasant cigarette F=117.4\*\*\*  
Step 2 NV173 A satisfying, sustaining cigarette F= 17.3\*\*\*  
Step 3 NV169 Reasonably priced F= 1.3ns

3. BI:  $b_{i i}$ ,  $b_{i i}$ , etc.

VIE

Step 1 NV170 Good taste/flavour F =148.4\*\*\*  
Step 2 NV171 A pleasant cigarette F = 3.4\*  
Step 3 NV173 A satisfying, sustaining cigarette F = 1.3ns

4. NB:SNBmc<sub>1,2,3</sub>

VIE

Step 1 SNBmc <sub>1</sub> Family	F = 8.0*
Step 2 SNBmc <sub>2</sub> Friends and neighbours	F = 11.9***
Step 3 SNBmc <sub>3</sub> Smokers who want to impress	F = 0.8ns

5. BI:SNBmc<sub>1,2,3</sub>

VIE

Step 1 SNBmc <sub>2</sub> Friends and neighbours	F = 5.1*
Step 2 SNBmc <sub>1</sub> Family	F = 10.1***
Step 3 SNBmc <sub>3</sub> Smokers who want to impress people	F = 0.5ns

6. NB:SNB<sub>1,2,3</sub>

VIE

Step 1 V112 Family	F = 218.9***
Step 2 V119 Friends and neighbours	F = 51.8***
Step 3 V126 Smokers who want to impress	F = 4.8**

7. BI:SNB<sub>1,2,3</sub>

VIE

Step 1 V119 Friends and neighbours	F = 42.4***
Step 2 V112 Family	F = 7.0***
Step 3 V126 Smokers who want to impress	F = 3.5*

8. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,etcSNBmc<sub>1,2,3</sub>

VIE

Step 1 NV170 Good taste/flavour	F = 148.4***
Step 2 NV171 A pleasant cigarette	F = 3.4*
Step 3 NV173 A satisfying, sustaining cigarette	F = 1.3ns

9. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,etcSNBmc<sub>1,2,3</sub> and Confidence

VIE

Step 1 NV170 Good taste/flavour	F = 148.4***
Step 2 NV161 Confidence	F = 3.9*
Step 3 NV171 Pleasant cigarette	F = 3.9**
Step 4 SNBmc <sub>2</sub> Friends and neighbours	F = 1.2ns

11. Aact:b<sub>i</sub>,b<sub>i</sub> etc.

VIE

Step 1 V17 A pleasant cigarette	F = 147.9***
Step 2 V22 A cigarette to be seen with	F = 17.6***
Step 3 V19 A satisfying,sustaining cigarette	F = 3.7*
Step 4 V18 Attractive pack	F = 2.6*
Step 5 V23 Buy it only when on offer	F = 0.8ns

12. BI:b<sub>i</sub>,b<sub>i</sub> etc.

VIE

Step 1 V16 Good taste/flavour	F = 199.8***
Step 2 V22 A cigarette to be seen with	F = 14.0***
Step 3 V15 Reasonably priced	F = 4.3**
Step 4 V19 A satisfying,sustaining cigarette	F = 3.5**
Step 5 V17 A pleasant cigarette	F = 1.2ns

13. Aact:a<sub>i</sub>,a<sub>i</sub>, etc.

VIE

Step 1 V99 A satisfying,sustaining cigarette	F = 6.1*
Step 2 V98 Attractive pack	F = 3.0*
Step 3 V103 Buy it only when on offer	F = 2.3ns

14. BI:a<sub>i</sub>,a<sub>i</sub>,etc.

VIE

Step 1 V98 Attractive pack	F = 4.6*
Step 2 V95 Reasonably priced	F = 2.6ns

BRAND B

1. BI:Aact, NB

VIE

Step 1 Aact	F = 142.7***
Step 2 NB	F = 31.1***

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 A pleasant cigarette	F = 75.3***
Step 2 A cigarette to be seen with	F = 7.6***
Step 3 A satisfying, sustaining cigarette	F = 4.0**
Step 4 Reliable name and reputation	F = 3.5**
Step 5 Too strong and harsh	F = 2.0ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 A pleasant cigarette	F = 90.8***
Step 2 Attractive pack	F = 6.8**
Step 3 A satisfying, sustaining cigarette	F = 4.9**
Step 4 Too strong and harsh	F = 3.4**
Step 5 OK to offer around	F = 3.2**
Step 6 A cigarette to be seen with	F = 3.8***
Step 7 Reasonably priced	F = 2.6*
Step 8 Good taste/flavour	F = 1.8ns

4. NB:SNBmc<sub>1,2,3</sub>,

VIE

Step 1 Friends and neighbours	F = 5.2*
Step 2 Family	F = 12.7***

5. BI:SNBmc<sub>1,2,3</sub>

VIE

Step 1 Friends and neighbours	F = 5.5*
Step 2 Family	F = 7.0***
Step 3 Smokers who want to impress people	F = 0.0ns

6. NB:SNB<sub>1,2,3</sub>

VIE

Step 1 Friends and neighbours	F = 178.1***
Step 2 Family	F = 43.8***

Step 3 Smokers who want to impress people F = 12.5\*\*\*

7.BI:SNB<sub>1,2,3</sub>

VIE

Step 1 Family F = 61.2\*\*\*  
Step 2 Smokers who want to impress people F = 26.2\*\*\*  
Step 3 Friends and neighbours F = 2.3ns

8.BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1,2,3</sub>

VIE

Step 1 A pleasant cigarette F = 90.8\*\*\*  
Step 2 Friends and neighbours F = 7.9\*\*\*  
Step 3 Attractive pack F = 8.6\*\*\*  
Step 4 Good taste/flavour F = 5.3\*\*\*  
Step 5 Reasonably priced F = 3.8\*\*  
Step 6 OK to offer around F = 3.3\*\*  
Step 7 A cigarette to be seen with F = 3.6\*\*\*  
Step 8 A satisfying, sustaining cigarette F = 3.3\*\*  
Step 9 Too strong and harsh F = 2.5  
Step 10 SNBmc<sub>3</sub> Smokers who want to impress F = 2.8\*\*  
Step 11 Buy it only when on offer F = 0.8ns

9.BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1,2,3</sub> and Confidence

VIE

Step 1A pleasant cigarette F = 90.8\*\*\*  
Step 2 Friends and neighbours F = 7.9\*\*\*  
Step 3 Attractive pack F = 8.6\*\*\*  
Step 4 Good taste/flavour F = 5.3\*\*\*  
Step 5 Confidence F = 4.7\*\*\*  
Step 6 Reasonably priced F = 3.6\*\*  
Step 7 OK to offer around F = 3.4\*\*  
Step 8 A satisfying, sustaining cigarette F = 3.3\*\*\*  
Step 9 Too strong and harsh F = 3.6\*\*\*  
Step 10 SNBmc<sub>3</sub> Smokers who want to impress F = 3.0\*\*\*  
Step 11 A cigarette to be seen with F = 2.3\*\*  
Step 12 Buy it only when on offer F = 1.1ns

11. Aact: b<sub>i</sub>, b<sub>i</sub>, etc.

VIE

Step 1 Good taste/flavour	F = 96.0***
Step 2 Increasing in popularity	F = 19.3***
Step 3 Too strong and harsh	F = 13.5***
Step 4 Reliable name and reputation	F = 1.2ns

12. BI: b<sub>i</sub>, b<sub>i</sub>, etc

VIE

Step 1 A pleasant cigarette	F = 118.5***
Step 2 Reasonably priced	F = 12.4***
Step 3 OK to offer around	F = 5.9***
Step 4 Increasing in popularity	F = 3.9**
Step 5 Too strong and harsh	F = 3.2**
Step 6 Good taste/flavour	F = 1.7ns

BRAND C

1. BI:Aact,NB

VIE

Step 1 Aact	F = 121.8***
Step 2 NB	F = 26.0***

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 A satisfying, sustaining cigarette	F = 85.5***
Step 2 A pleasant cigarette	F = 7.9***
Step 3 Attractive pack	F = 6.7***
Step 4 Reliable name and reputation	F = 1.5ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 A pleasant cigarette	F = 130.3***
Step 2 A satisfying, sustaining cigarette	F = 7.9**
Step 3 Buy it only when on offer	F = 7.2**
Step 4 Attractive pack	F = 3.6**
Step 5 Good taste/flavour	F = 1.3ns

4.NB:SNBmc<sub>1,2,3</sub>

VIE

Step 1 Family	F = 12.8***
Step 2 Friends and neighbours	F = 14.2***
Step 3 Smokers who want to impress people	F = 1.2ns

5. BI:SNBmc<sub>1,2,3</sub>

VIE

Step 1 Family	F = 4.5*
Step 2 Friends and neighbours	F = 6.9*
Step 3 Smokers who want to impress people	F = 0.0ns

6.NB:SNB<sub>1,2,3</sub>

VIE

Step 1 Family	F = 192.3***
Step 2 Friends and neighbours	F = 36.9***
Step 3 Smokers who want to impress people	F = 3.5*

7. BI:SNB<sub>1,2,3</sub>

VIE

Step 1 Family	F = 77.1***
Step 2 Smokers who want to impress people	F = 12.8***
Step 3 Friends and neighbours	F = 0.1ns

8. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1,2,3</sub>

VIE

Step 1 A pleasant cigarette	F = 130.3***
Step 2 A satisfying, sustaining cigarette	F = 7.9***
Step 3 Buy it only when on offer	F = 7.2***
Step 4 Attractive pack	F = 3.6**
Step 5 Good taste/flavour	F = 1.3ns

9. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1,2,3</sub> and Confidence

VIE

Step 1 A pleasant cigarette	F = 130.3***
Step 2 Confidence	F = 11.8***
Step 3 A satisfying, sustaining cigarette	F = 7.9***
Step 4 Buy it only when on offer	F = 7.0***
Step 5 Attractive pack	F = 2.4*
Step 6 Increasing in popularity	F = 1.5ns

11. Aact:b<sub>i</sub>,b<sub>i</sub>, etc.

VIE

Step 1 A pleasant cigarette	F = 82.9***
Step 2 A satisfying, sustaining cigarette	F = 5.6**
Step 3 Too strong and harsh	F = 3.6*
Step 4 Buy it only when on offer	F = 2.2ns

12. BI:b<sub>i</sub>,b<sub>i</sub>, etc.

VIE

Step 1 A pleasant cigarette	F = 152.0***
Step 2 Too strong and harsh	F = 6.9**
Step 3 Good taste/flavour	F = 2.7*
Step 4 OK to offer around	F = 2.1ns

BRAND D

1. BI: Aact, NB

VIE

Step 1 Aact	F = 147.4***
Step 2 NB	F = 35.7***

2. Aact: b<sub>i</sub>a<sub>i</sub>, b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 Good taste/flavour	F = 120.2***
Step 2 A pleasant cigarette	F = 6.9**
Step 3 Too strong and harsh	F = 4.6**
Step 4 A cigarette to be seen with	F = 2.8*
Step 5 OK to offer around	F = 3.8**
Step 6 A satisfying, sustaining cigarette	F = 1.8ns

3. BI: b<sub>i</sub>a<sub>i</sub>, b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 A pleasant cigarette	F = 124.3***
Step 2 A satisfying, sustaining cigarette	F = 4.9**
Step 3 Good taste/flavour	F = 1.9ns

4. NB: SNBmc<sub>1,2,3</sub>

VIE

Step 1 Friends and neighbours	F = 5.4*
Step 2 Family	F = 7.5***
Step 3 Smokers who want to impress people	F = 1.3ns

5. BI: SNBmc<sub>1,2,3</sub>

VIE

Step 1 Smokers who want to impress people	F = 4.8*
Step 2 Family	F = 3.2*
Step 3 Friends and neighbours	F = 0.7ns

6. NB: SNB<sub>1,2,3</sub>

VIE

Step 1 Family	F = 262.6***
Step 2 Friends and neighbours	F = 38.6***
Step 3 Smokers who want to impress people	F = 3.6*

7. BI:SNB<sub>1,2,3</sub>

VIE

Step 1 Family	F = 79.5***
Step 2 Smokers who want to impress people	F = 28.5***
Step 3 Friends and neighbours	F = 4.5**

8. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1,2,3</sub>

VIE

Step 1 A pleasant cigarette	F = 124.3***
Step 2 A satisfying, sustaining cigarette	F = 4.9**
Step 3 Good taste/flavour	F = 1.9ns

9. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1,2,3</sub> and Confidence

VIE

Step 1 A pleasant cigarette	F = 124.3***
Step 2 Confidence	F = 9.7***
Step 3 A satisfying, sustaining cigarette	F = 4.4**
Step 4 Good taste/flavour	F = 2.1ns

11. Aact:b<sub>i</sub>,b<sub>i</sub>, etc.

VIE

Step 1 Good taste/flavour	F = 133.2***
Step 2 Increasing in popularity	F = 5.9**
Step 3 Attractive pack	F = 4.4**
Step 4 A satisfying, sustaining cigarette	F = 2.9*
Step 5 Too strong and harsh	F = 2.1ns

12. BI:b<sub>i</sub>,b<sub>i</sub>, etc.

VIE

Step 1 A pleasant cigarette	F = 143.6***
Step 2 Increasing in popularity	F = 5.8**
Step 3 Reliable name and reputation	F = 2.7*
Step 4 Good taste/flavour	F = 2.6*
Step 5 A satisfying, sustaining cigarette	F = 1.4ns

BRAND E

1. BI:Aact,NB

VIE

Step 1 Aact	F = 207.7***
Step 2 NB	F = 46.8***

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc

VIE

Step 1 Good taste/flavour	F = 115.3***
Step 2 A cigarette to be seen with	F = 10.1***
Step 3 A satisfying, sustaining cigarette	F = 6.0***
Step 4 OK to offer around	F = 4.8***
Step 5 Increasing in popularity	F = 1.8ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 A pleasant cigarette	F = 155.3***
Step 2 A satisfying, sustaining cigarette	F = 15.5***
Step 3 OK to offer around	F = 8.4***
Step 4 Buy it only when on offer	F = 2.8*
Step 5 Good taste/flavour	F = 2.5*
Step 6 Increasing in popularity	F = 1.5ns

4. NB:SNBmc<sub>1,2,3</sub>

VIE

Step 1 Friends and neighbours	F = 7.9**
Step 2 Family	F = 17.7***
Step 3 Smokers who want to impress people	F = 0.7ns

5. BI:SNBmc<sub>1,2,3</sub>

VIE

Step 1 Friends and neighbours	F = 7.0**
Step 2 Family	F = 8.6***
Step 3 Smokers who want to impress people	F = 1.4ns

6. NB:SNB<sub>1,2,3</sub>

VIE

Step 1 Family	F = 388.3***
Step 2 Friends and neighbours	F = 29.2***
Step 3 Smokers who want to impress people	F = 8.6***

7. BI:SNB 1,2,3

VIE

Step 1 Family	F = 137.8****
Step 2 Friends and neighbours	F = 20.4***
Step 3 Smokers who want to impress people	F = 6.9***

8. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc 1,2,3

VIE

Step 1 A pleasant cigarette	F = 155.3***
Step 2 A satisfying, sustaining cigarette	F = 15.5***
Step 3 OK to offer around	F = 8.4***
Step 4 Friends and neighbours	F = 2.9*
Step 5 Good taste/flavour	F = 2.4*
Step 6 Buy it only when on offer	F = 2.5*
Step 7 Increasing in popularity	F = 1.3ns

9. BI: b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc 1,2,3, and Confidence

VIE

Step 1 A pleasant cigarette	F = 155.3***
Step 2 A satisfying, sustaining cigarette	F = 15.5***
Step 3 OK to offer around	F = 8.4***
Step 4 Friends and neighbours	F = 2.9*
Step 5 Good taste/flavour	F = 2.4*
Step 6 Buy it only when on offer	F = 2.5*
Step 7 Increasing in popularity	F = 1.3ns

11. Aact:b<sub>i</sub>,b<sub>i</sub>, etc.

VIE

Step 1 A pleasant cigarette	F = 133.9***
Step 2 Too strong and harsh	F = 13.6***
Step 3 A satisfying, sustaining cigarette	F = 5.5***
Step 4 Good taste/flavour	F = 3.0*
Step 5 OK to offer around	F = 2.3*
Step 6 Buy it only when on offer	F = 1.8ns

12. BI:b<sub>i</sub>,b<sub>i</sub>, etc.

VIE

Step 1 A pleasant cigarette	F = 191.3***
Step 2 A cigarette to be seen with	F = 24.9***

Step 3 Too strong and harsh	F = 11.9***
Step 4 A satisfying, sustaining cigarette	F = 4.1**
Step 5 Buy it only when on offer	F = 2.6*
Step 6 Good taste/flavour	F = 0.7ns

BRAND F

1. BI:Aact,NB

Step 1 Aact F = 312.9\*\*\*  
Step 2 NB F = 15.5\*\*\*

2.Aact:b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 A satisfying, sustaining cigarette F = 113.1\*\*\*  
Step 2 A pleasant cigarette F = 8.8\*\*\*  
Step 3 Buy it only when on offer F = 3.2\*  
Step 4 Good taste/flavour F = 1.4ns

3.BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 Good taste/flavour F = 159.0\*\*\*  
Step 2 A satisfying, sustaining cigarette F = 14.9\*\*\*  
Step 3 A pleasant cigarette F = 4.5\*\*  
Step 4 Buy it only when on offer F = 2.6\*  
Step 5 Reliable name and reputation F = 1.8ns

4. NB:SNBmc<sub>1,2,3</sub>

VIE

Step 1 Friends and neighbours F = 16.8\*\*\*  
Step 2 Family F = 8.5\*\*\*  
Step 3 Smokers who want to impress people F = 7.9\*\*\*

5. BI:SNBmc<sub>1,2,3</sub>

VIE

Step 1 Smokers who want to impress people F = 14.3\*\*\*  
Step 2 Friends and neighbours F = 5.9\*\*  
Step 3 Family F = 2.5ns

6. NB:SNB<sub>1,2,3</sub>

VIE

Step 1 Family F = 235.0\*\*\*  
Step 2 Friends and neighbours F = 64.9\*\*\*  
Step 3 Smokers who want to impress people F = 6.5\*\*\*

7. BI:SNB<sub>1,2,3</sub>

VIE

Step 1 Smokers who want to impress people	F = 107.0***
Step 2 Friends and neighbours	F = 10.2***
Step 3 Family	F = 4.2**

8. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1,2,3</sub>

VIE

Step 1 Good taste/flavour	F = 159.0***
Step 2 A satisfying, sustaining cigarette	F = 14.9***
Step 3 Friends and neighbours	F = 11.3***
Step 4 A pleasant cigarette	F = 3.4**
Step 5 Reliable name and reputation	F = 1.8ns

9. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1,2,3</sub> and Confidence

VIE

Step 1 Good taste/flavour	F = 159.0***
Step 2 A satisfying, sustaining cigarette	F = 14.9***
Step 3 Friends and neighbours	F = 11.3***
Step 4 A pleasant cigarette	F = 3.4**
Step 5 Reliable name and reputation	F = 1.8ns

11. Aact:b<sub>i</sub>,b<sub>i</sub> etc.

VIE

Step 1 A pleasant cigarette	F = 148.9***
Step 2 Good taste/flavour	F = 5.6**
Step 3 Attractive pack	F = 2.7*
Step 4 Increasing in popularity	F = 2.9*
Step 5 A satisfying, sustaining cigarette	F = 1.9ns

12. BI:b<sub>i</sub>,b<sub>i</sub>, etc.

VIE

Step 1 Good taste/flavour	F = 218.6***
Step 2 A pleasant cigarette	F = 14.9***
Step 3 Increasing in popularity	F = 7.1***
Step 4 Too strong and harsh	F = 2.7*
Step 5 A satisfying, sustaining cigarette	F = 2.6*
Step 6 Attractive pack	F = 2.7*
Step 7 Reasonably priced	F = 2.8**
Step 8 OK to offer around	F = 1.1ns

BRAND G

1. BI:Aact, NB

VIE

Step 1 Aact	F = 193.1***
Step 2 NB	F = 34.9***

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 Good taste/flavour	F = 124.9***
Step 2 Too strong and harsh	F = 7.1***
Step 3 OK to offer around	F = 7.6***
Step 4 A pleasant cigarette	F = 3.7**
Step 5 Reliable name and reputation	F = 2.4*
Step 6 Buy it only when on offer	F = 1.7ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 A pleasant cigarette	F = 163.3***
Step 2 A cigarette to be seen with	F = 7.5***
Step 3 Too strong and harsh	F = 5.3**
Step 4 Good taste/flavour	F = 4.1**
Step 5 Buy it only when on offer	F = 2.6*
Step 6 A satisfying, sustaining cigarette	F = 1.9ns

4. NB:SNBmc<sub>1,2,3</sub>

VIE

Step 1 Family	F = 7.2**
Step 2 Friends and neighbours	F = 10.6***
Step 3 Smokers who want to impress people	F = 2.0ns

5. BI:SNBmc<sub>1,2,3</sub>

VIE

Step 1 Friends and neighbours	F = 6.6*
Step 2 Family	F = 10.2***
Step 3 Smokers who want to impress people	F = 0.1ns

6. NB:SNB<sub>1,2,3</sub>

VIE

Step 1 Family	F = 250.3***
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Step 2 Friends and neighbours F = 47.1\*\*\*  
 Step 3 Smokers who want to impress people F = 0.8ns

7. BI:SNB<sub>1,2,3</sub>

VIE

Step 1 Family F = 72.0\*\*\*  
 Step 2 Smokers who want to impress people F = 19.2\*\*\*  
 Step 3 Friends and neighbours F = 7.0\*\*\*

8. BI:b<sub>i i</sub>,b<sub>i i</sub>,SNBmc<sub>1,2,3</sub>

VIE

Step 1 A pleasant cigarette F = 163.3\*\*\*  
 Step 2 A cigarette to be seen with F = 7.5\*\*\*  
 Step 3 Too strong and harsh F = 5.3\*\*  
 Step 4 Good taste/flavour F = 4.1\*\*  
 Step 5 Buy it only when on offer F = 2.6\*  
 Step 6 Friends and neighbours F = 2.4\*  
 Step 7 Attractive pack F = 2.5\*  
 Step 8 A satisfying, sustaining cigarette F = 1.9ns

9. BI:b<sub>i i</sub>,b<sub>i i</sub>,SNBmc<sub>1,2,3</sub> and Confidence

VIE

Step 1 A pleasant cigarette F = 163.3\*\*\*  
 Step 2 A cigarette to be seen with F = 7.5\*\*\*  
 Step 3 Too strong and harsh F = 5.3\*\*  
 Step 4 Good taste/flavour F = 4.1\*\*  
 Step 5 Buy it only when on offer F = 2.6\*  
 Step 6 Friends and neighbours F = 2.4\*  
 Step 7 Attractive pack F = 2.5\*  
 Step 8 A satisfying, sustaining cigarette F = 1.9ns

11. Aact:b<sub>i</sub>,b<sub>i</sub>, etc.

Step 1 Good taste/flavour F = 130.1\*\*\*  
 Step 2 OK to offer around F = 14.3\*\*\*  
 Step 3 Attractive pack F = 12.6\*\*\*  
 Step 4 Increasing in popularity F = 7.6\*\*\*  
 Step 5 A satisfying, sustaining cigarette F = 2.4\*  
 Step 6 A pleasant cigarette F = 2.0ns

12. BI; b<sub>i</sub>, b<sub>i</sub>, etc.

VIE

Step 1 Good taste/flavour	F = 222.7***
Step 2 Increasing in popularity	F = 7.3***
Step 3 A pleasant cigarette	F = 3.9**
Step 4 Reliable name and reputation	F = 2.6*
Step 5 A cigarette to be seen with	F = 3.9**
Step 6 OK to offer around	F = 1.4ns

APPENDIX 6(v)

BREWERS' BEERS: STEPWISE REGRESSIONS

MEN: WATNEYS

1. BI: Aact, NB

VIE

Step 1 Aact	F = 226.9***
Step 2 NB	F = 10.4***

2. Aact:  $b_{i_1 a_1}, b_{i_1 a_1}, \text{ etc.}$

VIE

Step 1 Buying a beer that tastes good	F = 175.9***
Step 2 Buying a good quality beer	F = 9.9***
Step 3 Buying a strong beer	F = 2.5ns

3. BI:  $b_{i_1 a_1}, b_{i_1 a_1}, \text{ etc.}$

Step 1 Buying a beer that tastes good	F = 124.0***
Step 2 Buying a good quality beer	F = 12.5***
Step 3 Buying the beer with the red barrel	F = 6.4***
Step 4 Buying a beer which offers good value for money	F = 3.4**
Step 5 Buying a strong beer	F = 2.8*
Step 6 Buying a well-known beer	F = 1.2ns

4. NB: SNBmc<sub>1,2,3,4</sub>

VIE

Step 1 Family	F = 20.1***
Step 2 People who bother about the quality of the beer they drink	F = 0.6ns

5. BI: SNBmc<sub>1,2,3,4</sub>

VIE

Step 1 Family	F = 16.2***
Step 2 Friends	F = 1.6ns

6. NB: SNB<sub>1,2,3,4</sub>

VIE

Step 1 Friends	F = 345.9***
Step 2 Family	F = 38.1***

Step 3 People who bother about the quality  
of the beer they drink F = 15.2\*\*\*

Step 4 Younger people F = 1.2ns

7. BI:SNB<sub>1,2,3,4</sub>

VIE

Step 1 Family F = 145.0\*\*\*

Step 2 People who bother about the quality  
of the beer they drink F = 17.3\*\*\*

Step 3 Friends F = 0.2ns

8. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1,2,3,4</sub>

VIE

Step 1 Buying a beer that tastes good F = 124.0\*\*\*

Step 2 Buying a good quality beer F = 12.5\*\*\*

Step 3 Buying the beer with the red barrel F = 6.4\*\*\*

Step 4 Buying a beer which offers good value  
for money F = 3.4\*\*

Step 5 Buying a strong beer F = 2.8\*

Step 6 Younger people F = 2.2\*

Step 7 Friends F = 1.6ns

9. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1,2,3,4</sub> and Confidence

VIE

Step 1 Buying a beer that tastes good F = 124.0\*\*\*

Step 2 Buying a good quality beer F = 12.5\*\*\*

Step 3 Buying the beer with the red barrel F = 6.4\*\*\*

Step 4 Buying a beer which offers good  
value for money F = 3.4\*\*

Step 5 Buying a strong beer F = 2.8\*

Step 6 Younger people F = 2.2\*

Step 7 Confidence F = 1.8ns

10. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNB<sub>1,2,3,4</sub>

VIE

Step 1 Family F = 145.0\*\*\*

Step 2 Buying a beer which offers good  
value for money F = 40.9\*\*\*

Step 3 People who bother about the quality

of the beer they drink	F = 10.7***
Step 4 Buying a beer that tastes good	F = 4.5**
Step 5 Buying the beer with the red barrel	F = 3.4**
Step 6 Buying a well-known beer	F = 2.2*
Step 7 Buying a strong beer	F = 2.2*
Step 8 Having difficulty to obtain it	F = 0.9ns

WOMEN:WATNEYS

1. BI:Aact,NB

VIE

Step 1 Aact F = 207.9\*\*\*  
Step 2 NB F = 6.3\*\*

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 Buying a good quality beer F = 83.1\*\*\*  
Step 2 Buying the beer which offers good  
value for money F = 2.8ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 Buying a good quality beer F = 59.1\*\*\*  
Step 2 Buying a strong beer F = 4.4\*  
Step 3 Having difficulty to obtain it F = 3.0\*  
Step 4 Buying the beer which says what we  
want is Watneys F = 2.3ns

4. NB:SNBmc<sub>1</sub> - 5

VIE

Step 1 Husband F = 38.8\*\*\*  
Step 2 Family F = 7.0\*\*\*  
Step 3 People who bother about the quality  
of the beer they drink F = 2.4ns

5. BI:SNBmc<sub>1</sub> - 5

VIE

Step 1 Husband F = 29.2\*\*\*  
Step 2 People who bother about the quality  
of the beer they drink F = 5.3\*\*  
Step 3 Family F = 2.5ns

6. NB:SNB<sub>1</sub> - 5

VIE

Step 1 Family F = 115.4\*\*\*  
Step 2 Husband F = 14.6\*\*\*  
Step 3 People who bother about the quality  
of the beer they drink F = 6.5\*\*\*

Step 4 Friends	F = 3.9**
Step 5 Younger people	F = 0.8ns

7. BI:SNB<sub>1</sub> - 5

VIE

Step 1 Husband	F = 112.0***
Step 2 People who bother about the quality of the beer they drink	F = 15.3***
Step 3 Family	F = 5.6***
Step 4 Friends	F = 1.4ns

8. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1</sub> - 5

VIE

Step 1 Buying a good quality beer	F = 59.1***
Step 2 Husband	F = 14.6***
Step 3 Family	F = 5.4**
Step 4 Buying the beer with the red barrel	F = 4.8***
Step 5 Having difficulty to obtain it	F = 3.4**
Step 6 People who bother about the quality of the beer they drink	F = 2.2*
Step 7 Friends	F = 2.2*
Step 8 Buying a strong beer	F = 1.5ns

9. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1</sub> - 5

VIE

Step 1 Buying a good quality beer	F = 59.1***
Step 2 Husband	F = 14.6***
Step 3 Family	F = 5.4**
Step 4 Buying the beer with the red barrel	F = 4.8***
Step 5 Having difficulty to obtain it	F = 3.4**
Step 6 People who bother about the quality of the beer they drink	F = 2.2*
Step 7 Friends	F = 2.2*
Step 8 Confidence	F = 1.6ns

10. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNB<sub>1-5</sub>

VIE

Step 1 Husband	F = 112.0***
Step 2 People who bother about the quality	

of the beer they drink	F = 15.3***
Step 3 Family	F = 5.6***
Step 4 Having difficulty to obtain it	F = 3.9**
Step 5 Buying a good quality beer	F = 6.6***
Step 6 Friends	F = 2.2*
Step 7 Buying a strong beer	F = 2.3*
Step 8 Buying a popular beer	F = 0.8ns

MEN: TRUMANS

1. BI:Aact,NB

VIE

Step 1 Aact F = 120.6\*\*\*  
Step 2 NB F = 6.6\*\*

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 Buying a good quality beer F = 67.8\*\*\*  
Step 2 Buying a popular beer F = 6.5\*\*  
Step 3 Buying a beer that tastes good F = 2.5ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 Buying a beer that tastes good F = 39.9\*\*\*  
Step 2 Buying a beer which offers good  
value for money F = 4.6\*  
Step 3 Buying the beer with more hops in F = 3.5\*  
Step 4 Buying a strong beer F = 3.2\*  
Step 5 Buying a good quality beer F = 2.0ns

4. NB:SNBmc<sub>1-4</sub>

VIE

Step 1 Family F = 19.5\*\*\*  
Step 2 Friends F = 0.8ns

5. BI:SNBmc<sub>1-4</sub>

VIE

Step 1 Family F = 7.1\*\*  
Step 2 Younger people F = 1.0ns

6. NB:SNB<sub>1-4</sub>

VIE

Step 1 Friends F = 259.0\*\*\*  
Step 2 Family F = 35.4\*\*\*  
Step 3 People who bother about the quality  
of the beer they drink F = 2.1ns

7. 7. BI:SNB<sub>1-4</sub>

VIE

Step 1 Family	F = 46.9***
Step 2 People who bother about the quality of of the beer they drink	F = 15.6***
Step 3 Friends	F = 0.8ns

8. BI:b<sub>i i</sub>,b<sub>i i</sub>,SNBmc<sub>1-4</sub>

VIE

Step 1 Buying a beer that tastes good	F = 39.9***
Step 2 Buying a beer which offers good value for money	F = 4.6*
Step 3 Buying the beer with more hops in	F = 3.5*
Step 4 Buying a strong beer	F = 3.2*
Step 5 Family	F = 2.6*
Step 6 Buying a good quality beer	F = 2.1*
Step 7 Having difficulty to obtain it	F = 2.6*
Step 8 Friends	F = 0.8ns

9. BI:b<sub>i i</sub>,b<sub>i i</sub>,SNBmc<sub>1-4</sub> and Confidence

VIE

Step 1 Buying a beer that tastes good	F = 39.9***
Step 2 Buying a beer which offers good value for money	F = 4.6*
Step 3 Confidence	F = 3.9**
Step 4 Buying the beer with more hops in	F = 3.5**
Step 5 Buying a strong beer	F = 3.4**
Step 6 Family	F = 3.2**
Step 7 Buying a good quality beer	F = 2.3*
Step 8 Having difficulty to obtain it	F = 2.9**
Step 9 Friends	F = 0.6ns

WOMEN: TRUMANS

1. BI:Aact,NB

VIE

Step 1 Aact	F =	37.2***
Step 2 NB	F =	8.6***

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 Buying a good quality beer	F =	22.1***
Step 2 Buying a beer that tastes good	F =	2.9ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 Buying a good quality beer	F =	18.6***
Step 2 Having difficulty to obtain it	F =	2.7ns

4. NB:SNBmc<sub>1-5</sub>

VIE

Step 1 Husband	F =	16.8***
Step 2 Family	F =	2.6ns

5. BI:SNBmc<sub>1-5</sub>

VIE

Step 1 Husband	F =	12.9***
Step 2 Family	F =	2.9ns

6. NB:SNB<sub>1-5</sub>

VIE

Step 1 Friends	F =	56.0***
Step 2 Husband	F =	14.1***
Step 3 Family	F =	3.0*
Step 4 Younger people	F =	2.1ns

7. BI:SNB<sub>1-5</sub>

VIE

Step 1 People who bother about the quality of the beer they drink	F =	43.2***
Step 2 Husband	F =	12.5***
Step 3 Family	F =	5.7***
Step 4 Younger people	F =	0.9ns

8. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1-5</sub>

VIE

Step 1 Buying a good quality beer	F = 18.6***
Step 2 Husband	F = 8.3***
Step 3 Family	F = 3.2*
Step 4 Younger people	F = 4.4**
Step 5 Buying a well-known beer	F = 2.9*
Step 6 Having difficulty to obtain it	F = 2.9**
Step 7 Buying the beer with more hops in	F = 1.5ns

9. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1-5</sub>

VIE

Step 1 Buying a good quality beer	F = 18.6***
Step 2 Husband	F = 8.3***
Step 3 Confidence	F = 3.9**
Step 4 Family	F = 3.6**
Step 5 Younger people	F = 3.4**
Step 6 Having difficulty to obtain it	F = 2.7*
Step 7 Buying a well-known beer	F = 2.7**
Step 8 Buying the beer with more hops in	F = 1.1ns

MEN: WHITBREADS

1. BI: Aact,NB

VIE

Step 1 Aact F = 106.2\*\*\*  
Step 2 NB F = 19.9\*\*\*

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 Buying a beer that tastes good F = 51.9\*\*\*  
Step 2 Buying the beer with the Tankard and  
Trophy emblems F = 7.5\*\*\*  
Step 3 Having difficulty to obtain it F = 4.4\*\*  
Step 4 Buying the pint that thinks its a  
quart F = 3.3\*  
Step 5 Buying a well-known beer F = 0.8ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 Buying a beer that tastes good F = 42.1\*\*\*  
Step 2 Buying the beer with the Tankard  
and Trophy emblems F = 4.3\*  
Step 3 Buying the pint that thinks its a  
quart F = 7.1\*\*\*  
Step 4 Buying a well-known beer F = 1.9ns

4. NB:SNBmc<sub>1-4</sub>

VIE

Step 1 Family F = 20.0\*\*\*  
Step 2 People who bother about the quality  
of the beer they drink F = 0.4ns

5. BI:SNBmc<sub>1-4</sub>

VIE

Step 1 Family F = 2.5ns

6. NB:SNB<sub>1-4</sub>

VIE

Step 1 Family F = 197.2\*\*\*  
Step 2 Friends F = 14.6\*\*\*

Step 3 People who bother about the quality of the beer they drink	F = 9.5***
Step 4 Younger people	F = 1.9ns

7. BI:SNB<sub>1-4</sub>

VIE

Step 1 People who bother about the quality of the beer they drink	F = 106.0***
Step 2 Family	F = 4.2*
Step 3 Friends	F = 0.3ns

8. BI:b<sub>i i</sub>,b<sub>i i</sub>,SNBmc<sub>1-4</sub>

VIE

Step 1 Buying a beer that tastes good	F = 42.1***
Step 2 Buying the beer with the Tankard and Trophy emblems	F = 4.7**
Step 3 Buying the pint that thinks its a quart	F = 7.1***
Step 4 Buying a well-known beer	F = 1.9ns

9. BI:b<sub>i i</sub>,b<sub>i i</sub>,SNBmc<sub>1-4</sub> and Confidence

VIE

Step 1 Buying a beer that tastes good	F = 42.1***
Step 2 Buying the beer with the Tankard and Trophy emblems	F = 4.7**
Step 3 Buying the pint that thinks its a quart	F = 7.1***
Step 4 Buying a well-known beer	F = 1.9ns

WOMEN:WHITBREADS

1. BI:Aact,NB

VIE

Step 1 Aact	F = 62.2***
Step 2 NB	F = 0.8ns

2.Aact:b<sub>i i</sub>,b<sub>i i</sub>, etc.

