

1973

## **An exploratory investigation into the perception of price as a function of latitudes of acceptance.**

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AN EXPLORATORY INVESTIGATION INTO THE PERCEPTION  
OF PRICE AS A FUNCTION OF LATITUDES OF ACCEPTANCE

A Thesis Presented

By

Susan Lynn Downey

Submitted to the Graduate School of the  
University of Massachusetts in partial  
fulfillment of the requirements for the degree of

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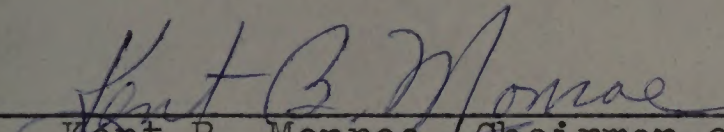
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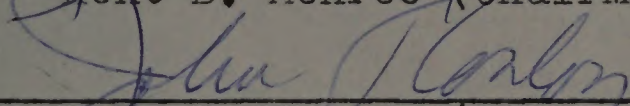
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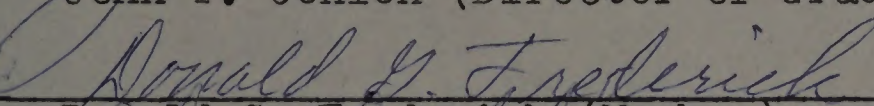
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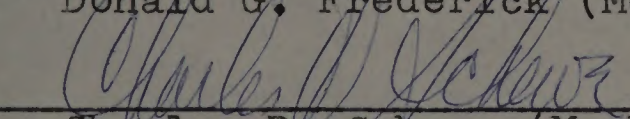
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## C H A P T E R I

### BACKGROUND OF THE RESEARCH

The research reported in this paper aims to further substantiate the concept of price limits (i.e., buyers have a range of acceptable prices for a contemplated purchase) reported by recent price research and to further substantiate that concepts originating in psychophysical research have relevance to price perception.

More specifically, this research aims to show how an individual's perception of price can be related to his latitude of acceptance and latitude of rejection. Latitude of acceptance is defined as that range of prices judged acceptable by purchasers, while latitude of rejection refers to that range of prices found objectionable by purchasers [10, p. 148].

Research pertinent to the present study includes 1) a review of the literature demonstrating the existence of an acceptable price range, below and above which prices are considered to be unacceptable and 2) a review of psychophysics.

#### Theoretical Framework

The hypothesis that a buyer has an upper and lower price limit for a contemplated purchase received its origin in psychophysics, the study of quantitative relationships between physical objects and corresponding psychological events [6].

Psychophysical studies of judgment are concerned with the rating of one stimulus in relation to another stimulus or series of stimuli. The subjects' task is to identify differences between stimuli on the basis of some physical attribute [12, p. 177]. Statistical adaptations of psychophysical methods for the construction of instruments for attitude measurement were first reported by Thurstone in 1928 [10, p. 9].

Central to any psychophysical investigation is the assumption of three continua; 1) a stimulus continuum; 2) a judgment continuum, and 3) a response continuum [6]. The stimulus continuum is measurable in physical units; the response continuum measures the sensory response to physical stimuli; and the judgment continuum is used to infer the actual sensory response [7].

The major properties of psychophysical scales (the limits of acceptability and the limits of what is objectionable) reflect the consensus defined by social norms.

The fact that the positions on a psychophysical scale reflect the stands taken by defined groups provides us with a basis for studying the appraisals of particular individuals. The bounds of tolerance or acceptance within any group can be determined relative to these positions [13, p. 10]. Also, the limits of an individual's acceptance and rejection can be compared to those of other individuals.

If an individual has had little experience with grading stimuli, the end values of the series serve as anchors in establishing the scale. Anchoring stimuli introduced by the experimenter within or without the stimulus series significantly affect the way the individual places the series stimuli. This causes an anchoring effect. The term "anchoring effect" refers to the systematic shifts in judgments of a new stimulus or stimuli [10, p. 19]. An anchor placed at either end of a series will produce an assimilation effect. Assimilation effect means that judgments are displaced in the direction toward the anchor (12, p. 81). This would result in overestimation or underestimation of stimuli somewhat below and above the anchor value (15). However, if the anchor is removed further from the series, a contrast effect ensues. Thus, judgments are displaced away from the anchor (12, p. 81).

If an individual is given a series of stimuli covering a range of positions from one extreme to the other, a pattern is obtained on an evaluative reference scale in which there is a region of acceptance, a region of rejection, and usually a non-committal region between the two. The positively evaluated categories (latitude of acceptance) function as an internal anchor in judgments of relevant stimulus items. The effects of an established internal anchor are revealed more clearly when the individual is permitted to select and use his own categories in making judgments.

Classical psychophysics was primarily concerned with establishing sensory thresholds. Originating much of the interest in threshold research was Weber's Law. This law suggests that small equally perceptible increments in a response correspond to proportional increments in the stimulus. Weber's Law applies to the perception of changes in a stimulus, i.e., to perceived differences between two intensities of a stimulus (7, p. 74).

Disagreeing with Weber, Fechner sought to measure sensation indirectly by using differential increments, and derived the Weber-Fechner Law (7, p.74).

$$R = K \log S + a$$

Where:

R is the magnitude of response,

S is the magnitude of the stimulus,

K is a constant of proportionality, and

a is the constant of integration.

The Weber-Fechner Law provides a means of experimentally determining the absolute threshold because a least squares regression relating R to log S can be fitted from the data. Then the threshold becomes the stimulus value with a probability of producing a response 50 percent of the time. The importance of the Weber-Fechner Law to pricing is that it provides a relationship between price (stimulus) and a response. In particular, the Weber-Fechner Law provides the

hypothesis that the relationship between price and a response is logarithmic [7].

#### Summary of Existing Knowledge

The hypothesis of lower and upper price limits implies that some individuals have a range of acceptable prices for certain products formed on the basis of prior experience.

Stoetzel [14], in early research dealing with subjective aspects of price, determined the existence of acceptable prices for radio sets by asking respondents two questions: (1) "Below what price would you suspect that a radio set was of poor quality?" and, (2) "Above what price would you judge a radio set to be too dear?" Every purchaser has, by answering these questions determined a maximum and a minimum price and therefore defined a range of acceptable prices.

As a continuation of Stoetzel's work, Adam [1] developed a technique for quantifying buyer attitudes towards price. Interviewing over 6,000 people, Adam determined upper and lower price thresholds for nylon stockings, an underwear item, children's shoes, men's dress shirts, a gas-lighter, and refrigerators. His work confirmed the acceptable price range hypothesis.

Fouilhé [3] extended the work of Stoetzel and Adam to include two household products (one a known brand name) and two packet soups (again, only one a known brand name), and

concluded that there was evidence of a range of acceptable prices. Fouilhé's methodology differed from Stoetzel and Adam because he actually showed the products to the subjects (including the product's name). His results indicated that the two known products had a distinctly narrower acceptable price range than the two unknown products.

In a series of studies Gabor and Granger [4, 5] interviewed over 3,000 housewives to determine acceptable price ranges for a carpet, nylon stockings, food, and two household products and confirmed the acceptable price range hypothesis. They also found that the acceptable price range shifts downward as income falls. The upper price threshold dropped less than the lower price threshold, implying that a low price is a more potent deterrent to the higher income groups than is a high price to lower income groups.

Sherif [10], in an experiment investigating social categorization as a function of acceptance and series range, found upper and lower price thresholds for a winter coat. Using 334 high school white and Indian students, the experiment varied latitudes of acceptable monetary values for given expenditures, series range, and social value of items in a 2x2x2 design. Using the own-category experimental procedure, she found the width of the acceptable price range to be distinctly lower for Indian students, particularly as the price stimuli was lengthened to include higher prices.

Monroe [9], using psychophysical experimental methodology on college students, employed the method of limits to determine price limits for eight products (a variety of clothing and personal care items). The method of constant stimuli was then used to test for specific upper and lower price thresholds. As in earlier studies, upper and lower price limits were determined for all test products.

Monroe [8], also replicated Sherif's study to test the price-limit hypothesis on high school students. The own-category experimental procedure was used on a sport coat and dress shoes, two of the products tested earlier in the psychophysical experiment. Analysis of the data confirmed the price-limit hypothesis. He also found that females were more discriminating than males since on the average they used slightly more than one additional category in evaluating the prices.

Alexis, Haines, and Simon [2] interviewed 150 housewives and found a relationship between price usually paid and lower and upper prices normally paid for five articles of clothing. Further, they concluded that "the consumer goes shopping with a 'target' price in mind around which there is an acceptable deviation (2, p. 28)."

#### Summary of Chapter I

The hypothesis that a buyer has an upper and lower price limit for a contemplated purchase received its origin



in psychophysics. Psychophysics is mainly concerned with measuring an individual's response thresholds for physical stimuli. The major properties of psychophysical scales (the limits of acceptability and the limits of what is objectionable) reflect the stands taken by defined groups and provides us with a basis for studying the appraisals of particular individuals. Recent price research also reports the concept of price limits and validates the price-limit hypothesis. This research reveals the existence of price limits and implies that some individuals have a range of acceptable prices for certain products formed on the basis of prior experience.

## C H A P T E R II

### RESEARCH PROBLEM

#### Research Objective

The objective of the research to be reported is to study an individual's perception of price as a function of his latitude of acceptance. The own-category experimental procedure for determining price thresholds was used because it reflects the subject's true subjective perceptions of price and more clearly reveals the effects of an established internal anchor. The basic assumption is that individuals faced with the task of assessing prices are already equipped with an ordered set of categories formed on the basis of prior experience. Therefore, customary ranges of acceptable and unacceptable prices will be reflected in the number, kind, and width of the price categories used by individuals and by their distribution of particular prices into these categories.

There is far too little present research validating that the concept of limits is a realistic and an effective tool explaining the consumer's behavior. To even hint that price acts as an indicator of quality would discredit quite a few of the convenient simplifying assumptions of traditional demand theory. Economics can not make proper progress by trying to evade the structure which exists in the human minds of consumers on the psychological scale of prices. The

difficulties in this field of study must be recognized and the old concepts which are unsuitable in dealing with these problems should be discarded.

One should be aware that in the majority of cases the consumer is aware before the purchasing act of the approximate price she will have to pay. Of course, this price fluctuates depending on the consumer and the product she is purchasing, and in some cases lends no validity to the theory of the lower the price the more willing she will be to buy the product. In fact, in some cases, an inverse price-quantity relationship will not exist.

Each product in the market has a price which is shown to the prospective purchaser. The purchaser reacts by comparing the product with its price ticket and assessing whether the price is normal, excessive, or too low. In a pricing situation such as this, we are interested in the ability of the purchaser to discriminate between various product choices. Therefore, the question arises; "Do buyers have upper and lower price limits?" That is, do purchasers have a latitude of acceptance, which is that range of prices judged acceptable by the purchasers, and, conversely, a latitude of rejection, which is that range of prices found objectionable by the purchasers.

The significance of this research is very important to the marketing men engaged in pricing strategy problems. For, if the latitude of acceptance assumption proves to be true

in this study, the marketing man, given the objective of selling similar products with different features at different prices, must determine the acceptable price range for each market segment if he is to appeal to different market segments.

#### Statement of the Problem

The problem of the present research is based on the assumption that purchasers have a lower and upper price limit and, thus, a range of acceptable prices for a contemplated purchase.

To determine the variations in judgment for different ranges of prices, prices were presented for judgment in "long" form and in "short" form, in which the majority of unacceptable prices were omitted. The prices were judged in two series to determine if the number of categories used will vary with the length of the series and, to determine if the subjects' judgment of the prices will shift when the series is lengthened. The shifts are called "assimilation" (shift toward the anchor value) or "contrast" (shift away from the anchor value). Judging the two series also enables one to determine the frequency distribution of prices into categories that will reflect the established latitude of acceptance as a function of the series judged. We can also assume that the distribution of judgments in the "long" series will resemble a "contrast effect" with the acceptable

categories serving as anchors.

Based on Monroe's findings [8] that females were more discriminating than males (on the average they used slightly more than one additional category), the assumption was made that the two samples, male and female, will differ in their range of acceptable prices and differ in the number of categories they use to judge the series. Comparable procedures will be employed for both samples, and will permit subjects to use their own categories.

Based on the previous assumptions, the following null hypotheses were developed:

1. A buyer does not have a lower and upper price limit for a contemplated purchase.
2. The category price limits used in judgment will not vary with the length of the series presented.
3. The number of categories used in judgment will not vary with the length of the series presented.
4. The two samples will not evaluate the price series differently.

#### Summary of Chapter II

The objective of this research is to study an individual's perception of price as a function of his latitude of acceptance. The basic assumption is that purchasers have a lower and upper price limit for a contemplated purchase and, thus, a range of acceptable prices formed on the basis of

prior experience. The assumption was also made that if prices were presented for judgment in "long" form and in "short" form, variations in judgment of the two series would be seen. Finally, the assumption was made that the two samples would judge the price series differently. The hypotheses developed in this research were based on the previous assumptions.

C H A P T E R   I I I  
R E S E A R C H   M E T H O D O L O G Y

Subjects

Background. The population from which subjects were drawn was the student body of the undergraduate School of Business at the University of Massachusetts in Amherst, Massachusetts and the student body of the undergraduate School of Business at the University of Rhode Island in Kingston, Rhode Island. The majority of subjects were in their junior or senior years and majoring in marketing. Because of the nature of the population the males outnumbered the females and was an uncontrollable constraint in this experiment.

Samples for the experiment. Subjects were selected for the experiment in two ways: (1) Students were required to attend the experiment by their professor at a regularly scheduled class period, or (2) students were told that a guest speaker would be attending their next class and were told to come on a volunteer basis. Attendance was nearly double in the classes that were required to attend the experiment.

Price packets were administered to eleven different classroom groups, totaling 145 subjects. The price packets of two male subjects were eliminated due to "nonresponse answers" on necessary subject information. Because each

classroom was divided into two groups, subjects given the long range prices and subjects given the short range prices, it was further necessary to eliminate the price packets of two females and five males. This was done to obtain an equal number of females and an equal number of males in each group. The first sixteen acceptable price packets in the two female groups and the first fifty-two acceptable price packets in the two male groups were used. Thus, the data in this research is based on the answers of 104 male subjects and 32 female subjects.

### Procedures

Experimental procedures. The instructions and the price packets were administered to the subjects in their classrooms. Subjects were instructed not to converse during the experiment, the nature of the experiment, being given as the reason. They were free to ask questions by raising their hands. Upon subject's question, the item was read to him, and the wording clarified if necessary. If the questions concerned how to arrange the prices into categories, the subject was told to do the best he could and arrange prices the way he thought best.

Every subject sorted one series of prices. Half of the subjects in each sample sorted a "short" series and half sorted a "long" series. See Table 1 for Research Design.

The price series were given to subjects in a closed manila envelope with Directions 1 (see Appendix A1).