VIE

Step 1 Buying a beer that tastes good	F = 34.9***
Step 2 Buying a popular beer	F = 1.3ns

3. BI:b<sub>i i</sub>,b<sub>i i</sub>, etc.

VIE

Step 1 Buying a beer that tastes good	F = 12.6***
Step 2 Buying a popular beer	F = 4.4*
Step 3 Buying a good quality beer	F = 3.0*
Step 4 Buying a beer which offers good value for money	F = 3.7**
Step 5 Buying the beer with the Tankard and Trophy emblems	F = 2.0ns

4. BI:SNBmc<sub>1-5</sub>

VIE

Step 1 Husband	F = 32.3***
Step 2 Younger people	F = 3.7*
Step 3 Family	F = 4.0**
Step 4 Friends	F = 0.9ns

5. BI:SNBmc<sub>1-5</sub>

VIE

Step 1 Husband	F = 25.9***
Step 2 People who bother about the quality of the beer they drink	F = 0.9ns

6. NB:SNB<sub>1-5</sub>

VIE

Step 1 Family	F = 116.6***
Step 2 Husband	F = 18.8***
Step 3 Friends	F = 16.8***
Step 4 Younger people	F = 0.7ns

7. BI:SNB<sub>1-5</sub>

VIE

Step 1 Husband	F = 49.9***
Step 2 People who bother about the quality of the beer they drink	F = 4.8**
Step 3 Friends	F = 1.4ns

8. BI:b<sub>1i</sub>,b<sub>1i</sub>,SNBmc<sub>1-5</sub>

VIE

Step 1 Husband	F = 25.9***
Step 2 Buying the pint that thinks its a quart	F = 7.7***
Step 3 Buying a popular beer	F = 3.5*
Step 4 Buying a good quality beer	F = 6.3***
Step 5 Buying a beer which offers good value for money	F = 1.2ns

9. BI:b<sub>1i</sub>,b<sub>1i</sub>,SNBmc<sub>1-5</sub> and Confidence

Step 1 Husband	F = 25.9***
Step 2 Buying the pint that thinks its a quart quart	F = 7.7***
Step 3 Buying a popular beer	F = 3.5*
Step 4 Buying a good quality beer	F = 6.3***
Step 5 Buying a beer which offers good value for money	F = 1.2ns

MEN: COURAGE

1. BI:Aact,NB

VIE

Step 1 Aact	F = 104.4***
Step 2 NB	F = 17.6***

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

Step 1 Buying a beer that tastes good	F = 67.6***
Step 2 Buying a good quality beer	F = 5.6**
Step 3 Buying the beer with the cockerel emblem	F = 4.7**
Step 4 Buying a popular beer	F = 2.9*
Step 5 Buying a strong beer	F = 1.1ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

Step 1 Buying a beer that tastes good	F = 39.7***
Step 2 Having difficulty to obtain it	F = 5.0**
Step 3 Buying the beer with the cockerel emblem	F = 3.3*
Step 4 Buying a popular beer	F = 2.4*
Step 5 Buying a strong beer	F = 1.5ns

4. NB:SNBmc<sub>1-4</sub>

VIE

Step 1 Family	F = 6.9**
Step 2 Younger People	F = 5.4**
Step 3 Friends	F = 1.4ns

5. BI:SNBmc<sub>1-4</sub>

VIE

Step 1 Friends	F = 3.0ns
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6. NB:SNB<sub>1-4</sub>

VIE

Step 1 Family	F = 317.5***
Step 2 Friends	F = 15.4***
Step 3 People who bother about the quality of the beer they drink	F = 4.4**
Step 4 Younger people	F = 0.5ns

7. 7. BI:SNB<sub>1-4</sub>

VIE

Step 1 People who bother about the quality of the beer they drink	F = 65.2***
Step 2 Family	F = 2.1ns

8. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1-4</sub>

VIE

Step 1 Buying a beer that tastes good	F = 39.7***
Step 2 Having difficulty to obtain it	F = 5.0**
Step 3 Buying the beer with the cockerel emblem	F = 3.3*
Step 4 Buying a popular beer	F = 2.4*
Step 5 Buying a strong beer	F = 1.5ns

9. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1-4</sub> and Confidence

VIE

Step 1 Buying a beer that tastes good	F = 39.7***
Step 2 Having difficulty to obtain it	F = 5.0**
Step 3 Buying the beer with the cockerel emblem	F = 3.3*
Step 4 Buying a popular beer	F = 2.4*
Step 5 Buying a strong beer	F = 1.5ns

WOMEN: COURAGE

1. BI:Aact,NB

VIE

Step 1 Aact F = 116.9\*\*\*  
Step 2 NB F = 0.2ns

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 Buying a good quality beer F = 21.8\*\*\*  
Step 2 Buying the beer with the cockerel  
emblem F = 8.4\*\*\*  
Step 3 Having difficulty to obtain it F = 4.4\*\*  
Step 4 Buying a popular beer F = 2.2ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 Buying a beer which offers good  
value for money F = 26.1\*\*\*  
Step 2 Buying the beer with the cockerel  
emblem F = 9.2\*\*\*  
Step 3 Buying a good quality beer F = 2.6\*  
Step 4 Buying a popular beer F = 2.1ns

4. NB:SNBmc<sub>1-5</sub>

VIE

Step 1 Husband F = 24.9\*\*\*  
Step 2 Younger people F = 7.4\*\*\*  
Step 3 Family F = 3.2\*  
Step 4 People who bother about the quality  
of the beer they drink F = 0.4ns

5. BI:SNBmc<sub>1-5</sub>

VIE

Step 1 Husband F = 12.0\*\*\*  
Step 2 Friends F = 2.0ns

6. NB:SNB<sub>1-5</sub>

VIE

Step 1 Family F = 67.4\*\*\*

Step 2 People who bother about the quality of the beer they drink	F = 7.7***
Step 3 Husband	F = 5.4**
Step 4 Friends	F = 1.0ns

7. BI:SNB<sub>1-5</sub>

VIE

Step 1 People who bother about the quality of the beer they drink	F = 42.2***
Step 2 Friends	F = 12.6***
Step 3 Husband	F = 3.4*
Step 4 Family	F = 2.7*
Step 5 Younger people	F = 1.1ns

8. BI:b<sub>i i</sub>, b<sub>i i</sub>, SNBmc<sub>1-5</sub>

VIE

Step 1 Buying a beer which offers good value for money	F = 26.1***
Step 2 Friends	F = 12.3***
Step 3 Younger people	F = 6.5***
Step 4 Buying a beer that tastes good	F = 5.0***
Step 5 Buying the beer with the cockerel emblem	F = 2.8*
Step 6 Buying a good quality beer	F = 1.6ns

9. BI:b<sub>i i</sub>, b<sub>i i</sub>, SNBmc<sub>1-5</sub> and Confidence

VIE

Step 1 Buying a beer which offers good value for money	F = 26.1***
Step 2 Friends	F = 12.3***
Step 3 Younger people	F = 6.5***
Step 4 Buying a beer that tastes good	F = 5.0***
Step 5 Confidence	F = 3.3**
Step 6 Buying the beer with the cockerel emblem	F = 3.1**
Step 7 Buying a good quality beer	F = 1.5ns

MEN:CHARRINGTONS

1. BI:Aact,NB

VIE

Step 1 Aact	F = 60.3***
Step 2 NB	F = 8.6***

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,etc.

VIE

Step 1 Buying a good quality beer	F = 27.6***
Step 2 Buying a strong beer	F = 4.4*
Step 3 Buying the beer with the Toby Jug	F = 1.0ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 Buying a strong beer	F = 37.3***
Step 2 Buying a good quality beer	F = 4.0*
Step 3 Having difficulty to obtain it	F = 3.6*
Step 4 Buying the beer with the Toby Jug	F = 1.8ns

4. NB:SNBmc<sub>1-4</sub>

VIE

Step 1 People who bother about the quality of the beer they drink	F = 13.3***
Step 2 Family	F = 4.1*
Step 3 Younger people	F = 1.8ns

5. BI:SNBmc<sub>1-4</sub>

VIE

Step 1 Friends	F = 0.2ns
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6. NB:SNB<sub>1-4</sub>

VIE

Step 1 Friends	F = 270.2***
Step 2 Family	F = 16.4***
Step 3 People who bother about the quality of the beer they drink	F = 9.5***
Step 4 Younger people	F = 0.8ns

7. BI:SNB<sub>1-4</sub>

VIE

Step 1 People who bother about the quality of the beer they drink	F = 55.0***
Step 2 Younger people	F = 8.8***
Step 3 Friends	F = 2.4ns

8. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1-4</sub>

VIE

Step 1 Buying a strong beer	F = 37.4***
Step 2 Buying a good quality beer	F = 4.0*
Step 3 Having difficulty to obtain it	F = 3.6*
Step 4 Buying the beer with the Toby Jug	F = 1.8ns

9. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, SNBmc<sub>1-4</sub> and Confidence

VIE

Step 1 Buying a strong beer	F = 37.4***
Step 2 Buying a good quality beer	F = 4.0*
Step 3 Having difficulty to obtain it	F = 3.6*
Step 4 Buying the beer with the Toby Jug	F = 1.8ns

WOMEN: CHARRINGTONS

1. BI:Aact,NB

VIE

Step 1 Aact F = 26.1\*\*\*  
Step 2 NB 1.1ns

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,etc.

Step 1 Buying a beer that tastes good F = 11.9\*\*\*  
Step 2 Buying a well-known beer F = 1.1ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 Buying a good quality beer F = 10.9\*\*\*  
Step 2 Buying a beer which offers good  
value for money F = 0.8ns

4. NB:SNBmc<sub>1-5</sub>

VIE

Step 1 Husband F = 33.0\*\*\*  
Step 2 Younger people F = 6.8\*\*  
Step 3 Family F = 11.3\*\*\*  
Step 4 Friends F = 1.4ns

5. BI:SNBmc<sub>1-5</sub>

VIE

Step 1 Husband F = 10.9\*\*\*  
Step 2 People who bother about the quality  
of the beer they drink F = 1.7ns

6. NB:SNB<sub>1-5</sub>

VIE

Step 1 Husband F = 69.9\*\*\*  
Step 2 Friends F = 17.3\*\*\*  
Step 3 Younger people F = 5.2\*\*  
Step 4 People who bother about the quality  
of the beer they drink F = 5.2\*\*\*  
Step 5 Family F = 6.8\*\*\*

7. BI:SNB<sub>1-5</sub>

VIE

Step 1 Friends	F = 29.7***
Step 2. People who bother about the quality of the beer they drink	F = 6.3**
Step 3 Husband	F = 0.6ns

8. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1-5</sub>

VIE

Step 1 Buying a good quality beer	F = 10.9***
Step 2 Family	F = 14.1***
Step 3 Buying a beer which offers good value for money	F = 3.1*
Step 4 People who bother about the quality of the beer they drink	F = 1.7ns

9. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1-5</sub> and Confidence

VIE

Step 1 Buying a good quality beer	F = 10.9***
Step 2 Family	F = 14.1***
Step 3 Confidence	F = 6.1***
Step 4 Buying a beer which offers good value for money	F = 1.9ns

MEN:IND COOPE

1. BI:Aact,NB

VIE

Step 1 Aact F = 118.7\*\*\*  
Step 2 NB F = 12.7\*\*\*

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 Buying a beer that tastes good F = 96.9\*\*\*  
Step 2 Having difficulty to obtain it F = 2.2ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 Buying a beer that tastes good F = 65.9\*\*\*  
Step 2 Buying a strong beer F = 1.8ns

4. NB:SNBmc<sub>1-4</sub>

VIE

Step 1 Family F = 6.9\*\*  
Step 2 Younger people F = 3.1\*  
Step 2 People who bother about the quality  
of the beer they drink F = 1.3ns

5. BI:SNBmc<sub>1-4</sub>

VIE

Step 1 Younger people F = 2.5ns

6. NB:SNB<sub>1-4</sub>

VIE

Step 1 Friends F = 270.7\*\*\*  
Step 2 Family F = 30.0\*\*\*  
Step 3 People who bother about the quality  
of the beer they drink F = 4.8\*\*  
Step 4 Younger people F = 1.7ns

7. BI:SNB<sub>1-4</sub>

VIE

Step 1 Friends F = 55.6\*\*\*  
Step 2 People who bother about the quality

of the beer they drink	F = 12.9***
Step 3 Family	F = 3.9**
Step 4 Younger people	F = 0.6ns

8. BI:  $b_{ii}, b_{ii}, SNBmc_{1-4}$

VIE

Step 1 Buying a beer that tastes good	F = 65.9***
Step 2 Younger people	F = 2.2ns

9. BI:  $b_{ii}, b_{ii}, SNBmc_{1-4}$  and Confidence

VIE

Step 1 Buying a beer that tastes good	F = 65.9***
Step 2 Confidence	F = 3.7*
Step 3 Buying a strong beer	F = 2.0ns

WOMEN: IND COOPE

1. BI:Aact,NB

VIE

Step 1 Aact F = 59.5\*\*\*  
Step 2 NB F = 6.2\*\*

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,etc.

VIE

Step 1 Buying a good quality beer F = 62.8\*\*\*  
Step 2 Buying a beer that tastes good F = 1.2ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,etc.

VIE

Step 1 Buying a good quality beer F = 35.2\*\*\*  
Step 2 Buying a beer which offers good  
value for money F = 0.7ns

4. NB:SNBmc<sub>1-5</sub>

VIE

Step 1 Husband F = 36.3\*\*\*  
Step 2 Family F = 3.4\*  
Step 3 Younger people F = 5.8\*\*\*  
Step 4 Friends F = 1.5ns

5. BI:SNBmc<sub>1-5</sub>

VIE

Step 1 Husband F = 20.2\*\*\*  
Step 2 Younger people F = 0.8ns

6. NB:SNB<sub>1-5</sub>

VIE

Step 1 Friends F = 85.7\*\*\*  
Step 2 Husband F = 25.8\*\*\*  
Step 3 People who bother about the quality  
of the beer they drink F = 7.2\*\*\*  
Step 4 Family F = 3.1\*  
Step 5 Younger people F = 0.1ns

7. BI:SNB<sub>1-5</sub>

VIE

Step 1 Family	F = 45.6***
Step 2 Husband	F = 11.1***
Step 3 Younger people	F = 1.6ns

8. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1-5</sub>

VIE

Step 1 Buying a good quality beer	F = 55.2***
Step 2 Husband	F = 11.7***
Step 3 People who bother about the quality of the beer they drink	F = 1.1ns

9. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1-5</sub> and Confidence

VIE

Step 1 Buying a good quality beer	F = 35.2***
Step 2 Husband	F = 11.7***
Step 3 People who bother about the quality of the beer they drink	F = 1.1ns

MEN:SCOTTISH & NEWCASTLE

1. BI:Aact,NB

VIE

Step 1 Aact F = 147.5\*\*\*  
Step 2 NB F = 10.9\*\*\*

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 Buying a beer that tastes good F = 127.0\*\*\*  
Step 2 Buying a good quality beer F = 3.3\*  
Step 3 Buying a popular beer F = 1.7ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 Buying a beer that tastes good F = 50.2\*\*\*  
Step 2 Buying a strong beer F = 4.3\*  
Step 3 Having difficulty to obtain it F = 2.1ns

4. NB:SNBmc<sub>1-4</sub>

VIE

Step 1 Family F = 9.8\*\*  
Step 2 Younger people F = 19.1\*\*\*  
Step 3 People who bother about the quality  
of the beer they drink F = 2.1ns

5. BI:SNBmc<sub>1-4</sub>

VIE

Step 1 Younger people F = 2.4ns

6. NB:SNB<sub>1-4</sub>

VIE

Step 1 Family F = 220.7\*\*\*  
Step 2 Friends F = 32.3\*\*\*  
Step 3 People who bother about the quality  
of the beer they drink F = 11.7\*\*\*  
Step 4 Younger people F = 0.6ns

7. BI:SNB<sub>1-4</sub>

VIE

Step 1 Family	F = 66.7***
Step 2 Friends	F = 9.4***
Step 3 People who bother about the quality of the beer they drink	F = 2.3ns

8. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1-4</sub>

VIE

Step 1 Buying a beer that tastes good	F = 50.2***
Step 2 Buying a strong beer	F = 4.3**
Step 3 Having difficulty to obtain it	F = 2.1ns

9. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1-4</sub> and Confidence

VIE

Step 1 Buying a beer that tastes good	F = 50.2***
Step 2 Confidence	F = 5.6**
Step 3 Buying a strong beer	F = 3.9**
Step 4 Having difficulty to obtain it	F = 2.2ns

WOMEN: SCOTTISH & NEWCASTLE

1. BI:Aact,NB

VIE

Step 1 Aact	F = 84.5***
Step 2 NB	F = 5.9**

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,etc.

VIE

Step 1 Buying a good quality beer	F = 38.5***
Step 2 Buying a well-known beer	F = 1.9ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 Buying a good quality beer	F = 41.8***
Step 2 Buying a beer that tastes good	F = 1.5ns

4. NB:SNBmc<sub>1-5</sub>

VIE

Step 1 Husband	F = 48.7***
Step 2 Younger people	F = 6.4**
Step 3 Family	F = 6.3***
Step 4 People who bother about the quality of the beer they drink	F = 0.9ns

5. BI:SNBmc<sub>1-5</sub>

VIE

Step 1 Husband	F = 43.3***
Step 2 Younger people	F = 2.4ns

6. NB:SNB<sub>1-5</sub>

VIE

Step 1 Husband	F = 109.2***
Step 2 Family	F = 23.6***
Step 3 Friends	F = 3.2*
Step 4 people who bother about the quality of the beer they drink	F = 0.4ns

7. BI:SNB<sub>1-5</sub>

VIE

Step 1 Husband	F = 82.0***
Step 2 People who bother about the quality of the beer they drink	F = 10.2***
Step 3 Younger people	F = 2.7*
Step 4 Family	F = 2.0ns

8. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1-5</sub>

VIE

Step 1 Husband	F = 43.3***
Step 2 Buying a good quality beer	F = 17.3***
Step 3 Younger people	F = 4.0**
Step 4 Buying a popular beer	F = 1.7ns

9. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1-5</sub> and Confidence

VIE

Step 1 Husband	F = 43.3***
Step 2 Buying a good quality beer	F = 17.3***
Step 3 Younger people	F = 4.0**
Step 4 Buying a popular beer	F = 1.7ns

APPENDIX 6(vi)

LAGER BRANDS: STEPWISE REGRESSIONS

MEN:HARP

1. BI:Aact,NB

VIE

Step 1 Aact	F = 295.9***
Step 2 NB	F = 13.8***

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,etc.