TABLE 1  
RESEARCH DESIGN

	Males	Females
Long Range Prices		
Short Range Prices		

After all subjects completed judgment of the price series to their own satisfaction, Directions 2 were passed out (see Appendix A2).

Stimulus materials and series. Both price series were thoroughly shuffled and cut several times before being used in the experiment. The short series ranged in intervals of \$.50, from \$1.00 to \$25.50, making a total of 50 price slips in this series. The long series ranged in intervals of \$1.00, from \$1.00 to \$50.00, making a total of 50 price slips in this series. Each price slip was mimeographed on a separate slip of paper, 2-3/4" high and 4-1/2" wide.

The series of prices to be used were determined by talking to retailers in the Amherst, Massachusetts, Boston, Massachusetts, and Providence, Rhode Island, areas. Large department stores, discount stores, and small specialty stores were visited. The prices most frequently paid for pants were in a price range of about \$6.00 to \$18.00. However, by examining the prices they were found to range from \$3.99 to \$46.00. It was on the basis of these findings that the two price series were determined.

### Summary of Chapter III

Subjects for the experiment were 136 college students from the University of Massachusetts and the University of Rhode Island and the experiment was administered in subjects' classrooms. Subjects judged either a "short" series of

prices or a "long" series of prices for pants. The price packets, labels for categorization, and the first set of instructions, which instructed subjects to sort the prices into a number of piles of their own choosing, were passed out to subjects. After subjects completed this task, a second set of instructions were passed out which instructed subjects how they should label their piles.

## C H A P T E R I V

### RESULTS AND ANALYSIS

The main data from the experiment consisted of 50 judgments by each subject, making a total of 6,800 judgments. Subjects' placements of prices into categories and the labels assigned the categories were tabulated for each series. The dependent variables of interest in the experiment are the upper and lower price limits, the number of categories used, the frequency distribution of items into these categories, and the price limits of prices placed into these categories.

#### Acceptable Price Range

The first hypothesis predicted that a buyer would have a lower and upper price limit for a contemplated purchase. To test this hypothesis, category limits were computed for the lowest acceptable and highest acceptable price of each subject. Tables 2 and 3 show the computed price limits for the experiment. Specifically, for the long range prices, 50 males and 16 females indicated a low price limit and 52 males and 16 females indicated a high price limit. For the short range prices, 47 males and 14 females indicated a low price limit and 45 males and 15 females indicated a high price limit. The binomial test was significant for both upper and lower price limits ( $p < 0.01$ ). (See appendices D1 and D2). Thus, we can conclude that at least 99 percent of the popula-

TABLE 2  
CATEGORY LIMITS OF ALL ACCEPTABLE  
CATEGORIES--SHORT RANGE

---

	Males	Females
Low Price Limit	\$5.50	\$6.00
High Price Limit	19.00	19.00

---

TABLE 3  
CATEGORY LIMITS OF ALL ACCEPTABLE  
CATEGORIES--LONG RANGE

---

	Males	Females
Low Price Limit	\$6.00	\$7.00
High Price Limit	21.00	20.00

---

tion tested have lower and upper price limits.

Further analysis of the responses allows quantification of the percentage of customers who are likely to buy at a particular price. By computing the number of prices in each category, the width of each category is known. These measurements provide a quantitative way of looking at how subjects defined each judgment. Appendices B1 through B8 show the computational procedures and illustrate the results.

The first step is to compute the frequency of judgments in each of the seven categories. The frequency data for this experiment are given in appendices B1, B3, B5, and B7. Then these frequencies are transformed to proportions and cumulated from the high price end resulting in appendices B2, B4, B6, and B8. These four tables show the relative frequency each price was judged in a higher category than each designated category. The figures in appendices C1 through C4 show the cumulative frequency function and graph the transitions from each category to the adjacent category. The category limens are defined as the prices where the probability of a price being included in the designated category equals the probability of its being included in the immediately adjacent category (8).

These calculations describe how subjects used the response scale and allow us to determine how subjects respond to each category. Looking at the figures in appendices C1 through C4, we can determine the percentage of subjects judg-

ing various price ranges as acceptable. These figures are merely a way of clearly illustrating the percentage of subjects who deem each price as acceptable or unacceptable. This further substantiates the hypothesis that lower and upper price limits do exist.

#### Number of Categories Used to Judge

##### Long and Short Series

The number of categories each subject actually used for judgment of each series of prices was counted. If a subject failed to use one or both of the end categories provided by instructions, the instructed category was not counted. The same number of price slips was used in each series.

The hypothesis that the number of categories used in judgment will vary with the length of the series presented was not confirmed. Table 4 shows the mean number of categories used by subjects judging the long and short series of prices. Using the pooled sample variance test, a Z value of 0.61 was calculated (see appendix D3). Referring to the standard normal distribution table, we obtain a value of .7291. Thus, the number of categories used will not vary with the length of the series for 72 percent of the population, the number of prices being judged the same. Results further indicated that the absolute number of prices to be sorted, and not the series length was the crucial determinant in establishing the number of categories to be used by subjects in



TABLE 4  
MEAN NUMBER OF CATEGORIES

---

	Males	Females
Long Range	5.02	5.25
Short Range	4.80	5.31

---

this research. There was a strong tendency for subjects to use the same or similar number of categories in judging the two series. Using the same absolute number of prices in the two series greatly minimizes the differences in the number of categories used between subjects judging the two series.

Subjects judging the long series of prices merely used broader categories. Tables 5 and 6 show how subjects judging the long series increased the category widths when the series was extended to include extreme high prices. The mean maximum discrepancies in Tables 5 and 6 were obtained by computing for each subject an equal frequency distribution in terms of the number of prices he used in each category and, from this data, determining the expected frequency in the three categories, unacceptable (low), acceptable, and unacceptable (high). The increase in the number of prices in the unacceptable (high) category by subjects judging the long range prices is accounted for in part by the extreme high prices provided in this series.

The short series of prices was planned to exceed the subject's latitude of acceptance slightly. The long series of prices went far beyond subject's latitude of acceptance. In judging the short series of prices the subjects judged the end and intermediate categories with approximately expected frequency. In the long series, however, subjects placed a disproportionate number of prices into the last category, which can be explained because the long series ex-

TABLE 5

MEAN MAXIMUM DISCREPANCIES OBTAINED-EXPECTED FREQUENCIES  
 OF JUDGMENTS IN CATEGORIES USED  
 BY SUBJECTS--SHORT RANGE

	Male	Female
Maximum Discrepancy	2.71	.8125
Category Location	Unacceptable (high)	Acceptable

TABLE 6

MEAN MAXIMUM DISCREPANCIES OBTAINED-EXPECTED FREQUENCIES  
 OF JUDGMENTS IN CATEGORIES USED  
 BY SUBJECTS--LONG RANGE

	Male	Female
Maximum Discrepancy	12.08	13.00
Category Location	Unacceptable (high)	Unacceptable (high)

ceeded their latitudes of acceptance. The extreme use of the last category by subjects judging the long series of prices represents the contrast effect. The increased frequency of prices placed in the unacceptable (high) category, opposite the latitude of acceptance, by subjects judging the long series shows how the introduction of remote anchor stimuli produces the contrast effect. Therefore, in this experiment, the latitude of acceptance (range of acceptable prices), acting as an anchor in judgment, produces a contrast effect when the range of prices to be judged is lengthened to include prices markedly beyond subjects' latitudes of acceptance. As can be seen in Table 6, the result is a disproportionate frequency of judgments in the unacceptable (high) category, opposite to the acceptable price range.

#### Category Limits for Long and Short Series

The third hypothesis predicted differences in categorization of the two price series. In order to test this hypothesis, category limits were computed for both series. Category designations common to all subjects, regardless of the number of categories, were used. These designations include:

- 1) Highest low unacceptable price (using either category 1 or 2.)
- 2) Lowest acceptable price (using either category 3 or 4.)

- 3) Category for prices indicated as most acceptable.
- 4) Highest acceptable price (using either category 4 or 5.)
- 5) Lowest high unacceptable price (using either category 6 or 7.)

In addition the center of each subject's scale was computed. The center was computed as the limen between the two middle categories when subjects used an even number of categories and the midpoint of the middle category when subjects used an odd number of categories [8].

Tables 7, 8, and 9 provide the overall results of the ways subjects judged the two price series. Scale centers are higher for the long range subjects than the short range subjects and the lower limit of the unacceptable high categories is also higher for the long range subjects than the short range subjects. Differences between the upper limit of the unacceptable low categories and the most acceptable categories do not appear to be nearly as striking between the long and short series.

As can be seen by the most acceptable categories being so nearly alike in the two series, the prices within the most acceptable category function as an anchor in evaluating prices, even when the series is substantially lengthened to include higher prices.

We can also see that subjects do not change to a very great extent their evaluation of the prices they deem as the

TABLE 7  
 CATEGORY LIMITS OF ACCEPTABLE AND  
 OBJECTIONABLE CATEGORIES-  
 SHORT RANGE

Categories	Category Limits			
	Males		Females	
	Lower	Upper	Lower	Upper
Most Acceptable	\$9.00	\$14.00	\$8.50	\$15.00
All Acceptable	5.50	19.00	6.00	19.00
Unacceptable (high)	18.50	25.50 <sup>a</sup>	19.00	25.50 <sup>a</sup>
Unacceptable (low)	1.00 <sup>b</sup>	5.50	1.00 <sup>b</sup>	6.00

<sup>a</sup>Not a median value, instead an imposed high end point.

<sup>b</sup>Not a median value, instead an imposed low end point.

TABLE 8  
 CATEGORY LIMITS OF ACCEPTABLE AND  
 OBJECTIONABLE CATEGORIES-  
 LONG RANGE

Categories	Category Limits			
	Males		Females	
	Lower	Upper	Lower	Upper
Most Acceptable	\$9.00	\$15.50	\$8.50	\$15.00
All Acceptable	6.00	21.00	7.00	20.00
Unacceptable (high)	22.00	50.00 <sup>a</sup>	21.00	50.00 <sup>a</sup>
Unacceptable (low)	1.00 <sup>b</sup>	5.00	1.00 <sup>b</sup>	6.00

<sup>a</sup>Not a median value, instead an imposed high end point.

<sup>b</sup>Not a median value, instead an imposed low end point.



TABLE 9  
SCALE CENTERS

---

	Males	Females
Long Range	\$15.00	\$13.50
Short Range	12.25	12.00

---

upper limit of unacceptable low when the series is lengthened to include higher prices.

To obtain a clearer picture of the way in which subjects judged the long and short series, the latitude of acceptance is the most nearly comparable measure to obtain the differences between the two series. As can be seen in Tables 7 and 8, subjects' judgment of the lowest acceptable prices do not seem to differ to a very great extent between the two series. This can also be backed up by the striking similarity between the two series when judging the lower latitude of rejection. However, the two series do differ to a greater extent in the highest prices judged acceptable, which again can be backed up by the difference between the two series when judging the upper latitude of rejection. In short, subjects responded to the long series of prices with a higher latitude of acceptance. The upper limit of the subjects' acceptable categories in judging the long series (\$21.00, \$20.00) was placed by subjects judging the short series in the unacceptable high categories.

The increased acceptance of prices in the long range shows the assimilation effect, produced by a broad latitude of acceptance relative to the series judged. These differences are not large and may well be attributed to sample variance. Nevertheless, the trend is supported by the fact that the prices in the long range series, close to those within the latitude of acceptance, became assimilated to it,

when prices sufficiently high enough to fall within the latitude of rejection became contrasted to it.

Differences Between Samples in  
Evaluation of Prices

Based on the results found by Monroe [8] that females were more discriminating than males in judging price series, the last hypothesis predicted that males and females would evaluate the price series differently. Monroe found that females were more discriminating than males in evaluating the price series because on the average they used slightly more than one category.

However, in this experiment the hypothesis that the males and females will evaluate the price series differently was not confirmed. Table 4 shows the mean number of categories used by males and females in evaluating the two series. Using a pooled sample variance test, a Z value of 1.6 was calculated (see appendix D4). Referring to the standard normal distribution table, we obtain a value of .9452. Thus, results indicate that in 95 percent of the population, males and females will use approximately the same number of categories in evaluating the price series.

Tables 10 and 11 show the mean discrepancies-obtained expected frequencies of judgments in categories used by subjects. In the long range series, the two samples not only used the same number of categories in judging the prices, but

TABLE 10  
MEAN DISCREPANCIES OBTAINED-EXPECTED FREQUENCIES  
OF JUDGMENTS IN CATEGORIES USED  
BY SUBJECTS--LONG RANGE

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	Male	Female
Unacceptable (low)	-5.66	-5.25
Acceptable	-6.63	-7.75
Unacceptable (high)	12.08	13.00

---

TABLE 11  
MEAN DISCREPANCIES OBTAINED-EXPECTED FREQUENCIES  
OF JUDGMENTS IN CATEGORIES USED  
BY SUBJECTS--SHORT RANGE

---

	Male	Female
Unacceptable (low)	-.4468	.3571
Acceptable	-1.94	.8125
Unacceptable (high)	2.71	-.5333

---

also used the categories with striking similarity. In the short range series the two samples used the unacceptable (low) category with striking similarity, however, the acceptable and unacceptable (high) categories do not appear to be nearly as similar. It should be kept in mind that in judging the short range series, prices were in increments of \$.50. Thus, in looking at the unacceptable (high) category (males - 2.71, females - -.5333), the actual discrepancy would be slightly over \$1.50, at the highest, which is equal to three price judgments. On the basis that the differences in the short range series are not large and may well be attributed to sample variance, the expected frequencies of judgments in the categories by the two samples further substantiates the hypothesis that the two samples judged the price series nearly the same.

#### Summary of Chapter IV

As was expected, the hypothesis was confirmed that a buyer would have an upper and lower price limit for a contemplated purchase. The second hypothesis that the category limits used in judgment would vary with the length of the series was not confirmed. The third hypothesis that the number of categories used would vary with the length of the series was not confirmed. Subjects judging the long range series merely increased the number of prices in the unacceptable (high) category. Finally, the last hypothesis that the males

and females would judge the price series differently was not confirmed.

## C H A P T E R V

### DISCUSSION AND CONCLUSIONS

#### Hypotheses and Summary of Results

The hypotheses investigated in this experiment were formulated on the basis of prior research on price perception. A survey of literature revealed that for some products price thresholds do exist. Sherif's (10) findings indicate that different price thresholds may exist for different series lengths of prices. This hypothesis was tested by formulating a short series of prices (\$1.00 - \$25.50) and a long series of prices (\$1.00 - \$50.00). The long series of prices was planned to considerably exceed subjects' latitudes of acceptance and show how the introduction of remote prices produces the contrast effect and assimilation effect. Monroe's (8) findings indicate that females are more discriminating than males in judging price series. This hypothesis was tested by determining if the two samples (male and female) used a different number of categories in judging the price series.