R<sup>2</sup>

Step 1 buying a lager that tastes good	.55***
Step 2 buying a British made lager	.57***
Step 3 buying a good quality lager	.59***
Step 4 buying a lager which is not well-known	.59***
Step 5 buying a lager with a foreign name	.59***
Step 6 buying a popular lager	.60***
Step 7 buying a lager from Guinness and Park Royal	.60***
Step 8 buying a lager which is easily avail- able	.60***
Step 9 buying a Pils lager	.60***
Step 10 buying a lager which offers good value for money	.60***
Step 11 buying a refreshing and thirst quench- ing lager	.60***
Step 12 buying a strong lager	.60***

VIE

Step 1 buying a lager that tastes good	F = 84.9***
Step 2 buying a British made lager	F = 6.3**
Step 3 buying a good quality lager	F = 4.6**
Step 4 buying a lager which is not well- known	F = 2.0ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,etc.

VIE

Step 1 buying a lager that tastes good	F = 97.4***
Step 2 buying a good quality lager	F = 6.9**
Step 3 buying a lager which is not well- known	F = 7.6***
Step 4 buying a popular lager	F = 1.9ns

4. NB:SNBmc<sub>1-4</sub>

VIE

Step 1 Family F = 43.4\*\*\*  
Step 2 Sporty types F = 0.9ns

5. BI:SNBmc<sub>1-4</sub>

VIE

Step 1 Family F = 13.8\*\*\*  
Step 2 Sporty types F = 2.0ns

6. NB:SNB<sub>1-4</sub>

VIE

Step 1 Family F = 634.7\*\*\*  
Step 2 People who know a lot about lager F = 23.2\*\*\*  
Step 3 Friends F = 0.5ns

7. BI:SNB<sub>1-4</sub>

VIE

Step 1 Family F = 149.5\*\*\*  
Step 2 People who know a lot about lager F = 19.5\*\*\*  
Step 3 Sporty types F = 3.9\*\*  
Step 4 Friends F = 2.6\*

8. BI:b<sub>i i</sub>,b<sub>i i</sub>,SNBmc<sub>1-4</sub>

VIE

Step 1 buying a lager that tastes good F = 97.4\*\*\*  
Step 2 buying a good quality lager F = 6.9\*\*  
Step 3 buying a lager which is not well-known F = 7.6\*\*\*  
Step 4 Family F = 4.6\*\*  
Step 5 buying a popular lager F = 1.9ns

9. BI:b<sub>i i</sub>,b<sub>i i</sub>,SNBmc<sub>1-4</sub> and Confidence

VIE

Step 1 buying a lager that tastes good F = 97.4\*\*\*  
Step 2 Confidence F = 8.0\*\*\*  
Step 3 buying a lager which is not well-known F = 7.3\*\*\*  
Step 4 buying a good quality lager F = 8.3\*\*\*

Step 5 Family	F = 4.9***
Step 6 buying a British made lager	F = 2.2*
Step 7 buying a lager which offers good value for money	F = 1.8ns

10. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNB<sub>1-4</sub>

VIE

Step 1 Family	F = 149.5***
Step 2 buying a lager that tastes good	F = 32.7***
Step 3 people who know a lot about lager	F = 11.8***
Step 4 buying a strong lager	F = 3.0*
Step 5 Sporty types	F = 1.7ns

WOMEN: HARP

1. BI:Aact,NB

Step 1 Aact F = 94.5\*\*\*  
Step 2 NB F = 10.2\*\*\*

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 buying a good quality lager F = 45.5\*\*\*  
Step 2 buying a lager from Guinness and Park  
Royal F = 3.7\*  
Step 3 buying a lager which is easily  
available F = 3.0\*  
Step 4 buying a popular lager F = 2.6\*  
Step 5 buying a lager with a foreign name F = 1.2ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 buying a good quality lager F = 38.2\*\*\*  
Step 2 buying a Pils lager F = 6.9\*\*  
Step 3 buying a lager from Guinness and  
Park Royal F = 3.6\*  
Step 4 buying a lager which is easily  
available F = 2.0ns

4. NB:SNBmc<sub>1-5</sub>

VIE

Step 1 People who know a lot about lager F = 39.6\*\*\*  
Step 2 Husband F = 2.1ns

5. BI:SNBmc<sub>1-5</sub>

VIE

Step 1 Husband F = 17.9\*\*\*  
Step 2 People who know a lot about lager F = 6.5\*\*  
Step 3 Sporty types F = 6.5\*\*\*  
Step 4 Family F = 3.6\*\*  
Step 5 Friends F level insuff.

6.NB:SNB<sub>1-5</sub>

VIE

Step 1 Friends F = 184.8\*\*\*

Step 2 Family	F = 14.3***
Step 3 People who know a lot about lager	F = 11.7***
Step 4 Husband	F = 3.2*
Step 5 Sporty types	F = 0.2ns

7. BI:SNB<sub>1-5</sub>

VIE

Step 1 Sporty types	F = 47.0***
Step 2 Husband	F = 13.1***
Step 3 Friends	F = 5.1**
Step 4 People who know a lot about lager	F = 1.2ns

8. BI:b<sub>1i</sub>,a<sub>1i</sub>,b<sub>1i</sub>,a<sub>1i</sub>,SNBmc<sub>1-5</sub>

VIE

Step 1 buying a good quality lager	F = 38.2***
Step 2 Family	F = 10.2***
Step 3 buying a Pils lager	F = 7.8***
Step 4 buying a lager from Guinness and Park Royal	F = 5.8***
Step 5 People who know a lot about lager	F = 2.6*
Step 6 Sporty types	F = 5.5***
Step 7 buying a lager which is easily available	F = 2.3*
Step 8 buying a lager which offers good value for money	F = 1.8ns

9. BI:b<sub>1i</sub>,a<sub>1i</sub>,b<sub>1i</sub>,a<sub>1i</sub>,SNBmc<sub>1-5</sub> and Confidence

VIE

Step 1 buying a good quality lager	F = 38.2***
Step 2 Family	F = 10.2***
Step 3 buying a Pils lager	F = 7.8***
Step 4 buying a lager from Guinness and Park Royal	F = 5.8***
Step 5 Confidence	F = 3.5**
Step 6 buying a lager which is not well- known	F = 2.7*
Step 7 People who know a lot about lager	F = 2.2*
Step 8 Sporty types	F = 4.0***
Step 9 buying a lager which is easily avail.	F = 2.0*
Step 10 buying a lager which offers g.v.f.m	F = 1.5ns

10. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNB<sub>1-5</sub>

VIE

Step 1 Sporty types	F = 46.9***
Step 2 buying a good quality lager	F = 18.1***
Step 3 buying a Pils lager	F = 11.2***
Step 4 Family	F = 11.7***
Step 5 buying a lager which offers good value for money	F = 4.4***
Step 6 buying a lager from Guinness and Park Royal	F = 3.0**
Step 7 buying a lager which is not well- known	F = 3.6***
Step 8 buying a lager which is easily available	F = 1.8ns

MEN:SKOL

1. BI:Aact,NB

VIE

Step 1 Aact F = 179.3\*\*\*  
Step 2 NB F = 5.7\*\*

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 buying a lager that tastes good F = 100.3\*\*\*  
Step 2 buying a refreshing and thirst -  
quenching lager F = 5.2\*\*  
Step 3 buying a lager which is not well-  
known F = 4.3\*\*  
Step 4 buying a lager with a foreign name F = 3.3\*  
Step 5 buying a lager which offers good  
value for money F = 2.4\*  
Step 6 buying a good quality lager F = 0.8ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 buying a lager that tastes good F = 98.9\*\*\*  
Step 2 buying a British made lager F = 1.3ns

4. NB:SNBmc<sub>1-4</sub>

VIE

Step 1 Family F = 51.4\*\*\*  
Step 2 People who know a lot about lager F = 0.9ns

5. BI:SNBmc<sub>1-4</sub>

VIE

Step 1 Family F = 13.7\*\*\*  
Step 2 Sporty types F = 3.3\*  
Step 3 People who know a lot about lager F = 1.5ns

6. NB:SNB<sub>1-4</sub>

VIE

Step 1 Family F = 533.6\*\*\*  
Step 2 Sporty types F = 15.4\*\*\*  
Step 3 Friends F = 8.2\*\*\*

Step 4 People who know a lot about lager F = 0.9ns

7. BI:SNB<sub>i i</sub> 1-4

VIE

Step 1 Family F = 81.6\*\*\*

Step 2 People who know a lot about lager F = 10.2\*\*\*

Step 3 Sporty types F = 0.4ns

8. BI:b<sub>i i</sub>, a<sub>i i</sub>, b<sub>i i</sub>, SNBmc<sub>i i</sub> 1-4

VIE

Step 1 buying a lager that tastes good F = 98.9\*\*\*

Step 2 Family F = 10.6\*\*\*

Step 3 Sporty types F = 1.5ns

9. BI:b<sub>i i</sub>, a<sub>i i</sub>, b<sub>i i</sub>, a<sub>i i</sub>, SNBmc<sub>i i</sub> 1-5 and Confidence

VIE

Step 1 buying a lager that tastes good F = 98.9\*\*\*

Step 2 Friends F = 10.6\*\*\*

Step 3 Confidence F = 5.5\*\*\*

Step 4 Sporty types F = 2.1ns

WOMEN:SKOL

1. BI:Aact,NB

VIE

Step 1 Aact F = 92.6\*\*\*  
Step 2 NB F = 1.0ns

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,etc.

VIE

Step 1 buy a lager that tastes good F = 55.5\*\*\*  
Step 2 buy a lager with a foreign name F = 1.9ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 buying a lager that tastes good F = 31.3\*\*\*  
Step 2 buying a lager which offers good value  
for money F = 1.6ns

4. NB:SNBmc<sub>1-5</sub>

VIE

Step 1 Husband F = 22.7\*\*\*  
Step 2 Friends F = 4.9\*\*  
Step 3 Family F = 0.2ns

5. BI:SNBmc<sub>1-4</sub>

VIE

Step 1 Husband F = 13.2\*\*\*  
Step 2 Friends F = 1.8ns

6. NB:SNB<sub>1-5</sub>

VIE

Step 1 Family F = 110.2\*\*\*  
Step 2 Friends F = 7.1\*\*\*  
Step 3 Husband F = 4.1\*\*  
Step 4 Sporty types F = 0.3ns

7. BI:SNB<sub>1-4</sub>

VIE

Step 1 Family F = 40.9\*\*\*  
Step 2 Sporty types F = 9.8\*\*\*

Step 3 Husband F = 4.5\*\*  
Step 4 People who know a lot about lager F = 0.1ns

8. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1-4</sub>

VIE

Step 1 buying a lager that tastes good F = 31.3\*\*\*  
Step 2 Husband F = 6.3\*\*  
Step 3 buying a good quality lager F = 1.5ns

9. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, SNBmc<sub>1-5</sub> and Confidence

VIE

Step 1 buying a lager that tastes good F = 31.3\*\*\*  
Step 2 Husband F = 6.3\*\*  
Step 3 Confidence F = 2.5ns

MEN:KRONENBOURG

1. BI:Aact,NB

VIE

Step 1 Aact F = 155.9\*\*\*  
Step 2 NB F = 0.7ns

2, Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 buying a lager that tastes good F = 75.5\*\*\*  
Step 2 buying a lager which is easily  
available F = 2.2ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 buying a lager that tastes good F = 59.2\*\*\*  
Step 2 buying a lager which is easily avail-  
able F = 4.9\*\*  
Step 3 buying a lager which offers good  
value for money F = 3.9\*\*  
Step 4 buying a refreshing and thirst  
quenching lager F = 1.2ns

4. NB:SNBmc<sub>1-4</sub>

VIE

Step 1 Family F = 23.7\*\*\*  
Step 2 Sporty types F = 2.9ns

5. BI:SNBmc<sub>1-4</sub>

VIE

Step 1 Family F = 4.6\*  
Step 2 People who know a lot about lager F = 4.0\*  
Step 3 Sporty types F = 0.3ns

6. NB:SNB<sub>1-4</sub>

VIE

Step 1 Family F = 418.5\*\*\*  
Step 2 Sporty types F = 5.2\*\*  
Step 3 Friends F = 1.9ns

7. BI:SNB<sub>1-4</sub>

VIE

Step 1 Family	F = 44.2***
Step 2 People who know a lot about lager	F = 15.5***
Step 3 Friends	F level insuff.

8. BI:b<sub>i i</sub>,b<sub>i i</sub>,SNBmc<sub>1-4</sub>

VIE

Step 1 buying a lager that tastes good	F = 59.2***
Step 2 buying a lager which is easily available	F = 4.9**
Step 3 buying a lager which offers good value for money	F = 3.9**
Step 4 Family	F = 2.4*
Step 5 Friends	F = 1.6ns

9. BI:b<sub>i i</sub>,b<sub>i i</sub>, SNBmc<sub>1-4</sub> and Confidence

VIE

Step 1 buying a lager that tastes good	F = 59.2***
Step 2 buying a lager which is easily available	F = 4.9**
Step 3 buying a lager which offers good value for money	F = 3.9**
Step 4 Family	F = 2.4*
Step 5 Friends	F = 1.8ns

WOMEN:KRONENBOURG

1. BI: Aact,NB

VIE

Step 1 Overall attitude, Aact F = 67.5\*\*\*  
Step 2 General norm, NB F = 5.0\*\*

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 buying a lager that tastes good F = 48.1\*\*\*  
Step 2 buying a lager which is easily  
available F = 5.5\*\*  
Step 3 buying a strong lager F = 3.6\*  
Step 4 buying a lager which offers good  
value for money F = 1 1.8ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 buying a lager that tastes good F = 18.7\*\*\*  
Step 2 buying a lager which offers good  
value for money F = 3.7\*  
Step 3 buying a strong lager F = 3.3\*  
Step 4 buying a lager which is not well-  
known F = 1.5ns

4. NB:SNBmc<sub>1-5</sub>

VIE

Step 1 Husband F = 20.2\*\*\*  
Step 2 Friends F = 4.8\*\*  
Step 3 Sporty types F = 2.5ns

5. BI:SNBmc<sub>1-5</sub>

VIE

Step 1 Husband F = 21.5\*\*\*  
Step 2 Friends F = 3.6\*  
Step 3 Sporty types F = 1.4ns

6. NB:SNB<sub>1-5</sub>

VIE

Step 1 Friends F = 105.4\*\*\*

Step 2 Family	F = 8.3***
Step 3 People who know a lot about lager	F = 5.3**
Step 4 Husband	F = 1.6ns

7. BI:SNB<sub>1-5</sub>

VIE

Step 1 Husband	F = 17.3***
Step 2 Friends	F = 6.3**
Step 3 People who know a lot about lager	F = 0.9ns

8. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1-5</sub>

VIE

Step 1 Husband	F = 21.5***
Step 2 buying a strong lager	F = 10.5***
Step 3 Sporty types	F = 4.3**
Step 4 buying a lager that tastes good	F = 2.1ns

9. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1-5</sub> and Confidence

VIE

Step 1 Husband	F = 21.5***
Step 2 buying a strong lager	F = 10.5***
Step 3 Sporty types	F = 4.3**

MEN:CARLSBERG

1. BI:Aact,NB

Step 1 Aact F = 166.0\*\*\*  
Step 2 NB F = 33.4\*\*\*

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 buying a lager that tastes good F = 40.1\*\*\*  
Step 2 buying a Pils lager F = 7.9\*\*\*  
Step 3 buying a Danish lager brewed in  
England by Danes F = 5.0\*\*  
Step 4 buying a good quality lager F = 2.6\*  
Step 5 buying a refreshing and thirst-  
quenching lager F = 2.9\*  
Step 6 buying a lager which offers good  
value for money F = 2.2\*  
Step 7 buying a lager with a foreign name F = 1.6ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 buying a lager that tastes good F = 51.7\*\*\*  
Step 2 buying a Pils lager F = 5.3\*\*  
Step 3 buying a lager which is not well-  
known F = 3.9\*\*  
Step 4 buying a refreshing and thirst-  
quenching lager F = 2.6\*  
Step 5 buying a lager which is easily  
available F = 2.6\*  
Step 6 buying a Danish lager brewed in  
England by Danes F = 3.4\*\*  
Step 7 buying a good quality lager F = 2.2\*  
Step 8 buying a lager which offers good  
value for money F = 2.8\*\*  
Step 9 buying a popular lager F = 2.5\*\*  
Step 10 buying a British made lager F = 0.5ns

4. NB:SNBmc<sub>1-4</sub>

VIE

Step 1 Family F = 26.3\*\*\*

Step 2 People who know a lot about lager F = 3.4\*  
 Step 3 Sporty types F = 1.2ns

5. BI:SNBmc<sub>1-4</sub>

VIE

Step 1 People who know a lot about lager F = 14.6\*\*\*  
 Step 2 Sporty types F = 4.5\*  
 Step 3 Family F = 2.7\*  
 Step 4 Friends F level insuff.

6. NB:SNB<sub>1-4</sub>

VIE

Step 1 Family F = 364.0\*\*\*  
 Step 2 People who know a lot about lager F = 7.3\*\*\*  
 Step 3 Sporty types F = 1.5ns

7. BI:SNB<sub>1-4</sub>

VIE

Step 1 Family F = 78.2\*\*\*  
 Step 2 People who know a lot about lager F = 22.6\*\*\*  
 Step 3 Sporty types F = 1.2ns

8. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, SNBmc<sub>1-4</sub>

VIE

Step 1 buying lager that tastes good F = 51.7\*\*\*  
 Step 2 People who know alot about lager F = 8.8\*\*\*  
 Step 3 buying a lager which is not well  
           known F = 3.4\*  
 Step 4 Sporty types F = 4.2\*\*  
 Step 5 buying a lager which is easily avail-  
           able F = 3.2\*\*  
 Step 6 buying a Pils lager F = 2.7\*  
 Step 7 buying a refreshing and thirst-  
           quenching lager F = 2.7\*\*  
 Step 8 Danish lager brewed in England  
           by Danes F = 1.9ns

9. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1-4</sub> and Confidence

VIE

Step 1 buying a lager that tastes good F = 51.7\*\*\*

Step 2	People who know a lot about lager	F = 8.8***
Step 3	buying a lager which is not well-known	F = 3.4*
Step 4	Sporty types	F = 4.2**
Step 5	buying a lager which is easily available	F = 3.2**
Step 6	buying a Pils lager	F = 2.7*
Step 7	buying a refreshing and thirst-quenching lager	F = 2.7**
Step 8	buying Danish lager brewed in England by Danes	F = 1.9ns

WOMEN: CARLSBERG

1. BI:Aact,NB

Step 1 Aact F = 96.1\*\*\*  
Step 2 NB F = 0.2ns

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 buying a lager that tastes good F = 30.6\*\*\*  
Step 2 buying a lager with a foreign name F = 2.4ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 buying a good quality lager F = 15.4\*\*\*  
Step 2 buying the best lager in the world F = 5.8\*\*  
Step 3 buying a lager with a foreign name F = 2.9\*  
Step 4 buying a lager which offers good  
value for money F = 2.5\*  
Step 5 buying Danish lager brewed in  
England by Danes F = 1.9ns

4. NB:SNBmc<sub>1-5</sub>

VIE

Step 1 Friends F = 9.1\*\*  
Step 2 Husband F = 1.9ns

5. BI:SNBmc<sub>1-5</sub>

VIE

Step 1 Friends F = 8.8\*\*  
Step 2 Sporty types F = 5.7\*\*  
Step 3 Husband F = 2.3ns

6. NB:SNB<sub>1-5</sub>

VIE

Step 1 Family F = 79.5\*\*\*  
Step 2 People who know a lot about lager F = 13.6\*\*\*  
Step 3 Friends F = 0.9ns

7. BI:SNB<sub>1-5</sub>

VIE

Step 1 People who know a lot about lager F = 16.9\*\*\*

Step 2 Family	F =	5.6**
Step 3 Husband	F =	0.7ns

8. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1-5</sub>

VIE

Step 1 buying a good quality lager	F =	15.4***
Step 2 Husband	F =	7.7***
Step 3 buying the best lager in the world	F =	4.9**
Step 4 buying a lager with a foreign name	F =	3.1*
Step 5 Friends	F =	2.6*
Step 6 Sporty types	F =	4.3***
Step 7 buying a lager which is easily available	F =	2.3*
Step 8 buying a strong lager	F =	1.8ns

9. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1-5</sub> and Confidence

VIE

Step 1 buying a good quality lager	F =	15.4***
Step 2 Husband	F =	7.7***
Step 3 buying the best lager in the world	F =	4.9**
Step 4 buying a lager with a foreign name	F =	3.1*
Step 5 Friends	F =	2.6*
Step 6 Sporty types	F =	4.3***
Step 7 buying a lager which is easily available	F =	2.3*
Step 8 buying a Pils lager	F =	1.8ns

MEN:HEINEKEN

1. BI:Aact,NB

VIE

Step 1 Aact F = 136.4\*\*\*  
Step 2 NB F = 0.8ns

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,etc.

VIE

Step 1 buying a lager that tastes good F = 68.1\*\*\*  
Step 2 buying a lager which is easily  
available F = 11.0\*\*\*  
Step 3 buying a Pils lager F = 4.2\*\*  
Step 4 buying a lager with a foreign name F = 1.9ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 buying a lager that tastes good F = 62.2\*\*\*  
Step 2 buying a lager which is easily  
available F = 5.6\*\*  
Step 3 buying a lager which is not well  
known F = 2.2ns

4. NB:SNBmc<sub>1-4</sub>

VIE

Step 1 Family F = 37.1\*\*\*  
Step 2 People who know a lot about lager F = 0.3ns

5. BI:SNBmc<sub>1-4</sub>

VIE

Step 1 Family F = 8.0\*\*  
Step 2 People who know a lot about lager F = 0.5ns

6. NB:SNB<sub>1-4</sub>

VIE

Step 1 Family F = 456.1\*\*\*  
Step 2 People who know a lot about lager F = 6.7\*\*\*  
Step 3 Friends F = 0.9ns

7. BI:SNB<sub>1-4</sub>

VIE

Step 1 Friends	F =	68.8***
Step 2 Family	F =	4.9**
Step 3 People who know a lot about lager	F =	1.5ns

8. BI:  $b_{i_i}, b_{i_i}, SNBmc_{1-4}$

VIE

Step 1 buying a lager that tastes good	F =	62.2***
Step 2 buying a lager which is easily available	F =	5.6**
Step 3 Family	F =	3.7*
Step 4 buying a strong lager	F =	2.1ns

9. BI:  $b_{i_i}, b_{i_i}, SNBmc_{1-4}$  and Confidence

VIE

Step 1 buying a lager that tastes good	F =	62.2***
Step 2 buying a lager which is easily available	F =	5.6**
Step 3 Family	F =	3.7*
Step 4 buying a strong lager	F =	2.1ns

WOMEN: HEINEKEN

1. BI:Aact,NB

VIE

Step 1 Aact F = 102.1\*\*\*  
Step 2 NB F = 2.3ns

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 buying a lager that tastes good F = 41.2\*\*\*  
Step 2 buying a strong lager F = 2.6ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 buying a good quality lager F = 26.7\*\*\*  
Step 2 buying a strong lager F = 1.9ns

4. NB:SNBmc<sub>1-5</sub>

VIE

Step 1 People who know a lot about lager F = 13.9\*\*\*  
Step 2 Husband F = 1.8ns

5. BI:SNBmc<sub>1-5</sub>

VIE

Step 1 Husband F = 14.9\*\*\*  
Step 2 People who know a lot about lager F = 3.9\*  
Step 3 Sporty types F = 4.4\*\*  
Step 4 Family F = 3.4\*  
Step 5 Friends F = 0.8ns

6. NB:SNB<sub>1-5</sub>

VIE

Step 1 Family F = 76.4\*\*\*  
Step 2 People who know a lot about lager F = 10.1\*\*\*  
Step 3 Husband F = 2.7\*  
Step 4 Sporty types F = 1.3ns

7. BI:SNB<sub>1-5</sub>

VIE

Step 1 Family F = 12.2\*\*\*

Step 2 Husband	F =	6.8***
Step 3 People who know a lot about lager	F =	0.1ns

8. BI:  $b_{i_i}, b_{i_i}, SNBmc_{1-5}$

VIE

Step 1 buying a good quality lager	F =	26.7***
Step 2 Husband	F =	14.1***
Step 3 buying a strong lager	F =	3.8**
Step 4 buying a lager which offers good value for money	F =	3.1*
Step 5 buying a lager that tastes good	F =	2.3*
Step 6 buying a refreshing and thirst quenching lager	F =	2.1*
Step 7 Sporty types	F =	2.5*
Step 8 Family	F =	2.1*
Step 9 People who know a lot about lager	F =	0.9ns

9. BI:  $b_{i_i}, b_{i_i}, SNBmc_{1-5}$  and Confidence

VIE

Step 1 buying a good quality lager	F =	26.7***
Step 2 Husband	F =	14.1***
Step 3 buying a strong lager	F =	3.8**
Step 4 buying a lager which offers good value for money	F =	3.1*
Step 5 buying a lager that tastes good	F =	2.3*
Step 6 Confidence	F =	2.5*
Step 7 buying a refreshing and thirst- quenching lager	F =	2.0*
Step 8 Sporty types	F =	1.7ns

MEN:HOLSTEN

1. BI:Aact,NB

VIE

Step 1 Aact	F = 101.3***
Step 2 NB	F = 6.4**

2.Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 buying a strong lager	F = 43.8***
Step 2 buying a british made lager	F = 12.6***
Step 3 buying a popular lager	F = 9.0***
Step 4 buying a lager which is good value for money	F = 3.5**
Step 5 buying a good quality lager	F = 3.1*
Step 6 buying a lager that tastes good	F = 0.9ns

3. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 buying a strong lager	F = 50.6***
Step 2 buying a popular lager	F = 18.3***
Step 3 buying a British made lager	F = 3.9**
Step 4 buying a lager which offers good value for money	F = 1.9ns

4. NB:SNBmc<sub>1-4</sub>

VIE

Step 1 Family	F = 54.9***
Step 2 Friends	F = 1.2ns

5.BI:SNBmc<sub>1-4</sub>

VIE

Step 1 Family	F = 7.9**
Step 2 Friends	F = 1.4ns

6. NB:SNB<sub>1-4</sub>

VIE

Step 1 Family	F = 444.7***
Step 2 People who know a lot about lager	F = 10.9***
Step 3 Friends	F = 1.1ns

7. BI:SNB<sub>1-4</sub>

VIE

Step 1 People who know a lot about lager	F = 38.9***
Step 2 Family	F = 12.3***
Step 3 Friends	F = 0.2ns

8. BI:b<sub>i i</sub>,a<sub>i i</sub>,b<sub>i i</sub>,SNBmc<sub>1-4</sub>

VIE

Step 1 buying a strong lager	F = 50.6***
Step 2 buying a popular lager	F = 18.3***
Step 3 buying a British made lager	F = 3.9**
Step 4 buying a lager which offers value for money	F = 1.9ns

9. BI:b<sub>i i</sub>,a<sub>i i</sub>,b<sub>i i</sub>,SNBmc<sub>1-4</sub> and Confidence

VIE

Step 1 buying a strong lager	F = 50.6***
Step 2 buying a popular lager	F = 18.3***
Step 3 Confidence	F = 7.5***
Step 4 buying a British made lager	F = 4.3**
Step 5 buying a refreshing and thirst- quenching lager	F = 2.5*
Step 6 Family	F = 1.7ns

WOMEN:HOLSTEN

1. BI:Aact,NB

VIE

Step 1 Aact	F =	38.3***
Step 2 NB	F =	4.5*

2. Aact:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 buying a lager that tastes good	F =	27.1***
Step 2 buying a German lager	F =	8.3***
Step 3 buying a lager with a foreign name	F =	2.7*
Step 4 buying a strong lager	F =	2.0ns

3. BI;b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>, etc.

VIE

Step 1 buying a lager that tastes good	F =	19.2***
Step 2 buying a Pils lager	F =	3.9*
Step 3 buying a popular lager	F =	3.4*
Step 4 buying a lager with a diet version	F =	2.4*
Step 5 buying a lager which is easily available	F =	1.9ns

4. NB:SNBmc<sub>1-5</sub>

VIE

Step 1 Friends	F =	48.8***
Step 2 Husband	F =	2.8ns

5. BI:SNBmc<sub>1-5</sub>

VIE

Step 1 Husband	F =	5.3*
Step 2 Sporty types	F =	4.0*
Step 3 Family	F =	0.6ns

6. NB:SNB<sub>1-5</sub>

VIE

Step 1 Friends	F =	110.2***
Step 2 Family	F =	15.9***
Step 3 People who know a lot about lager	F =	7.6***
Step 4 Husband	F =	6.7***

Step 5 Sporty types F = 1.6ns

7. BI:SNB<sub>1-5</sub>

VIE

Step 1 Husband F = 15.4\*\*\*

Step 2 Friends F = 7.1\*\*\*

Step 3 Sporty types F = 0.9ns

8. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1-5</sub>

VIE

Step 1 buying a lager that tastes good F = 19.2\*\*\*

Step 2 Sporty types F = 4.4\*

Step 3 buying a Pils lager F = 5.2\*\*

Step 4 buying a popular lager F = 3.5\*\*

Step 5 buying a lager with a diet version F = 2.6\*

Step 6 People who know a lot about lager F = 1.7ns

9. BI:b<sub>i</sub>a<sub>i</sub>,b<sub>i</sub>a<sub>i</sub>,SNBmc<sub>1-5</sub> and Confidence

VIE

Step 1 buying a lager that tastes good F = 19.2\*\*\*

Step 2 Sporty types F = 4.4\*

Step 3 buying a Pils lager F = 5.2\*\*

Step 4 buying a popular lager F = 3.5\*\*

Step 5 buying a lager with a diet version F = 2.6\*

Step 6 Confidence F = 2.6\*

Step 7 People who know a lot about lager F = 1.8ns

APPENDIX 6(vii)

EXAMPLE OF IBM STATPACK PROGRAM

FILE NAME  
? CLPDAT6B,\*

ANALYSIS  
? SIE

READ FILE  
? YES

165 ROWS, 15 COLUMNS (FILE:CLPDAT6B )

LAST DATA ITEM READ FROM INPUT FILE CLPDAT6B

REGRESSION LINE THROUGH ORIGIN  
? NO

SPECIAL OPTIONS  
? NO

ENTER THE DEPENDENT VARIABLE  
? 4

HOW MANY VARIABLES DO YOU WISH TO DELETE  
? 3

SPECIFY THESE VARIABLES  
? 1,2,3

PLEASE SELECT THE STANDARD(0), ABBREVIATED(1), OR AUTOMATIC(2) OPTION  
? 0

STEP 1

VARIABLE SELECTED..... 8

SUM OF SQUARES REDUCED IN THIS STEP....	229.986
PROPORTION OF VARIANCE OF Y REDUCED....	0.448
F FOR THIS VARIABLE (D.F.=1,163) .....	132.377

CUMULATIVE SUM OF SQUARES REDUCED.....	229.986		
CUMULATIVE PROPORTION REDUCED.....	0.448	DF	513.176

MULTIPLE CORRELATION COEFFICIENT....	0.669	(ADJUSTED R =	0.667)
F FOR ANALYSIS OF VARI.(D.F.= 1,163)	132.377		

VARIABLES IN THE EQN. Contd.

VBLE	REGN COEFF	S.ERROR	F VALUE	T VALUE	BETA COEFF
5	0.72097	0.04266	132.37709	11.50552	0.66945
CONST	0.38428	0.14805			

STEP 2

VARIABLE SELECTED.....10

SUM OF SQUARES REDUCED IN THIS STEP....	13.676
PROPORTION OF VARIANCE OF Y REDUCED....	0.027
F FOR THIS VARIABLE (D.F.=1,162) .....	8.220

SHOULD VARIABLE ENTER

7\*

YES

CUMULATIVE SUM OF SQUARES REDUCED.....	243.662		
CUMULATIVE PROPORTION REDUCED.....	0.475	OF	513.176

MULTIPLE CORRELATION COEFFICIENT....	0.689	(ADJUSTED R =	0.684)
F FOR ANALYSIS OF VARI.(D.F.= 2,162)	73.231		
STANDARD ERROR OF ESTIMATE.....	1.290	(ADJUSTED SE=	1.298)

VARIABLES IN THE EQN.

VBLE	REGN COEFF	S.ERROR	F VALUE	T VALUE	BETA COEFF
8	0.45443	0.10647	18.33150	4.28153	0.43124
10	0.30595	0.10671	8.22023	2.86709	0.28878
CONST	0.32795	0.14620			

STEP 3

VARIABLE SELECTED.....13

SUM OF SQUARES REDUCED IN THIS STEP....	6.769
PROPORTION OF VARIANCE OF Y REDUCED....	0.013
F FOR THIS VARIABLE (D.F.=1,161) .....	4.148

APPENDIX 6(viii)  
ANALYSIS OF CORRELATIONS

METHOD USED FOR CHOOSING VARIABLES FOR INCLUSION IN SUBSEQUENT RUNS:

One, the correlation matrix of the original stepwise regression was examined and

- a. those predictors which correlated .5 or above with the criterion were in turn excluded from consecutive runs. Also
- b. intercorrelations between predictors were examined; included in subsequent runs were those which correlated more with the criterion variable, the rest were excluded. E.g. Brand A runs 1,2,3,5,6,7,9, 10,11,12,13,14 and Brand B runs 1,4,6,8-13,5.

Two, a more subjective set was obtained by hypotheses formed during the elicitation interview e.g. Brand A run 4,8, and Brand B run 3,7.

Three, additional experimental runs were undertaken for Brand A only to

- a. exclude all the variables which correlated highly with the criterion (.5 or above) e.g. experimental runs 1,2,5,6,.
- b. Use that variable which correlated most with the criterion, as the criterion variable e.g. experimental runs 3,4,7,8.

BRAND A

Run 1. Aact and 1st reduced set of  $b_i$  variables

IN: good taste/flavour and others. OUT: a pleasant cigarette, a satisfying sustaining cigarette, reliable name and reputation, a cigarette to be seen with. FULL SET: too strong and harsh, reasonably priced, good taste/flavour, attractive pack, OK to offer around, buy it only when on offer, increasing in popularity.

VIE

Step 1 good taste/flavour	F = 113.4***
Step 2 OK to offer around	F = 10.3***
Step 3 increasing in popularity	F = 1.2ns

Run 2. Aact and 2nd reduced set of  $b_i$  variables

IN: a pleasant cigarette and others. OUT: good taste/flavour, a satisfying, sustaining cigarette, reliable name and reputation. FULL SET: too strong and harsh, reasonably priced, a pleasant cigarette, attractive pack, OK, to offer around, a cigarette to be seen with, buy it only when on offer, increasing in popularity.

VIE

Step 1 a pleasant cigarette	F = 147.9***
Step 2 a cigarette to be seen with	F = 17.6***
Step 3 attractive pack	F = 1.8ns

Run 3. Aact and 3rd reduced set of  $b_i$  variables

IN: a satisfying, sustaining cigarette and others. OUT: good taste/flavour, a pleasant cigarette, attractive pack, reliable name and reputation, a cigarette to be seen with. FULL SET: too strong and harsh, reasonably priced, a satisfying, sustaining cigarette, OK to offer around, buy it only when on offer, increasing in popularity.

VIE

Step 1 a satisfying, sustaining cigarette	F = 133.6***
Step 2 OK to offer around	F = 3.4*
Step 3 too strong and harsh	F = 1.1ns

Run 4. Aact and fourth set of  $b_i$  variables: subjective set from elicitation:

reasonably priced, good taste/flavour, a pleasant cigarette, attractive pack, OK to offer around, reliable name and reputation.

VIE

Step 1 a pleasant cigarette	F = 147.9***
Step 2 OK to offer around	F = 2.8ns

Run 5. BI and 1st reduced set of  $b_i$  variables

IN: good taste/flavour and others. OUT: a pleasant cigarette, a satisfying, sustaining cigarette, OK to offer around, a cigarette to be seen with. FULL SET: too strong and harsh, reasonably priced, good taste/flavour, attractive pack, reliable name and reputation, buy it only when on offer, increasing in popularity.

VIE

Step 1 good taste/flavour	F = 199.8***
Step 2 reasonably priced	F = 5.9**
Step 3 increasing in popularity	F = 1.8ns

Run 6. and 2nd reduced set of  $b_i$  variables

IN: a pleasant cigarette and others. OUT: good taste/flavour, a satisfying, sustaining cigarette, OK to offer around, a cigarette to be seen with. FULL SET: too strong and harsh, reasonably priced, a pleasant cigarette, attractive pack, reliable name and reputation, buy it only when on offer, increasing in popularity.