In order to investigate the hypotheses suggested by this prior research, an experiment was performed with a sample of 32 female subjects and 104 male subjects. All subjects, whether judging the long or short series of prices, sorted the items into categories of their own choosing. The instructions specified only extreme end categories which did



not have to be used. Otherwise, subjects were instructed to use any number of categories they chose.

After each series of prices was judged, subjects labeled the category most acceptable to them, other acceptable categories, the category most unacceptable to them, and other unacceptable categories.

The first hypothesis predicted that subjects would have a lower and upper price limit for a contemplated purchase. For the long range prices, 50 males and 16 females indicated a low price limit and 52 males and 16 females indicated a high price limit. For the short range price series, 47 males and 14 females indicated a low price limit and 45 males and 15 females indicated a high price limit. Thus, subjects did have a lower and upper price limit, and a range of acceptable prices for pants (the product used in this experiment).

The second hypothesis, that the category limits used in judgment would vary with the length of the series was not confirmed. Subjects used prices in the most acceptable category as an anchor in evaluating prices, even when the series was substantially lengthened to include higher prices. The increased acceptance of prices in the long range shows a slight assimilation effect. However, these differences are not large and may well be attributed to sample variance.

The third hypothesis, that the number of categories used would vary with the length of the series, was not confirmed.

The number of categories each subject actually used for judgment was counted. In this experiment, the number of categories used did not vary with the length of the series. Subjects judging the long range prices merely increased the number of prices in the unacceptable (high) category, which can be explained because the long series considerably exceeded their latitudes of acceptance. The increased frequency of prices placed in the unacceptable (high) category, by subjects judging the long range prices shows how the introduction of remote prices produces the contrast effect.

Finally, the last hypothesis, that the two samples would evaluate the price series differently, was not confirmed. The number of categories each subject used was counted. In this experiment, males and females used approximately the same number of categories in evaluating the price series.

### Discussion

The research results support the general theory that when consumers are faced with the task of assessing prices for a product they are already equipped with an ordered set of categories formed on the basis of prior experience; and customary ranges of acceptable and unacceptable prices will be reflected in the number, kind, and width of categories used by individuals.

One of the significant findings, from the point of view

of marketing research, is that in evaluating prices, purchasers use price as an indicator of quality. The mere fact that subjects did have a lower price limit discredits much of the traditional demand theory formulated by economists.

When using their own established reference scales for judgments, subjects did not significantly differ between the long and short series as to the number of categories they used. This indicates that the absolute number of prices and not the series length was the major factor in determining the number of categories to be used. In addition, the distribution of prices into categories varied relative to the length of prices judged.

The latitude of acceptance of subjects acted as an anchor in judgment and produced a contrast effect when the price series was lengthened to include prices reasonably beyond the latitude of acceptance. The result is a disproportionate frequency of judgments in the unacceptable (high) categories, opposite the acceptable price range.

A slight assimilation effect was shown by a lessened discrimination in the acceptable range of the price scale by subjects judging the long range prices. However, as was noted previously, the difference between the two series was small and may well be attributed to sample variance.

The present research selected males and females as a potential source for individuals with different reference

scales. The findings give clear implications males and females have the same established reference scales when judging prices for pants. They used the same number of categories in evaluating the price series and their lower and upper price limits were very similar.

Limitations. The number of male and female subjects in this experiment was an uncontrollable variable and was determined by the number of males and females present in the classes. However, I believe that the shortage of females was a minor factor in this experiment and had the samples been equal in size, the results would have been relatively the same.

In this study, subjects determined their own price limits. However, the question arises "do we actually do what we plan to do?" The answer to this question depends upon 1) circumstances at the time of purchase and 2) how subjects' price limits may differ at the time of purchase. These are unknown factors.

A final limitation of this study was the fact that the two samples selected were not completely representative with respect to the characteristics of the population from which they were drawn. The subjects chosen for this experiment were all marketing students and may have had different perceptions of price than the entire population of college students. The question remains unanswered that, if the fact that marketing students are familiar with basic marketing

concepts, including those on price perception, the results were or were not representative of the average college student.

### Conclusions

In support of existing knowledge. The results of this study support the existing price-limit theory that buyers have lower and upper price thresholds and a set of acceptable prices for a contemplated purchase formed on the basis of prior experience. Analysis of the data confirmed the existence of lower and upper price limits and the latitude of acceptance for the product tested.

Specifically, the results of this study confirm the results found by Stoetzel [14], Adam [1], Fouilhé [3], Gabor and Granger [4, 5], Sherif [10], and Monroe [8, 9], that subjects did have lower and upper price limits for the products tested.

This study also confirmed the results of Sherif (10), that the latitude of acceptance, acting as an anchor in judgment, produces the contrast effect when the price series was lengthened to include prices markedly beyond subjects' acceptable price range. The study did not, however, show as distinct an assimilation effect as Sherif found nor did the study show the significant difference between subjects judging the long and short series of prices that Sherif found.

Based on Monroe's (8) findings, it was hypothesized, that male and female subjects would judge the series differently. Analysis of the data, did not support Monroe's findings. In this study there was no significant difference between males and females judging the price series.

Implications for marketing men engaged in pricing decisions. Research on consumer attitudes towards price should be a fundamental part of modern marketing and may well provide marketing men with new insights as to how products should be priced.

This study shows how price, when used as a psychological tool, constitutes a barrier to demand when it is too low as well as when it is too high.

The price-limit theory can be helpful to the marketing man in evaluating his current price structure or in determining the price for a new product. Evaluating current prices shows if consumers are satisfied with the existing price structure and shows consumer attitudes towards the prices represented by existing brands and to other possible prices in a particular product line. The price-limit theory can also reveal potentialities of the market for a higher or lower price than presently exists.

More specifically, one can, by referring to a cumulative frequency graph, determine the percentage of consumers willing to buy at any given price. If we wish to choose

the largest potential market, we would choose the optimum price. This would be the difference between the percentage of purchasers who do not judge the price too high and the percentage who judge it too low (14, p. 73). The acceptable price range, however, is normally from a lower to higher price than the optimum price. Consumers might be just as interested in the lower acceptable or higher acceptable price from the point of view of quality as well as price.

This theory gives implications for development of a product line and shows how there may be a market for a higher or lower priced product, although it would be smaller.

The number of categories subjects used in judging the acceptable prices also gives implications for development of a product line. Assuming each category represents products of different price-quality relationships, gives us an indication of the number of differentiated products one might consider buying.

Results of this study give indication that presenting a price outside the traditional acceptable price range, assuming the product is of no better quality, will increase the acceptable price range by assimilating higher prices to the acceptable price range. This is a risky process, however, because there is a point where the difference is so great that instead of assimilation occurring, the introduction of a remote price produces the contrast effect. Knowing the range where assimilation and contrast occur would

enable the marketing man to determine the range of consumer tolerance to price.

When introducing a new brand on the market, a great majority of the potential customers should consider it neither too cheap nor too expensive because the product may first be judged by its price and the wrong price can be responsible for the failure of a new product. This is justification for the marketing man to determine the acceptable price range for each market segment if he hopes to successfully market his products to different market segments.

Further research. The conclusions from this research support some previous research on the price-limit theory i.e., buyers do have ranges of acceptable prices for considered purchases.

However, more precise research is needed to determine acceptable price ranges for different market segments. Previous research by Monroe (8) established the fact that males and females judged prices differently. Results of this research did not confirm the same hypothesis. Because this study used the same product for both samples and the previous research did not, this study shows a more realistic picture of the way males and females judge prices. However, further investigation of this hypothesis is needed before the question can be answered with certainty.

In contrast to this research, Sherif (10) found a broader latitude of acceptance in her study when the price



series was lengthened to include prices markedly beyond subjects' latitude of acceptance. A significant assimilation effect was shown in her study whereas the trend to assimilate prices was not significant in this study. Further research is needed in this area to provide a more realistic basis for solving this problem.

More research is needed to determine how different market segments judge price. How does age, familiarity with the product, variations in socio-economic classes, promotion, etc., effect the way consumers judge price?

Further investigation of these questions and the problems raised in this research may provide a more realistic empirical basis for measurement in the study of consumer attitudes towards price.

#### Summary of Chapter V

The conclusions from this experiment support previous research on the price-limit hypothesis. That is, buyers do have ranges of acceptable prices and that prices outside the acceptable range both high and low are considered objectionable. The fact that subjects did have a lower price limit discredits much of the traditional demand theory. Finally, this study reveals consumer attitudes towards price. It indicates that the price-limit theory should be a part of modern marketing and that it may well provide marketing men with new insights into how products should be priced.

APPENDICES

APPENDIX A1

## Directions - 1

You have an envelope containing a pack of blank 3 by 5 cards, a rubber band, and a pack of price slips.

- (1) Take the pack of blank cards out of the envelope and put one blank card at your extreme right and one blank card at your extreme left. Lay the other cards down where you can reach them easily later. Your task is to sort the price slips into piles.
- (2) Imagine that you are interested in buying a pair of pants which you need. Each of these slips of paper is a price tag on a pair of pants. Let's assume that every pair of of these pants are a color, texture and style that you might like.
- (3) Assume you are sorting through this rack of pants trying to decide which pair to buy. You have only the price tag on which to base your decision. You can sort them into any number of piles you choose.
- (4) If you find any prices in your pack which you think are too cheap to buy, pile them on the blank card at your left. If you find any prices that are way too high for you, that are simply prohibitive in price, pile them on the blank card at your right.
- (5) Sort the other cards into as many or few piles as you like to show how you would decide which pair of pants to buy from this rack.
- (6) Decide on the piles you use on the basis of which price slips seem to belong together. Do not be concerned about how many are in the piles. If you change your mind, please feel free to re-arrange things.
- (7) When you are all through sorting the price slips take a blank card for each pile which is not labeled, and write down what that pile represents to you, if you wish.

ARE THERE ANY QUESTIONS?

APPENDIX A2

## Directions - 2

- (8) Now pick up the one pile which has the price slips in it that are most acceptable to you. On the 3 by 5 card with this pile, make two check marks (✓✓). If there is another pile or piles which are also acceptable to you, indicate that by putting one check mark on each pile (✓). (You may if you wish use some of the labels that are with these directions).
- (9) Now pick up the pile which contains slips that are most unacceptable to you. On the 3 by 5 card with this pile, mark two x's (xx). If there are any other piles which also contain price slips that are unacceptable to you, indicate that by putting one x on each 3 by 5 card (x). (Again, you may use some of the labels).
- (10) Now please number your piles, starting on your left with the number 1. Proceed to the next pile with 2 and so on until you have numbered each in the order that it appears before you.
- (11) Finally, we will staple the name card on each pile of price slips. Then pick the cards up in order from left to right and fasten them in a bundle with a rubber band. Return them to the envelope and sign your name on the envelope.

APPENDIX B1

Frequency of Judgments in each Category:

Males: Short Range

<u>Price</u>	<u>Unacceptable</u>		<u>Acceptable</u>			<u>Unacceptable</u>	
	Too Cheap	Low	Low	Most	High	High	Too Exp.
\$1.00	43	4	5	0	0	0	0
1.50	43	4	5	0	0	0	0
2.00	42	4	6	0	0	0	0
2.50	40	4	8	0	0	0	0
3.00	38	5	8	1	0	0	0
3.50	35	5	9	3	0	0	0
4.00	35	4	7	6	0	0	0
4.50	33	4	8	7	0	0	0
5.00	24	3	14	11	0	0	0
5.50	22	2	17	11	0	0	0
6.00	17	3	16	16	0	0	0
6.50	16	3	16	17	0	0	0
7.00	12	2	17	19	2	0	0
7.50	9	2	19	20	2	0	0
8.00	6	3	18	22	3	0	0
8.50	6	2	19	22	2	0	1
9.00	5	2	16	24	4	0	1
9.50	5	2	15	24	5	0	1
10.00	2	3	13	27	6	0	1
10.50	2	2	13	25	9	0	1
11.00	2	2	8	28	10	0	2
11.50	2	2	8	27	11	0	2
12.00	0	2	7	29	11	1	2
12.50	0	2	6	27	14	1	2
12.50	0	2	6	27	14	1	2
13.00	0	2	6	24	17	1	2
13.50	0	2	6	22	19	1	2
14.00	0	2	2	23	21	2	2
14.50	0	2	2	21	22	2	3
15.00	0	0	2	22	22	2	4
15.50	0	0	2	18	25	2	5
16.00	0	0	0	17	20	4	11
16.50	0	0	0	15	21	5	11
17.00	0	0	0	11	23	5	13
17.50	0	0	0	10	24	5	13
18.00	0	0	0	7	23	7	15
18.50	0	0	0	6	23	7	16
19.00	0	0	0	5	22	6	19
19.50	0	0	0	4	20	8	20
20.00	0	0	0	3	19	7	23
20.50	0	0	0	2	15	5	30

## APPENDIX B1 (Continued)

21.00	0	0	0	2	12	5	33
21.50	0	0	0	2	11	5	34
22.00	0	0	0	2	10	6	34
22.50	0	0	0	1	10	5	36
23.00	0	0	0	1	9	5	37
23.50	0	0	0	0	8	6	38
24.00	0	0	0	0	7	5	40
24.50	0	0	0	0	7	5	40
25.00	0	0	0	0	7	5	40
25.50	0	0	0	0	7	5	40

APPENDIX B2

Proportion of Judgments Higher Than Each Category:

Males: Short Range

<u>Price</u>	<u>Unacceptable</u>		<u>Acceptable</u>			<u>Unacceptable</u>	
	Too Cheap	Low	Low	Most	High	High	Too Exp.
\$1.00	.173	.096	0	0	0	0	a.
1.50	.173	.096	0	0	0	0	
2.00	.192	.115	0	0	0	0	
2.50	.231	.154	0	0	0	0	
3.00	.269	.173	.019	0	0	0	
3.50	.327	.231	.058	0	0	0	
4.00	.327	.250	.115	0	0	0	
4.50	.365	.289	.135	0	0	0	
5.00	.539	.481	.212	0	0	0	
5.50	.577	.539	.212	0	0	0	
6.00	.673	.615	.308	0	0	0	
6.50	.692	.635	.327	0	0	0	
7.00	.769	.731	.404	.039	0	0	
7.50	.827	.789	.423	.039	0	0	
8.00	.885	.827	.481	.058	0	0	
8.50	.885	.846	.481	.058	.019	.019	
9.00	.904	.865	.558	.096	.019	.019	
9.50	.904	.865	.577	.115	.019	.019	
10.00	.962	.904	.654	.135	.019	.019	
10.50	.962	.923	.673	.192	.019	.019	
11.00	.962	.923	.769	.231	.039	.039	
11.50	.962	.923	.769	.250	.039	.039	
12.00	1.000	.962	.827	.269	.058	.039	
12.50	1.000	.962	.846	.327	.058	.039	
13.00	1.000	.962	.846	.385	.058	.039	
13.50	1.000	.962	.846	.423	.058	.039	
14.00	1.000	.962	.923	.481	.077	.039	
14.50	1.00	.962	.923	.519	.096	.058	
15.00	1.000	1.000	.962	.558	.115	.047	
15.50	1.000	1.000	.962	.615	.135	.096	
16.00	1.000	1.000	1.000	.673	.289	.212	
16.50	1.000	1.000	1.000	.712	.308	.212	
17.00	1.000	1.000	1.000	.789	.346	.250	
17.50	1.000	1.000	1.000	.808	.346	.250	
18.00	1.000	1.000	1.000	.865	.423	.289	
18.50	1.000	1.000	1.000	.885	.442	.308	
19.00	1.000	1.000	1.000	.904	.481	.365	
19.50	1.000	1.000	1.000	.923	.539	.385	
20.00	1.000	1.000	1.000	.942	.577	.442	
20.50	1.000	1.000	1.000	.962	.673	.577	
21.00	1.000	1.000	1.000	.962	.731	.635	