VIE

Step 1 a pleasant cigarette	F = 168.5***
Step 2 increasing in popularity	F = 5.2**
Step 3 reasonably priced	F = 2.7*
Step 4 too strong and harsh	F = 0.9ns

Run 7. BI and 3rd reduced set of  $b_i$  variables

IN: a satisfying, sustaining cigarette. OUT: good taste/flavour, a pleasant cigarette, OK to offer around, a cigarette to be seen with. FULL SET: too strong and harsh, reasonably priced, attractive pack, a satisfying, sustaining cigarette, reliable name and reputation, buy it only when on offer, increasing in popularity.

VIE

Step 1 a satisfying, sustaining cigarette	F = 164.6***
Step 2 reasonably priced	F = 9.8***
Step 3 too strong and harsh	F = 1.3ns

Run 8. BI and 4th subjective set of  $b_i$  variables:

subjective set from elicitation: reasonably priced, good taste/flavour, a pleasant cigarette, attractive pack, OK to offer around, reliable name and reputation.

VIE

Step 1 good taste/flavour	F = 199.8***
Step 2 a pleasant cigarette	F = 7.2***
Step 3 reasonably priced	F = 4.0**
Step 4 OK to offer around	F = 2.5*
Step 5 Attractive pack	F = 0.1ns

Run 9. Aact and 1st reduced set of  $b_i$  variables

IN: good taste/flavour and others. OUT: a pleasant cigarette, a satisfying, sustaining cigarette, a cigarette to be seen with. FULL SET: too strong and harsh, reasonably priced, good taste/flavour, attractive pack, OK to offer around, reliable name and reputation, buy it only when on offer, increasing in popularity.

VIE

Step 1 good taste/flavour	F = 98.0***
Step 2 OK to offer around	F = 8.7***
Step 3 buy it only when on offer	F = 1.5ns

Run 10. Aact: 2nd reduced set of b<sub>i</sub>a<sub>i</sub> variables

IN: a pleasant cigarette and others. OUT: good taste/flavour, a satisfying, sustaining cigarette, a cigarette to be seen with. FULL SET: too strong and harsh, reasonably priced, a pleasant cigarette, attractive pack, OK to offer around, reliable name and reputation, buy it only when on offer, increasing in popularity.

VIE

Step 1 a pleasant cigarette	F = 117.4***
Step 2 OK to offer around	F = 2.4ns

Run 11. Aact: 3rd set if reduced b<sub>i</sub>a<sub>i</sub> variables

IN: a satisfying, sustaining cigarette and others. OUT: good taste/flavour, a pleasant cigarette, a cigarette to be seen with. FULL SET: too strong and harsh, reasonably priced, attractive pack, a satisfying, sustaining cigarette, OK to offer around, reliable name and reputation, buy it only when on offer, increasing in popularity.

VIE

Step 1 a satisfying, sustaining cigarette	F = 115.0***
Step 2 OK to offer around	F = 2.9ns

Run 12. BI and 1st reduced set of b<sub>i</sub>a<sub>i</sub> variables

IN: good taste/flavour, and others. OUT: a pleasant cigarette, a satisfying, sustaining cigarette, a cigarette to be seen with. FULL SET: too strong and harsh, reasonably priced, good taste/flavour, attractive pack, OK to offer around, reliable name and reputation, buy it only when on offer, increasing in popularity.

VIE

Step 1 good taste/flavour	F = 148.4***
Step 2 OK to offer around	F = 0.4ns

Run 13. BI and 2nd reduced set of b<sub>i</sub>a<sub>i</sub> variables

IN: a pleasant cigarette and others. OUT: good taste/flavour, a satisfying, sustaining cigarette, a cigarette to be seen with. FULL SET: too strong and harsh, reasonably priced, a pleasant cigarette, attractive pack, OK to offer around, reliable name and reputation, buy it only when on offer, increasing in popularity.

VIE

Step 1 a pleasant cigarette	F = 100.0***
Step 2 reasonably priced	F = 2.0ns

Run 14. BI and 3rd reduced set of b<sub>i</sub> variables

IN: a satisfying, sustaining cigarette and others. OUT: good taste/flavour, a pleasant cigarette, a cigarette to be seen with. FULL SET: too strong and harsh, reasonably priced, attractive pack, a satisfying, sustaining cigarette, OK to offer around, reliable name and reputation, buy it only when on offer, increasing in popularity.

VIE

Step 1 a satisfying, sustaining cigarette	F = 95.4***
Step 2 reasonably priced	F = 2.3ns

BRAND B

Run 1. Aact and first reduced set of b<sub>i</sub> variables

IN: good taste/flavour and others. OUT: a pleasant cigarette, a satisfying, sustaining cigarette, OK to offer around, reliable name and reputation, a cigarette to be seen with, increasing in popularity. FULL SET: too strong and harsh, reasonably priced, good taste/flavour, attractive pack, buy it only when on offer.

VIE

Step 1 good taste/flavour	F = 96.0***
Step 2 too strong and harsh	F = 16.1***
Step 3 reasonably priced	F = 2.4ns

Run 2. Aact and 2nd reduced b<sub>i</sub> set

IN: a pleasant cigarette and others. OUT: good taste/flavour, a satisfying, sustaining cigarette, OK to offer around, reliable name and reputation, a cigarette to be seen with, increasing in popularity. FULL SET: too strong and harsh, reasonably priced, a pleasant cigarette, attractive pack, buy it only when on offer.

VIE

Step 1 a pleasant cigarette	F = 84.5***
Step 2 too strong and harsh	F = 16.2***
Step 3 reasonably priced	F = 4.3*
Step 4 buy it only when on offer	F = 0.6ns

Run 3. Aact and 3rd reduced set of b<sub>i</sub> variables

Subjective set from elicitation: too strong and harsh, reasonably priced, good taste/flavour, attractive pack.

VIE

Step 1 good taste/flavour	F = 96.0***
Step 2 too strong and harsh	F = 16.1***
Step 3 reasonably priced	F = 2.4ns

Run 4. BI and first reduced set of  $b_i$  variables

IN: good taste/flavour and others. OUT: a pleasant cigarette, a satisfying, sustaining cigarette, reliable name and reputation, a cigarette to be seen with, increasing in popularity. FULL SET: too strong and harsh, reasonably priced, good taste/flavour, attractive pack, OK to offer around, buy it only when on offer.

VIE

Step 1 good taste/flavour	F = 115.6***
Step 2 OK to offer around	F = 13.3***
Step 3 reasonably priced	F = 6.2*
Step 4 too strong and harsh	F = 3.8ns

Run 5. BI and 2nd reduced  $b_i$  set of variables

IN: a pleasant cigarette and others. OUT: good taste/flavour, a satisfying, sustaining cigarette, OK to offer around, reliable name and reputation, a cigarette to be seen with, increasing in popularity. FULL SET: too strong and harsh, reasonably priced, a pleasant cigarette, attractive pack, buy it only when on offer.

VIE

Step 1 a pleasant cigarette	F = 118.5***
Step 2 reasonably priced	F = 12.4***
Step 3 too strong and harsh	F = 5.3*
Step 4 attractive pack	F = 1.5ns

Run 6. BI and 3rd reduced set of  $b_i$  variables

IN: a satisfying, sustaining cigarette and others. OUT: good taste/flavour, a pleasant cigarette, OK to offer around, reliable name and reputation, a cigarette to be seen with, increasing in popularity. FULL SET: too strong and harsh, reasonably priced, attractive pack, buy it only when on offer, a satisfying, sustaining cigarette.

VIE

Step 1 a satisfying, sustaining cigarette	F = 105.6***
Step 2 reasonably priced	F = 7.3**
Step 3 too strong and harsh	F = 6.7**
Step 4 attractive pack	F = 1.9ns

Run 7. BI and 4th reduced set of  $b_i$  variables: subjective set from elicitation: too strong and harsh, reasonably priced, good taste/flavour, attractive pack.

VIE

Step 1 good taste/flavour	F = 115.6***
Step 2 reasonably priced	F = 9.6**
Step 3 too strong and harsh	F = 5.9*
Step 4 attractive pack	F = 2.5ns

Run 8. Aact and 1st set of reduced  $b_i, a_i$  variables

IN: good taste/flavour and others. OUT: a pleasant cigarette, a satisfying, sustaining cigarette, OK to offer around. FULL SET: too strong and harsh, reasonably priced, good taste/flavour, attractive pack, reliable name and reputation, a cigarette to be seen with, buy it only when on offer, increasing in popularity.

VIE:

Step 1 good taste/flavour	F = 73.8***
Step 2 a cigarette to be seen with	F = 9.4**
Step 3 reliable name and reputation	F = 2.2ns

Run 9. Aact and 2nd reduced set of  $b_i, a_i$  variables

IN: a pleasant cigarette and others. OUT: good taste/flavour, a satisfying and sustaining cigarette, OK to offer around. FULL SET: too strong and harsh, reasonably priced, a pleasant cigarette, attractive pack, reliable name and reputation, a cigarette to be seen with, increasing in popularity, buy it only when on offer.

VIE:

Step 1 a pleasant cigarette	F = 75.3***
Step 2 a cigarette to be seen with	F = 7.6**
Step 3 reliable name and reputation	F = 3.5ns

Run 10. Aact and 3rd reduced set of  $b_i, a_i$  variables

IN: a satisfying, sustaining cigarette and others. OUT: good taste and flavour, a pleasant cigarette, OK to offer around. FULL SET: a satisfying, sustaining cigarette, a cigarette to be seen with, too strong and harsh, reliable name and reputation, reasonably priced, buy it only when on offer, increasing in popularity, attractive pack.

VIE

Step 1 a satisfying, sustaining cigarette	F = 67.2***
---	-------------

Step 2 a cigarette to be seen with	F = 11.2***
Step 3 too strong and harsh	F = 1.9ns

Run 11. BI and first reduced set of b<sub>i</sub>a<sub>i</sub> variables

IN: good taste/flavour and others. OUT: a pleasant cigarette, a satisfying, sustaining cigarette, OK to offer around. FULL SET: good taste/flavour, attractive pack, reasonably priced, too strong and harsh, increasing in popularity, reliable name and reputation, buy it only when on offer.

VIE

Step 1 good taste/flavour	F = 88.0***
Step 2 attractive pack	F = 9.4**
Step 3 reasonably priced	F = 2.9ns

Run 12. BI and 2nd reduced set of b<sub>i</sub>a<sub>i</sub> variables

IN: a pleasant cigarette and others. OUT: good taste/flavour, a satisfying, sustaining cigarette, OK to offer around. FULL SET: a pleasant cigarette, attractive pack, reasonably priced, increasing in popularity, too strong and harsh, reliable name and reputation, a cigarette to be seen with, buy it only when on offer.

VIE

Step 1 a pleasant cigarette	F = 90.8***
Step 2 attractive pack	F = 6.8**
Step 3 reasonably priced	F = 3.4ns

Run 13. BI and 3rd reduced set of b<sub>i</sub>a<sub>i</sub> variables

IN: a satisfying, sustaining cigarette and others. OUT: good taste/flavour, a pleasant cigarette, OK to offer around. FULL SET: a satisfying, sustaining cigarette, a cigarette to be seen with, reasonably priced, attractive pack, too strong and harsh, reliable name and reputation, increasing in popularity, buy it only when on offer.

VIE

Step 1 a satisfying, sustaining cigarette	F = 82.3***
Step 2 a cigarette to be seen with	F = 6.9**
Step 3 reasonably priced	F = 4.3*
Step 4 attractive pack	F = 3.0ns

BRAND A

experimental Run 1. Aact and b<sub>i</sub> variables MINUS 3 variables which correlate highly: good taste/flavour, a pleasant cigarette and a satisfying, sustaining cigarette

VIE

Step 1 a cigarette to be seen with	F = 67.5***
Step 2 too strong and harsh	F = 12.7***
Step 3 increasing in popularity	F = 6.1***
Step 4 OK to offer around	F = 2.8*
Step 5 buy it only when on offer	F = 1.2ns

experimental run 2 BI and b<sub>i</sub> variables MINUS 3 variables which correlate highly: good taste/flavour, a pleasant cigarette and a satisfying and sustaining cigarette

VIE

Step 1 a cigarette to be seen with	F = 60.0***
Step 2 reasonably priced	F = 21.2***
Step 3 too strong and harsh	F = 13.3***
Step 4 OK to offer around	F = 4.2**
Step 5 buy it only when on offer	F = 2.2*
Step 6 increasing in popularity	F = 1.9ns

experimental run 3. A pleasant cigarette as dependent variable: all b<sub>i</sub> variables included

VIE

Step 1 good taste/flavour	F = 665.6***
Step 2 a satisfying, sustaining cigarette	F = 55.6***
Step 3 OK to offer around	F = 12.1***
Step 4 reasonably priced	F = 4.8***
Step 5 too strong and harsh	F = 3.0*
Step 6 increasing in popularity	F = 1.6ns

experimental run 4. A pleasant cigarette as dependent variable: MINUS good taste/flavour and a satisfying, sustaining cigarette

VIE

Step 1 OK to offer around	F = 99.5***
Step 2 too strong and harsh	F = 43.6***
Step 3 reasonably priced	F = 21.0***
Step 4 a cigarette to be seen with	F = 5.8***

Step 5 reliable name and reputation	F = 3.2**
Step 6 attractive pack	F = 2.3*
Step 7 increasing in popularity	F = 1.4ns

experimental run 5. Aact and b<sub>i</sub>a<sub>i</sub> variables MINUS 3 variables which correlate highly:

VIE

Step 1 OK to offer around	F = 26.5***
Step 2 buy it only when on offer	F = 5.5*
Step 3 increasing in popularity	F = 1.8ns

experimental run 6. BI and b<sub>i</sub>a<sub>i</sub> variables MINUS 3 variables which correlate highly:

VIE

Step 1 reasonably priced	F = 14.1***
Step 2 OK to offer around	F = 9.4**
Step 3 buy it only when on offer	F = 2.5ns

experimental run 7. a pleasant cigarette as dependent variable: all b<sub>i</sub>a<sub>i</sub> variables included

VIE

Step 1 good taste/flavour	F = 388.9***
Step 2 a satisfying, sustaining cigarette	F = 34.4***
Step 3 OK to offer around	F = 13.0***
Step 4 a cigarette to be seen with	F = 4.0**
Step 5 too strong and harsh	F = 1.2ns

experimental run 8. a pleasant cigarette as dependent variable MINUS good taste/flavour and a satisfying, sustaining cigarette which correlate highly:

VIE

Step 1 OK to offer around	F = 51.9***
Step 2 reasonably priced	F = 18.6***
Step 3 a cigarette to be seen with	F = 10.7***
Step 4 reliable name and reputation	F = 3.4**
Step 5 buy it only when on offer	F = 2.8*
Step 6 increasing in popularity	F = 0.8ns

## APPENDIX 6(ix)

1. Statistical note on principal component and factor analysis programs
  2. Principal Component, PA1 and PA2 Factor Analyses for Sub-sector of cigarette market
- 

For total market segment full details

For Brand A full details

For remaining brands PA1 analysis only.

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### 1. Technical and statistical note on principal component and factor analysis (PA1, PA2) programs

These techniques look for patterns of relationships in the data to reduce them to a smaller set of components or factors.

#### Principal Component Analysis

The variables in the original correlation matrix which form the input for the analysis, are changed into new variables and these are exact mathematical transformations of the original data. This change precedes the data reduction sequence. The principal components that result are orthogonal (uncorrelated) to each other. No assumptions are built into this analysis, simply the best linear combination of variables is asked for. It is best in the sense that the particular combination of variables accounts for more of the variance in the data as a whole than any other linear combination of variables. The first component is therefore the single best summary of linear relationships exhibited in the data, etc.

The analysis was run on the SPSS program and in terms of the output represents: factor matrix using principal factor, no iteration. For each principal component, the eigenvalues associated with it are provided. The sum of the eigenvalues is a measure of the total variance existing in the data. On the tables the eigenvalues are given as percentages for each component. The program then proceeds to the rotated solutions and of these PA1 and PA2 were used.

#### Factor Analyses: PA1, PA2

Factor analyses rest on the assumption that there are meaningful relationships between the variables.

#### PA1 -Principal Factoring without iteration

In terms of SPSS output it is the varimax rotated factor matrix. The number of factors to be obtained can be specified in two ways:

- one, after computing the principal component analysis the number of significant factors to be obtained for the final rotated solution can be determined by the specification of a minimum eigenvalue criterion. This

was specified at 0.5, as this would give an initial view of the spread of the variance in the data. This approach was used in the initial exploration of the data, which attempted to find the best factoring method. The results are given in this appendix.

- Two, specifying the number of factors to be extracted from the data, after the principal run. Varimax rotated factor solutions ranging from 4-9 factors were extracted from the data sets for all cigarette brands and for Watneys beers (representing brewers' beers) and Harp (representing lagers). These are given in appendix 6(x).

#### PA2 - Principal Factoring with iteration

this is an alternative method to PA1 and it differs from PA1 in two respects

- it replaces the main diagonal elements of the correlation matrix with communality estimates and

- it employs an iteration procedure for improving the estimates of communality.

Communality of a variable refers to the amount of variance of a variable that is shared by at least one other variable in the set; the complement of communality is the unique variance of a variable not accounted for by any other variable in the set.

This method was also initially explored and the data are also given in this appendix.

#### Principal Component Analysis significance tests

In the initial exploratory runs, presented in this Appendix, the number of factors to be extracted from the data were specified by limiting the minimum eigenvalue to 0.5. Whether the resultant number of components was reasonable for the data could be tested by

one, examining the percentage of the total variance explained by each component and the remainder and determining some appropriate cut-off point or

two, by applying Bartlett's test. This was computed for all the principal component data presented in this Appendix, but did not work well, because mathematically the sample size was so large it swamped all other parts of the calculation.

Three, exploring the total market structure. In the initial exploration another approach was examined. The beliefs ( $b_i$ ) for all the brands of cigarettes were subjected to a principal/PA1 analysis with the minimum eigenvalue specified at 0.5. There were two possible results which could emerge. One, each component could represent all the belief items for a

given brand and the result would have been 7 factors, there being 7 brands. This would have confirmed that the data were collected separately for each brand. Or two, and more interestingly, each component could represent a belief area, with the identical statements drawn from each brand. Here the maximum would have been 11 components, as there were 11 beliefs or some lesser number which might have thrown some light on the redundancy in the data.

The run was repeated, but this time 7 factors were specified. This was done on the assumption that 7 factors might emerge as separate factors.