## APPENDIX B2 (Continued)

21.50	1.000	1.000	1.000	.962	.750	.654	a.
22.00	1.000	1.000	1.000	.962	.769	.654	
22.50	1.000	1.000	1.000	.981	.789	.692	
23.00	1.000	1.000	1.000	.981	.808	.712	
23.50	1.000	1.000	1.000	1.000	.846	.731	
24.00	1.000	1.000	1.000	1.000	.865	.769	
24.50	1.000	1.000	1.000	1.000	.865	.769	
25.00	1.000	1.000	1.000	1.000	.865	.769	
25.50	1.000	1.000	1.000	1.000	.865	.769	



APPENDIX B3

Frequency of Judgments in each Category:

Females: Short Range

<u>Price</u>	<u>Unacceptable</u>		<u>Acceptable</u>			<u>Unacceptable</u>	
	Too Cheap	Low	Low	Most	High	High	Too Exp.
\$1.00	13	1	2	0	0	0	0
1.50	13	1	2	0	0	0	0
2.00	13	1	2	0	0	0	0
2.50	13	1	2	0	0	0	0
3.00	13	1	2	0	0	0	0
3.50	13	0	2	1	0	0	0
4.00	12	0	3	1	0	0	0
4.50	10	0	4	2	0	0	0
5.00	9	0	4	3	0	0	0
5.50	9	0	3	4	0	0	0
6.00	5	2	5	4	0	0	0
6.50	5	2	5	4	0	0	0
7.00	4	2	7	3	0	0	0
7.50	3	2	6	4	1	0	0
8.00	2	2	4	6	2	0	0
8.50	1	2	5	5	3	0	0
9.00	0	1	6	6	3	0	0
9.50	0	1	6	6	3	0	0
10.00	0	0	6	7	3	0	0
10.50	0	0	5	7	3	1	0
11.00	0	0	3	8	4	1	0
11.50	0	0	3	8	4	1	0
12.00	0	0	1	10	4	1	0
12.50	0	0	1	10	4	1	0
13.00	0	0	1	10	4	1	0
13.50	0	0	1	10	4	1	0
14.00	0	0	1	10	4	1	0
14.50	0	0	1	9	5	1	0
15.00	0	0	0	8	7	1	0
15.50	0	0	0	8	6	1	1
16.00	0	0	0	4	10	1	1
16.50	0	0	0	4	10	1	1
17.00	0	0	0	4	9	1	2
17.50	0	0	0	3	10	1	2
18.00	0	0	0	3	8	3	2
18.50	0	0	0	3	7	4	2
19.00	0	0	0	3	4	6	3
19.50	0	0	0	3	5	5	3
20.00	0	0	0	3	4	6	3
20.50	0	0	0	3	3	6	4
21.00	0	0	0	0	4	7	5

## APPENDIX B3 (Continued)

21.50	0	0	0	0	4	7	5
22.00	0	0	0	0	4	6	6
22.50	0	0	0	0	3	6	7
23.00	0	0	0	0	3	6	7
23.50	0	0	0	0	2	6	8
24.00	0	0	0	0	2	5	9
24.50	0	0	0	0	1	5	10
25.00	0	0	0	0	1	4	11
25.50	0	0	0	0	1	4	11

APPENDIX B4

Proportion of Judgments Higher Than Each Category:

Females: Short Range

<u>Price</u>	<u>Unacceptable</u>		<u>Acceptable</u>			<u>Unacceptable</u>	
	Too Cheap	Low	Low	Most	High	High	Too Exp.
\$1.00	.188	.125	0	0	0	0	a.
1.50	.188	.125	0	0	0	0	
2.00	.188	.125	0	0	0	0	
2.50	.188	.125	0	0	0	0	
3.00	.188	.125	0	0	0	0	
3.50	.188	.188	.063	0	0	0	
4.00	.250	.250	.063	0	0	0	
4.50	.375	.375	.125	0	0	0	
5.00	.438	.438	.188	0	0	0	
5.50	.438	.438	.250	0	0	0	
6.00	.688	.563	.250	0	0	0	
6.50	.688	.563	.250	0	0	0	
7.00	.750	.625	.188	0	0	0	
7.50	.813	.688	.313	.063	0	0	
8.00	.875	.750	.500	.125	0	0	
8.50	.938	.813	.500	.188	0	0	
9.00	1.000	.938	.563	.188	0	0	
9.50	1.000	.938	.563	.188	0	0	
10.00	1.000	1.000	.625	.188	0	0	
10.50	1.000	1.000	.688	.250	.063	0	
11.00	1.000	1.000	.813	.313	.063	0	
11.50	1.000	1.000	.813	.313	.063	0	
12.00	1.000	1.000	.938	.313	.063	0	
12.50	1.000	1.000	.938	.313	.063	0	
13.00	1.000	1.000	.938	.313	.063	0	
13.50	1.000	1.000	.938	.313	.063	0	
14.00	1.000	1.000	.938	.313	.063	0	
14.50	1.000	1.000	.938	.375	.063	0	
15.00	1.000	1.000	1.000	.500	.063	0	
15.50	1.000	1.000	1.000	5.000	.125	.063	
16.00	1.000	1.000	1.000	.750	.125	.063	
16.50	1.000	1.000	1.000	.750	.125	.063	
17.00	1.000	1.000	1.000	.750	.188	.125	
17.50	1.000	1.000	1.000	.813	.188	.125	
18.00	1.000	1.000	1.000	.813	.313	.125	
18.50	1.000	1.000	1.000	.813	.375	.125	
19.00	1.000	1.000	1.000	.813	.563	.188	
19.50	1.000	1.000	1.000	.813	.500	.188	
20.00	1.000	1.000	1.000	.813	.563	.188	
20.50	1.000	1.000	1.000	.813	.625	.250	
21.00	1.000	1.000	1.000	1.000	.750	.313	

## APPENDIX B4 (Continued)

21.50	1.000	1.000	1.000	1.000	.750	.313
22.00	1.000	1.000	1.000	1.000	.750	.375
22.50	1.000	1.000	1.000	1.000	.813	.438
23.00	1.000	1.000	1.000	1.000	.813	.438
23.50	1.000	1.000	1.000	1.000	.875	.500
24.00	1.000	1.000	1.000	1.000	.875	.563
24.50	1.000	1.000	1.000	1.000	.938	.625
25.00	1.000	1.000	1.000	1.000	.938	.688
25.50	1.000	1.000	1.000	1.000	.938	.688