	First analysis (eigenvalue = 0.5)	Second analysis (7 factors)
PC1	15%	15.2%
PC2	9%	8.1%
PC3	7%	6.7%
PC4	6%	5.6%
PC5	5%	5.2%
PC6	5%	4.2%
PC7	4%	
PC8	4%	
PC9	3%	
PC10	3%	
Rest	39%	49.5%

This approach did not appear to be a fruitful one: the percentage variance explained by the total number of components was not very high. Further, on the whole, components related to brands but the situation was by no means clear cut: all beliefs for a given brand were not in the same component; two brands could with different beliefs share the same component. We obtained neither 7 brand components nor 11 belief components; the former would have underlined the structure imposed by data collection, the latter Fishbein's argument that all 11 beliefs are of value because they are the salient set.

Four, the only main alternative left to explore was to run a range of solutions and examine these in terms of their meaning and decide the right number of factors for PA1/PA2 in this way. This was done and the data are given in appendix 6(x).

EVALUATIONS (a.) FOR TOTAL SUB-SECTOR OF CIGARETTE MARKET

<u>NO ITERATION (PC)</u>		<u>FA:VARIMAX ROTATION(PA1)</u>	
<u>F1: 31.2%</u>		<u>OVERALL EVALUATION</u>	
a cigarette to be seen with	.75	good taste/flavour	.88
reliable name and reputation	.73	a pleasant cigarette	.85
OK to offer around	.72	a satisfying, sustaining cig.	.83
a pleasant cigarette	.66		
increasing in popularity	.63		
attractive pack	.60		
a satisfying, sustaining cig.	.59		
good taste/flavour	.50		
<u>F2:18.5%</u>		<u>PACK</u>	
good taste/flavour	.72	attractive pack	.92
a satisfying, sustaining cig.	.58	a cig. to be seen with	.66
a pleasant cigarette	.53		
reasonably priced	.51		
<u>F3: 9.6%</u>		<u>STRENGTH</u>	
too strong and harsh	.75	too strong and harsh	.99
buy it only when on offer	.57		
<u>F4:9.1%</u>		<u>BARGAIN</u>	
too strong and harsh	-.53	buy it only when on offer	.99
<u>F5:7.7%</u>		<u>POPULARITY</u>	
reasonably priced	.72	increasing in popularity	.91
<u>F6: 6.0%</u>		<u>REPUTATION</u>	
increasing in popularity	-.54	OK to offer around	.81
		reliable name and reputation	.78
<u>F7:4.8%</u>		<u>PRICE</u>	
OK to offer around	-.44	reasonably priced	.98

<u>FA: VARIMAX ROTATION (PA2)</u>	
<u>F1</u>	<u>REPUTATION</u>
	a cigarette to be seen with .87
	attractive pack .71
	OK to offer around .67
	increasing in popularity .61
	reliable name and reputation .55
<u>F2</u>	<u>'OVERALL EVALUATION'</u>
	good taste/flavour .84
	a pleasant cigarette .81
	a satisfying, sustaining cig. .70
<u>F3</u>	too strong and harsh (-.49)
<u>F4</u>	buy it only when on offer (.47)
<u>F5</u>	reasonably priced (..47)
<u>F6</u>	attractive pack (.32)
<u>F7</u>	reliable name and reputation(.27)

Key: figures in brackets are below 0.5 and in these instances factors have not been given a name; % are eigenvalues.  
 This table was run separately for all brands, and as expected, identical results were obtained.

REDUCED a<sub>i</sub> FACTOR: use of rotated factor matrix (PA1)

V94 explained by F3*		V94(too strong and harsh)	=F3
V95	" " F7	V95(reasonably priced)	=F7
V96	" " F1	V96(good taste/flavour)	=F1
V97	" " F1		
V98	" " F2	V98(attractive pack)	=F2
V99	" " F1		
V100	" " F6	V100(OK to offer around)	=F6
V101	" " F6		
V102	" " F2		
V103	" " F4	V103(buy it only when on offer)	=F4
V104	" " F5	V104(increasing in popularity)	=F5

Key: in subsequent tables only the second part of the reduced factors will be shown; this is the main result on the right hand side of the above table.

\* picked by inspection of largest factor score in rows, of at least .5.

BRAND A: PC:PA1:PA2 for beliefs (b<sub>i</sub>)

NO ITERATION (PC)

F1:47%

a satisfying, sustaining cig.	.86
a pleasant cigarette	.86
good taste/flavour	.82
OK to offer around	.76
reliable name and reputation	.72
a cig. to be seen with	.70
attractive pack	.68
increasing in popularity	.65
reasonably priced	.53
too strong and harsh	-.52

F2:11.7%

buy it only when on offer	.65
too strong and harsh	(.47)

F3:8.3%

buy it only when on offer	.63
reasonably priced	(-.37)

F4:7.8%

reasonably priced	.65
-------------------	-----

F5:5.9%

too strong and harsh	.60
----------------------	-----

F6:5.1%

increasing in popularity	-.54
--------------------------	------

F7:4.8%

attractive pack	(.48)
-----------------	-------

FA:VARIMAX(PA1)

OVERALL EVALUATION

good taste/flavour	.89
a pleasant cigarette	.86
a satisfying, sustaining cig.	.85

REPUTATION

reliable name and reputation	.85
OK to offer around	.79
a cigarette to be seen with	.71

BARGAIN

buy it only when on offer	.98
---------------------------	-----

PRICE

reasonably priced	.94
-------------------	-----

STRENGTH

too strong and harsh	.93
----------------------	-----

POPULARITY

increasing in popularity	.89
--------------------------	-----

PACK

attractive pack	.89
-----------------	-----

FA:VARIMAX ROTATION(PA2)

OVERALL EVALUATION

good taste/flavour	.84
a pleasant cigarette	.84
a satisfying, sustaining cig.	.79

REPUTATION

attractive pack	.51
OK to offer around	.78
reliable name and reputation	.76
a cigarette to be seen with	.67

PRICE

reasonably priced	.64
-------------------	-----

BARGAIN

buy it only when on offer	.57
---------------------------	-----

too strong and harsh	(-.43)
----------------------	--------

increasing in popularity	(.23)
--------------------------	-------

a cigarette to be seen with	(.17)
-----------------------------	-------

F1

F2

F3

F4

F5

F6

F7

REDUCED  $b_i$  FACTOR (PA1)

Too strong and harsh	=F5
reasonably priced	=F4
good taste/flavour	=F1
attractive pack	=F7
reliable name and reputation	=F2
buy it only when on offer	=F3
increasing in popularity	=F6

BRAND A: FA: VARIMAX ROTATION (PA1) for b<sub>i</sub>a<sub>i</sub> beliefs

OVERALL EVALUATION

good taste/flavour .91  
a pleasant cigarette .88  
a satisfying, sustaining cigarette .87

PACK

attractive pack .91

STRENGTH

too strong and harsh .99

BARGAIN

buy it only when on offer .98

POPULARITY

increasing in popularity .93

REPUTATION 1

reliable name and reputation .89

REPUTATION 2

OK to offer around .84

a cigarette to be seen with .74

PRICE

reasonably priced .97

REDUCED b<sub>i</sub>a<sub>i</sub> FACTOR (PA1)

too strong and harsh =F3

reasonably priced =F8

good taste/flavour =F1

attractive pack =F2

OK to offer around =F7

reliable name and reputation =F6

buy it only when on offer =F4

increasing in popularity =F5

BRAND B

b<sub>i</sub> beliefs

FA: VARIMAX ROTATION(PA1)

OVERALL EVALUATION

a. pleasant cigarette .90  
 good taste/flavour .90  
 a satisfying, sustaining cig. .83

REPUTATION

reliable name & reputation .80  
 OK to offer around .77  
 a cigarette to be seen with .72

STRENGTH

too strong and harsh .96

PRICE

reasonably priced .94

BARGAIN

buy it only when on offer .99

POPULARITY

increasing in popularity .88

PACK

attractive pack .91

REDUCED b<sub>i</sub> FACTOR

too strong and harsh =F3  
 reasonably priced =F4  
 a pleasant cigarette =F1  
 reliable name and reputation =F2  
 buy it only when on offer =F5  
 increasing in popularity =F6

b<sub>i</sub>a<sub>i</sub> beliefs

FA: VARIMAX ROTATION (PA1)

OVERALL EVALUATION

good taste/flavour .92  
 a pleasant cigarette .91  
 a satisfying, sustaining cig. .88

PACK

attractive pack .93

STRENGTH

too strong and harsh .96

BARGAIN

buy it only when on offer .99

POPULARITY

increasing in popularity .95

PRICE

reasonably priced .96

REPUTATION 1

a cigarette to be seen with .82  
 OK to offer around .79

REPUTATION 2

reliable name and reputation .91

REDUCED b<sub>i</sub>a<sub>i</sub> FACTOR

too strong and harsh =F3  
 reasonably priced =F6  
 good taste/flavour =F1  
 attractive pack =F2  
 reliable name and reputation =F8  
 a cig. to be seen with =F7  
 buy it only when on offer =F4  
 increasing in popularity =F5

BRAND C

b<sub>i</sub> beliefs

FA:VARIMAX ROTATION (PA1)  
OVERALL EVALUATION  
good taste/flavour .90  
a pleasant cigarette .87  
a satisfying, sustaining cig. .84  
REPUTATION  
reliable name and reputation .82  
OK to offer around .79  
PRICE  
reasonably priced .89  
BARGAIN  
buy it only when on offer .99  
STRENGTH  
too strong and harsh .91  
PACK  
attractive pack .89  
POPULARITY  
increasing in popularity .90

REDUCED b<sub>i</sub> FACTOR

too strong and harsh =F5  
reasonably priced =F3  
good taste/flavour =F1  
attractive pack =F6  
reliable name and reputation =F2  
buy it only when on offer =F4  
increasing in popularity =F7

b<sub>i</sub>.a<sub>i</sub> beliefs

FA:VARIMAX ROTATION (PA1)  
OVERALL EVALUATION  
good taste/flavour .94  
a pleasant cigarette .89  
a satisfying, sustaining cig. .89  
REPUTATION 1  
reliable name and reputation .90  
BARGAIN  
buy it only when on offer .99  
STRENGTH  
too strong and harsh .99  
POPULARITY  
increasing in popularity .95  
REPUTATION 2  
a cigarette to be seen with .82  
PRICE  
reasonably priced .98  
PACK  
attractive pack .90

REDUCED b<sub>i</sub>.a<sub>i</sub> FACTOR

too strong and harsh =F4  
reasonably priced =F7  
good taste/flavour =F1  
attractive pack =F8  
reliable name and reputation =F2  
a cigarette to be seen with =F6  
buy it only when on offer =F3  
increasing in popularity =F5

BRAND D

b<sub>i</sub> beliefs

FA:VARIMAX ROTATION (PA1)  
OVERALL EVALUATION  
good taste/flavour .90  
a pleasant cigarette .89  
a satisfying, sustaining cig. .85  
REPUTATION/POPULARITY  
reliable name and reputation .81  
a cigarette to be seen with .79  
increasing in popularity .70  
OK to offer around .69  
BARGAIN  
buy it only when on offer .97  
PRICE  
reasonably priced .94  
STRENGTH  
too strong and harsh .99  
PACK  
attractive pack .90

REDUCED b<sub>i</sub> FACTOR

too strong and harsh =F5  
reasonably priced =F4  
good taste/flavour =F1  
attractive pack =F6  
reliable name and reputation =F2  
buy it only when on offer =F3

b<sub>i</sub>a<sub>i</sub> beliefs

FA:VARIMAX ROTATION (PA1)  
OVERALL EVALUATION  
a pleasant cigarette .91  
good taste/flavour .91  
a satisfying, sustaining cig. .91  
POPULARITY  
increasing in popularity .95  
BARGAIN  
buy it only when on offer .99  
STRENGTH  
too strong and harsh .99  
PACK  
attractive pack .95  
PRICE  
reasonably priced .97  
REPUTATION 1  
reliable name and reputation .86  
a cigarette to be seen with .55  
REPUTATION 2  
OK to offer around .87

REDUCED b<sub>i</sub>a<sub>i</sub> FACTOR

too strong and harsh =F4  
reasonably priced =F6  
a pleasant cigarette =F1  
attractive pack =F5  
OK to offer around =F8  
reliable name and reputation =F7  
buy it only when on offer =F3  
increasing in popularity =F2

BRAND E

b<sub>i</sub> beliefs

FA:VARIMAX ROTATION(PA1)

OVERALL EVALUATION

good taste/flavour .90  
 a pleasant cigarette .87  
 a satisfying, sustaining cig. .84  
 a cigarette to be seen with .52

REPUTATION/PACK

attractive pack .79  
 reliable name and reputation .79  
 a cigarette to be seen with .57  
 OK to offer around .52

STRENGTH

too strong and harsh .97

BARGAIN

buy it only when on offer .99

POPULARITY

increasing in popularity .99

PRICE

reasonably priced .92

REDUCED b<sub>i</sub> FACTORS

too strong and harsh =F3  
 reasonably priced =F6  
 good taste/flavour =F1  
 reliable name and reputation =F2  
 buy it only when on offer =F4  
 increasing in popularity =F5

b<sub>i</sub>a<sub>i</sub> beliefs

FA:VARIMAX ROTATION(PA1)

OVERALL EVALUATION

good taste/flavour .93  
 a pleasant cigarette .88  
 a satisfying, sustaining cig. .87

BARGAIN

buy it only when on offer .97

PACK/REPUTATION

attractive pack .79  
 a cigarette to be seen with .71

POPULARITY

increasing in popularity .96

PRICE

reasonably priced .93

STRENGTH

too strong and harsh .99

REPUTATION 1

reliable name and reputation .93

REPUTATION 2

OK to offer around .85

REDUCED b<sub>i</sub>a<sub>i</sub> FACTORS

too strong and harsh =F6  
 reasonably priced =F5  
 good taste/flavour =F1  
 attractive pack =F3  
 OK to offer around =F8  
 reliable name and reputation =F7  
 buy it only when on offer =F2  
 increasing in popularity =F4

BRAND F

b<sub>i</sub> beliefs

FA:VARIMAX ROTATION(PA1)

OVERALL EVALUATION

a satisfying, sustaining cigarette .88  
 a pleasant cigarette .87  
 good taste/flavour\* .85

STRENGTH

too strong and harsh .96

REPUTATION

reliable name and reputation .83

BARGAIN

buy it only when on offer .99

PACK

attractive pack .92

PRICE

reasonably priced .90

POPULARITY

increasing in popularity .86

REDUCED b<sub>i</sub> FACTORS

too strong and harsh =F2  
 reasonably priced =F6  
 attractive pack =F5  
 a satisfying, sustaining cig. =F1  
 reliable name and reputation =F3  
 buy it only when on offer =F4  
 increasing in popularity =F7  
 \* a cigarette to be seen with .67

b<sub>i</sub>, a<sub>i</sub> beliefs

FA:VARIMAX ROTATION(PA1)

OVERALL EVALUATION

good taste/flavour .90  
 a satisfying, sustaining cig. .89  
 a pleasant cigarette .89

PACK

attractive pack .91

OK to offer around .53

BARGAIN

buy it only when on offer .98

STRENGTH

too strong and harsh .99

POPULARITY

increasing in popularity .96

REPUTATION 1

reliable name and reputation .91

PRICE

reasonably priced .92

REPUTATION 2

a cigarette to be seen with .89

REDUCED b<sub>i</sub>, a<sub>i</sub> FACTORS

too strong and harsh =F4  
 reasonably priced =F7  
 good taste/flavour =F1  
 attractive pack =F2  
 reliable name and reputation =F6  
 a cigarette to be seen with =F8  
 buy it only when on offer =F3  
 increasing in popularity =F5

BRAND G

b<sub>i</sub> beliefs

FA:VARIMAX ROTATION (PA1)  
OVERALL EVALUATION  
good taste/flavour .88  
a pleasant cigarette .88  
a satisfying,sustaining cig..86  
REPUTATION/PACK  
attractive pack .90  
reliable name and reputation.61  
PRICE  
reasonably priced .94  
STRENGTH  
too strong and harsh .95  
REPUTATION  
a cigarette to be seen with .78  
OK to offer around .78  
BARGAIN  
buy it only when on offer .99  
POPULARITY  
increasing in popularity .85

REDUCED b<sub>i</sub> FACTORS

too strong and harsh =F4  
reasonably priced =F3  
attractive pack =F2  
a satisfying,sustaining cig.=F1  
a cigarette to be seen with=F5  
buy it only when on offer =F6  
increasing in popularity =F7

b<sub>i</sub>.a<sub>i</sub> beliefs

FA;VARIMAX ROTATION (PA1)  
OVERALL EVALUATION  
good taste/flavour .92  
a pleasant cigarette .92  
a satisfying,sustaining cig..87  
REPUTATION/PACK  
attractive pack .83  
reliable name and reputation.76  
STRENGTH  
too strong and harsh .98  
PRICE  
reasonably priced .96  
POPULARITY  
increasing in popularity .93  
REPUTATION  
OK to offer around .89  
BARGAIN  
buy it only when on offer .99

REDUCED b<sub>i</sub>.a<sub>i</sub> FACTORS

too strong and harsh =F3  
reasonably priced =F4  
good taste/flavour =F1  
attractive pack =F2  
OK to offer around =F6  
buy it only when on offer =F7  
increasing in popularity =F5

APPENDIX 6(x)

RANGE OF FACTOR SOLUTIONS:4-9 GIVEN FOR PA1 FOR BRAND A, FOR OTHER CIGARETTE BRANDS CHOSEN SOLUTION ONLY GIVEN: b<sub>i</sub> BELIEFS

BRAND A

4 FACTOR SOLUTION

F1 REPUTATION/POPULARITY

reliable name and reputation .81  
 OK to offer around .81  
 a cigarette to be seen with attractive pack .76  
 increasing in popularity .51

F2 OVERALL EVALUATION

good taste/flavour .86  
 a pleasant cigarette .84  
 a satisfying, sustaining cig. .82  
 too strong and harsh -.65

F3 PRICE/POPULARITY

reasonably priced .88  
 increasing in popularity .56

F4 BARGAIN

buy it only when on offer .95

F5

REDUCED FACTOR

reasonably priced =F3  
 good taste/flavour =F2  
 reliable name and reputation =F1  
 buy it only when on offer =F4

5 FACTOR SOLUTION

REPUTATION/POPULARITY

reliable name and reputation .81  
 OK to offer around .81  
 a cigarette to be seen with attractive pack .75  
 increasing in popularity .64  
 increasing in popularity .51

OVERALL EVALUATION

good taste/flavour .88  
 a pleasant cigarette .85  
 a satisfying, sustaining cig. .84

PRICE/POPULARITY

reasonably priced .91  
 increasing in popularity .52

BARGAIN

buy it only when on offer .98

STRENGTH

too strong and harsh .89

REDUCED FACTOR

too strong and harsh =F5  
 reasonably priced =F3  
 good taste/flavour =F2  
 reliable name and reputation =F1  
 buy it only when on offer =F4

BRAND A

6 FACTOR SOLUTION

F1 OVERALL EVALUATION

good taste/flavour .89  
a pleasant cigarette .87  
a satisfying, sustaining cig. .84

F2 REPUTATION

reliable name and reputation .80  
OK to offer around .77  
attractive pack .71  
a cigarette to be seen with .71

F3 PRICE

reasonably priced .89

F4 BARGAIN

buy it only when on offer .98

F5 STRENGTH

too strong and harsh .93

F6 POPULARITY

increasing in popularity .83

F7

REDUCED FACTOR

too strong and harsh =F5  
reasonably priced =F3  
good taste/flavour =F1  
reliable name and reputation =F2  
buy it only when on offer =F4  
increasing in popularity =F6

7 FACTOR SOLUTION

OVERALL EVALUATION

good taste/flavour .89  
a pleasant cigarette .86  
a satisfying, sustaining cig. .85

REPUTATION

reliable name and reputation .85  
OK to offer around .79  
a cigarette to be seen with .71

BARGAIN

buy it only when on offer .98

PRICE

reasonably priced .94

STRENGTH

too strong and harsh .93

POPULARITY

increasing in popularity .89

PACK

attractive pack .89

REDUCED FACTOR

too strong and harsh =F5  
reasonably priced =F4  
good taste/flavour =F1  
attractive pack =F7  
reliable name and reputation =F2  
buy it only when on offer =F3  
increasing in popularity =F6

BRAND A

3 FACTOR SOLUTION

F1 OVERALL EVALUATION

good taste/flavour .89  
a pleasant cigarette .86  
a satisfying, sustaining cig...85

F2 REPUTATION 1

reliable name and reputation .86  
OK to offer around .76

F3 PRICE

reasonably priced .95

F4 BARGAIN

buy it only when on offer .99

F5 POPULARITY

increasing in popularity .90

F6 STRENGTH

too strong and harsh .94

F7 PACK

attractive pack .89

F8 REPUTATION 2

a cigarette to be seen with .85

F9

9 FACTOR SOLUTION

OVERALL EVALUATION

good taste/flavour .90  
a pleasant cigarette .87  
a satisfying, sustaining cig.85

BARGAIN

buy it only when on offer .99

PRICE

reasonably priced .95

STRENGTH

too strong and harsh .94

POPULARITY

increasing in popularity .91

PACK

attractive pack .90

REPUTATION 1

reliable name and reputation87

REPUTATION 2

a cigarette to be seen with.87

REPUTATION 3

OK to offer around .82

REDUCED FACTOR

too strong and harsh =F6  
reasonably priced =F3  
good taste/flavour =F1  
attractive pack =F7  
reliable name and reputation =F2  
a cigarette to be seen with =F8  
buy it only when on offer =F4  
increasing in popularity =F5

REDUCED FACTOR

too strong and harsh =F4  
reasonably priced =F3  
good taste/flavour =F1  
attractive pack =F6  
OK to offer around =F9  
reliable name and reputationF7  
a cigarette to be seen with=F8  
buy it only when on offer =F2  
increasing in popularity =F5

BRAND B

CHOSEN 7 FACTOR SOLUTION

F1 OVERALL EVALUATION

a pleasant cigarette	.90
good taste/flavour	.90
a satisfying, sustaining cig.	.83

F2 REPUTATION

reliable name and reputation	.80
OK to offer around	.77
a cigarette to be seen with	.72

F3 STRENGTH

too strong and harsh	.96
----------------------	-----

F4 PRICE

reasonably priced	.94
-------------------	-----

F5 BARGAIN

buy it only when on offer	.99
---------------------------	-----

F6 POPULARITY

increasing in popularity	.88
--------------------------	-----

F7 PACK

attractive pack	.91
-----------------	-----

REDUCED FACTORS

too strong and harsh	=F3
reasonably priced	=F4
a pleasant cigarette	=F1
reliable name and reputation	=F2
buy it only when on offer	=F5
increasing in popularity	=F6
attractive pack	=F7

BRAND C

CHOSEN 7 FACTOR SOLUTION

OVERALL EVALUATION

good taste/flavour	.90
a pleasant cigarette	.87
a satisfying, sustaining cig.	.84

REPUTATION

reliable name and reputation	.82
OK to offer around	.79

PRICE

reasonably priced	.89
-------------------	-----

BARGAIN

buy it only when on offer	.99
---------------------------	-----

STRENGTH

too strong and harsh	.91
----------------------	-----

PACK

attractive pack	.89
-----------------	-----

POPULARITY

increasing in popularity	.90
--------------------------	-----

REDUCED FACTORS

too strong and harsh	=F5
reasonably priced	=F3
good taste/flavour	=F1
attractive pack	=F6
reliable name and reputation	=F2
buy it only when on offer	=F4
increasing in popularity	=F7

BRAND DCHOSEN 6 FACTOR SOLUTIONF1 OVERALL EVALUATION

good taste/flavour .90  
 a pleasant cigarette .89  
 a satisfying, sustaining cig. .85

F2 REPUTATION/POPULARITY

reliable name and reputation .81  
 a cigarette to be seen with .79  
 increasing in popularity .70  
 OK to offer around .69

F3 BARGAIN

buy it only when on offer .97

F4 PRICE

reasonably priced .94

F5 STRENGTH

too strong and harsh .99

F6 PACK

attractive pack .90

REDUCED FACTOR

too strong and harsh =F5  
 reasonably priced =F4  
 good taste/flavour =F1  
 attractive pack =F6  
 reliable name and reputation =F2  
 buy it only when on offer =F3

BRAND ECHOSEN 6 FACTOR SOLUTIONOVERALL EVALUATION

good taste/flavour .90  
 a pleasant cigarette .87  
 a satisfying, sustaining cig. .84  
 a cigarette to be seen with .52

REPUTATION/PACK

attractive pack .79  
 reliable name and reputation .79  
 a cigarette to be seen with .57  
 OK to offer around .52

STRENGTH

too strong and harsh .97

BARGAIN

buy it only when on offer .99

POPULARITY

increasing in popularity .78

PRICE

reasonably priced .92

REDUCED FACTOR

too strong and harsh =F3  
 reasonably priced =F6  
 good taste/flavour =F1  
 reliable name and reputation =F2  
 buy it only when on offer =F4  
 increasing in popularity =F5

BRAND F

CHOSEN 7 FACTOR SOLUTION

<u>F1 OVERALL EVALUATION/REPUTATION 1</u>	
a satisfying, sustaining cig.	.88
a pleasant cigarette	.87
good taste/flavour	.85
a cigarette to be seen with	.67
<u>F2 STRENGTH</u>	
too strong and harsh	.96
<u>F3 REPUTATION 2</u>	
reliable name and reputation	.83
<u>F4 BARGAIN</u>	
buy it only when on offer	.99
<u>F5 PACK</u>	
attractive pack	.92
<u>F6 PRICE</u>	
reasonably priced	.90
<u>F7 POPULARITY</u>	
increasing in popularity	.86

REDUCED FACTOR

too strong and harsh	=F2
reasonably priced	=F6
attractive pack	=F5
a satisfying, sustaining cig.	=F1
reliable name and reputation	=F3
buy it only when on offer	=F4
increasing in popularity	=F7

BRAND G

CHOSEN 5 FACTOR SOLUTION

<u>OVERALL EVALUATION/POPULARITY</u>	
a pleasant cigarette	.89
good taste/flavour	.89
a satisfying, sustaining cig.	.83
increasing in popularity	.62
<u>OVERALL EVALUATION</u>	
too strong and harsh	.92
<u>PACK/REPUTATION</u>	
attractive pack	.81
reliable name and reputat.	.75
a cig. to be seen with	.67
OK to offer around	.67
<u>PRICE</u>	
reasonably priced	.91
<u>BARGAIN</u>	
buy it only when on offer	.98

REDUCED FACTOR

too strong and harsh	=F2
reasonably priced	=F4
a pleasant cigarette	=F1
attractive pack	=F3
buy it only when on offer	=F5

APPENDIX 6(xi)

RANGE OF FACTOR SOLUTIONS: 4-9 - CHOSEN SOLUTIONS ONLY GIVEN FOR WATNEYS'

BEERS AND HARP LAGER FOR BOTH MEN AND WOMEN FOR b<sub>i</sub> BELIEFS

WATNEYS' BEERS

MEN

CHOSEN 7 FACTOR SOLUTION

F1 OVERALL EVALUATION

buying a good quality beer .95  
 buying a beer that tastes good.90  
 buying a beer which offers good  
 value for money .77  
 buying a strong beer .54

F2 RED BARREL/WATNEYS

buying the beer with the red  
 barrel .94  
 buying the beer which says  
 what we want is Watneys .92

F3 AVAILABILITY

having difficulty to obtain it.99

F4 WELL-KNOWN

buying a well-known beer .93

F5 POPULARITY

buying a popular beer .87

F6 STRENGTH

buying a strong beer .80

F7 VALUE FOR MONEY

buying the beer which offers  
 good value for money .57

F8

REDUCED FACTOR

buying a good quality beer =F1  
 buying a well-known beer =F4  
 buying a popular beer =F5  
 buying a strong beer =F6  
 having difficulty to obtain it=F3  
 buying the beer with the red  
 barrel =F2  
 (buying the beer which offers  
 good value for money =F1/F7)

WOMEN

CHOSEN 8 FACTOR SOLUTION

OVERALL EVALUATION

buying a beer that tastes good .89  
 buying a good quality beer .70

RED BARREL

buying the beer with the red  
 barrel .93

WELL-KNOWN

buying a well-known beer .88

STRENGTH

buying a strong beer .92

AVAILABILITY

having difficulty to obtain it-.93

VALUE FOR MONEY

buying a beer which offers good  
 value for money .80

POPULARITY

buying a popular beer .78

WATNEYS

buying the beer which says what  
 we want is Watneys .81

REDUCED FACTOR

buying a well-known beer =F3  
 buying a beer which offers  
 good value for money =F6  
 buying a beer that tastes good =F1  
 buying a popular beer =F7  
 buying a strong beer =F4  
 having difficulty to obtain it =F5  
 buying the beer which says what  
 we want is Watneys =F8  
 buying the beer with the red  
 barrel =F2

HARP LAGERMENCHOSEN 9 FACTOR SOLUTIONF1 OVERALL EVALUATION +

buying a good quality lager	.91
buying a lager which offers good value for money	.90
buying a lager that tastes good	.89
buying a refreshing and thirst quenching lager	.86
buying a strong lager	.71

F2 AVAILABILITY

buying a lager which is easily available	.93
--	-----

F3 GUINNESS

buying a lager from Guinness and Park Royal	.94
---	-----

F4 NOT WELL KNOWN

buying a lager which is not well known	.93
--	-----

F5 PILS

buying a Pils lager	.95
---------------------	-----

F6 BRITISH MADE

buying a British made lager	.93
-----------------------------	-----

F7 FOREIGN

buying a foreign lager	.94
------------------------	-----

F8 POPULARITY

buying a popular lager	.86
------------------------	-----

F9 STRENGTH

buying a strong lager	.64
-----------------------	-----

REDUCED FACTOR

buying a good quality lager	=F1
(buying a strong lager =F1/F9)	
buying a lager with a foreign name	=F7
buying a lager which is easily available	=F2
buying a Pils lager	=F5
buying a popular lager	=F8
buying a lager which is not well known	=F4
buying a British made lager	=F6
buying a lager from Guinness and Park Royal	=F3

WOMENCHOSEN 8 FACTOR SOLUTIONOVERALL EVALUATION +

buying a good quality lager	.97
buying a lager which offers good value for money	.95
buying a lager that tastes good	.92
buying a refreshing and thirst quenching lager	.75
buying a strong lager	.63

BRITISH/PARK ROYAL

buying a British made lager	.97
buying a lager from Guinness and Park Royal	.62

AVAILABILITY

buying a lager which is easily available	.90
--	-----

NOT WELL KNOWN

buying a lager which is not well known	.92
--	-----

FOREIGN

buying a lager with a foreign name	.94
------------------------------------	-----

PILS

buying a Pils lager	.97
---------------------	-----

POPULARITY

buying a popular lager	.75
------------------------	-----

STRENGTH

buying a strong lager	.72
-----------------------	-----

REDUCED FACTOR

buying a good quality lager	=F1
buying a strong lager	=F8
buying a lager with a foreign name	=F5
buying a lager which is easily available	=F3
buying a Pils lager	=F6
buying a popular lager	=F7
buying a lager which is not well known	=F4
buying a British made lager	=F2

APPENDIX 6(xii)  
SPLIT SAMPLE RUN

The PA1 solution chosen for Brand A was the 7 factor one. A test was undertaken to check whether this was a reasonable stable solution. This test could have been carried out by running the range of solutions again on a matched sample interviewed at the same time as the original sample or on the same sample split into two separate samples. Owing to the cost of data collection the first option was closed; therefore the original sample was split into two: CIG1.DAT and CIG2.DAT. They were matched on male/female and north/south characteristics. On these two samples were run

- the mean scores for all the main variables involved in Brand A
- and the 7 factor solution.

There were 32 mean scores and 4 of these only were significantly different from one another between CIG1.DAT and CIG2.DAT. It was felt that this result was probably permissible.

The results for the 7 factor solution were as follows -

CIG1.DAT

<u>F1</u>	<u>F2</u>	<u>F3</u>	<u>F4</u>	<u>F5</u>	<u>F6</u>	<u>F7</u>
<u>good taste</u> <u>flavour</u>	<u>reliable</u>	reasonably priced	buy only offer	attractive pack	too stg. & harsh	OK to offer around

<u>a pleasant</u> <u>cig.</u>	a cig. to seen with	incg. in pop.
----------------------------------	------------------------	------------------

<u>a satisfyg.</u> <u>cig.</u>	incg. in pop.
-----------------------------------	------------------

CIG2.DAT

<u>good taste</u> <u>flavour</u>	<u>OK to</u> <u>offer</u>	reasonably priced	attractive pack	buy only offer	too stg. & harsh	buy it only on offer
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<u>a plst.</u> <u>cig.</u>	<u>reliable</u>
-------------------------------	-----------------

<u>a satisfyg.</u> <u>cig.</u>	a cig. to seen with
-----------------------------------	------------------------

ORIGINAL CIG.DAT.

<u>good taste</u> <u>flavour</u>	<u>reliable</u>	buy it only	reasonably priced	too stg. & harsh	incg. in pop.	attractive pack
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<u>a plst.</u> <u>cig.</u>	<u>OK</u>
-------------------------------	-----------

<u>a satisfyg.</u> <u>cig.</u>	cig. to seen with
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This suggests that both in content and the order in which the factors

come into the solution, factors 1 and 2 are the most stable. Factors 3-7 contain the same items as were in the original solution, but they are not in the same order. The problem seems to be largely caused by the fact that buy it only when on offer enters twice in Cig2.DAT; and in factor 7 OK to offer around enters when it should have been in factor 2. It must therefore be concluded that the order is not very stable after the first two factors.

APPENDIX 6(xiii)

CONFIDENCE

Stepwise regressions: 1.  $BI; b_{i i}, b_{i i}, SNBmc_{1..}$  versus  
 2.  $BI; b_{i i}, b_{i i}, SNBmc_{1..}$  and confidence

$R^2$ achieved at last step of regr. run	Confidence entered at step no. After reduction	retained/not retained
Brand A 1. $R^2 = .64$		
2. $R^2 = .64$	2nd	R
Brand B 1. $R^2 = .63$		
2. $R^2 = .63$	5th	R
Brand C 1. $R^2 = .64$		
2. $R^2 = .66$	2nd	R
Brand D 1. $R^2 = .61$		
2. $R^2 = .63$	2nd	R
Brand E 1. $R^2 = .69$		
2. $R^2 = .69$	8th	NR
Brand F 1. $R^2 = .69$		
2. $R^2 = .69$	13th	NR
Brand G 1. $R^2 = .69$		
2. $R^2 = .69$	11th	NR
MEN:WATNEYS 1. $R^2 = .70$		
2. $R^2 = .70$	7th	NR
WOMEN:WAT 1. $R^2 = .75$		
2. $R^2 = .76$	8th	NR
MEN:TRUMANS 1. $R^2 = .50$		
2. $R^2 = .52$	3rd	R
WOMEN:TRU 1. $R^2 = .58$		
2. $R^2 = .59$	3rd	R
MEN:WHITBD. 1. $R^2 = .50$		
2. $R^2 = .50$	10th	NR
WOMEN:WHITBD. 1. $R^2 = .62$		
2. $R^2 = .62$	13th	NR
MEN:COURAGE 1. $R^2 = .49$		
2. $R^2 = .49$	6th	NR
WOMEN:COUR. 1. $R^2 = .65$		
2. $R^2 = .66$	5th	R

MEN:CHARR.	1. $R^2=.46$			
	2. $R^2=.46$	10th		NR
WOMEN:CHARR.	1. $R^2=.55$			
	2. $R^2=.58$	3rd	R	
MEN:IND COOPE	1. $R^2=.54$			
	2. $R^2=.55$	2nd	R	
WOMEN:IC	1. $R^2=.61$			
	2. $R^2=.62$	4th		NR
MEN:S&N	1. $R^2=.50$			
	2. $R^2=.52$	2nd	R	
WOMEN:S&N	1. $R^2=.69$			
	2. $R^2=.69$	12th		NR
MEN:HARP	1. $R^2=.65$			
	2. $R^2=.67$	2nd	R	
WOMEN:HARP	1. $R^2=.73$			
	2. $R^2=.73$	5th	R	
MEN:SKOL	1. $R^2=.64$			
	2. $R^2=.63$	3rd		NR
WOMEN:SKOL	1. $R^2=.64$			
	2. $R^2=.63$	3rd	R	
MEN:KBG.	1. $R^2=.55$			
	2. $R^2=.56$	6th		NR
WOMEN:KBG.	1. $R^2=.64$			
	2. $R^2=.64$	12th		NR
MEN:CARLSBG.	1. $R^2=.59$			
	2. $R^2=.59$	11th		NR
WOMEN:CBG.	1. $R^2=.60$			
	2. $R^2=.60$	11th		NR
MEN:HEINEKEN	1. $R^2=.57$			
	2. $R^2=.57$	7th		NR
WOMEN:HEINEKEN:	1. $R^2=.65$			
	2. $R^2=.66$	6th	R	
MEN:HOLSTEN	1. $R^2=.57$			
	2. $R^2=.60$	3rd	R	
WOMEN:HOLSTEN	1. $R^2=.60$			
	2. $R^2=.61$	6th	R	

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N.B. Most references are listed in the text, the rest were useful background reading.