APPENDIX B5

## Frequency of Judgments in Each Category:

Males: Long Range

<u>Price</u>	<u>Unacceptable</u>		<u>Acceptable</u>			<u>Unacceptable</u>	
	Too Cheap	Low	Low	Most	High	High	Too Exp.
\$1.00	43	7	1	1	0	0	0
2.00	43	7	1	1	0	0	0
3.00	40	7	3	2	0	0	0
4.00	37	5	6	4	0	0	0
5.00	24	5	12	11	0	0	0
6.00	17	7	12	16	0	0	0
7.00	10	8	13	21	0	0	0
8.00	5	10	14	22	1	0	0
9.00	2	10	13	25	2	0	0
10.00	1	5	11	30	5	0	0
11.00	1	5	4	37	5	0	0
12.00	1	4	4	35	6	0	2
13.00	1	3	4	32	10	0	2
14.00	1	3	4	27	15	0	2
15.00	0	1	6	26	16	0	3
16.00	0	1	3	22	21	1	4
17.00	0	1	3	18	23	2	5
18.00	0	1	2	17	22	4	6
19.00	0	1	2	14	23	6	6
20.00	0	1	0	11	21	9	10
21.00	0	1	0	5	21	13	12
22.00	0	1	0	4	20	14	13
23.00	0	1	0	3	18	14	16
24.00	0	1	0	3	17	13	18
25.00	0	0	1	3	14	12	22
26.00	0	0	1	3	12	10	26
27.00	0	0	1	3	11	10	27
28.00	0	0	1	3	10	9	29
29.00	0	0	1	2	11	9	29
30.00	0	0	1	2	8	8	33
31.00	0	0	1	1	6	8	36
32.00	0	0	1	1	6	8	36
33.00	0	0	0	2	6	8	36
34.00	0	0	0	2	6	7	37
35.00	0	0	0	2	5	6	39
36.00	0	0	0	2	3	4	43
37.00	0	0	0	1	2	5	44
38.00	0	0	0	1	2	5	44
39.00	0	0	0	1	2	5	44
40.00	0	0	0	1	0	4	47

## APPENDIX B5 (Continued)

41.00	0	0	0	0	0	4	48
42.00	0	0	0	0	0	4	48
43.00	0	0	0	0	0	4	48
44.00	0	0	0	0	0	4	48
45.00	0	0	0	0	0	4	48
46.00	0	0	0	0	0	4	48
47.00	0	0	0	0	0	4	48
48.00	0	0	0	0	0	4	48
49.00	0	0	0	0	0	4	48
50.00	0	0	0	0	0	4	48

APPENDIX B6

Proportion of Judgments Higher Than Each Category:

Males: Long Range

<u>Price</u>	<u>Unacceptable</u>		<u>Acceptable</u>			<u>Unacceptable</u>	
	Too Cheap	Low	Low	Most	High	High	Too Exp.
\$1.00	.173	.039	.019	0	0	0	a.
2.00	.173	.039	.019	0	0	0	
3.00	.231	.096	.039	0	0	0	
4.00	.289	.192	.077	0	0	0	
5.00	.539	.442	.212	0	0	0	
6.00	.673	.539	.308	0	0	0	
7.00	.808	.654	.404	0	0	0	
8.00	.904	.712	.442	.019	0	0	
9.00	.962	.769	.519	.039	0	0	
10.00	.981	.885	.673	.096	0	0	
11.00	.981	.885	.808	.096	0	0	
12.00	.981	.904	.827	.154	.039	.039	
13.00	.981	.923	.846	.231	.039	.039	
14.00	.981	.923	.846	.327	.039	.039	
15.00	1.000	.981	.865	.365	.058	.058	
16.00	1.000	.981	.923	.500	.096	.077	
17.00	1.000	.981	.923	.577	.135	.096	
18.00	1.000	.981	.942	.615	.192	.115	
19.00	1.000	.981	.942	.673	.231	.115	
20.00	1.000	.981	.981	.769	.365	.192	
21.00	1.000	.981	.981	.885	.481	.231	
22.00	1.000	.981	.981	.904	.519	.250	
23.00	1.000	.981	.981	.923	.577	.308	
24.00	1.000	.981	.981	.923	.596	.346	
25.00	1.000	1.000	.981	.923	.654	.423	
26.00	1.000	1.000	.981	.923	.692	.500	
27.00	1.000	1.000	.981	.923	.712	.519	
28.00	1.000	1.000	.981	.923	.731	.558	
29.00	1.000	1.000	.981	.942	.731	.558	
30.00	1.000	1.000	.981	.942	.789	.635	
31.00	1.000	1.000	.981	.962	.846	.692	
32.00	1.000	1.000	.981	.962	.846	.692	
33.00	1.000	1.000	1.000	.962	.846	.692	
34.00	1.000	1.000	1.000	.962	.846	.712	
35.00	1.000	1.000	1.000	.962	.865	.750	
36.00	1.000	1.000	1.000	.962	.904	.827	
37.00	1.000	1.000	1.000	.981	.942	.846	
38.00	1.000	1.000	1.000	.981	.942	.846	
39.00	1.000	1.000	1.000	.981	.942	.846	
40.00	1.000	1.000	1.000	.981	.981	.904	

## APPENDIX B6 (Continued)

41.00	1.000	1.000	1.000	1.000	1.000	.923
42.00	1.000	1.000	1.000	1.000	1.000	.923
43.00	1.000	1.000	1.000	1.000	1.000	.923
44.00	1.000	1.000	1.000	1.000	1.000	.923
45.00	1.000	1.000	1.000	1.000	1.000	.923
46.00	1.000	1.000	1.000	1.000	1.000	.923
47.00	1.000	1.000	1.000	1.000	1.000	.923
48.00	1.000	1.000	1.000	1.000	1.000	.923
49.00	1.000	1.000	1.000	1.000	1.000	.923
50.00	1.000	1.000	1.000	1.000	1.000	.923



APPENDIX B7

Frequency of Judgments in each Category:

Females: Long Range

<u>Price</u>	<u>Unacceptable</u>		<u>Acceptable</u>			<u>Unacceptable</u>	
	Too Cheap	Low	Low	Most	High	High	Too Exp.
\$1.00	15	1	0	0	0	0	0
2.00	15	1	0	0	0	0	0
3.00	15	1	0	0	0	0	0
4.00	13	1	1	1	0	0	0
5.00	9	1	2	4	0	0	0
6.00	9	0	3	4	0	0	0
7.00	4	0	5	7	0	0	0
8.00	2	0	6	8	0	0	0
9.00	1	0	5	10	0	0	0
10.00	0	0	5	10	1	0	0
11.00	0	0	3	10	3	0	0
12.00	0	0	2	11	3	0	0
13.00	0	0	1	11	4	0	0
14.00	0	0	0	12	4	0	0
15.00	0	0	0	12	4	0	0
16.00	0	0	0	7	7	2	0
17.00	0	0	0	3	8	3	2
18.00	0	0	0	2	9	3	2
19.00	0	0	0	2	9	3	2
20.00	0	0	0	1	9	4	2
21.00	0	0	0	0	6	4	6
22.00	0	0	0	0	6	4	6
23.00	0	0	0	0	6	4	6
24.00	0	0	0	0	6	4	6
25.00	0	0	0	0	4	5	7
26.00	0	0	0	0	1	6	9
27.00	0	0	0	0	1	6	9
28.00	0	0	0	0	1	5	10
29.00	0	0	0	0	1	5	10
30.00	0	0	0	0	1	4	11
31.00	0	0	0	0	1	4	11
32.00	0	0	0	0	1	4	11
33.00	0	0	0	0	1	3	12
34.00	0	0	0	0	1	3	12
35.00	0	0	0	0	1	2	13
36.00	0	0	0	0	1	1	14
37.00	0	0	0	0	0	1	15
38.00	0	0	0	0	0	1	15
39.00	0	0	0	0	0	1	15
40.00	0	0	0	0	0	1	15

## APPENDIX B7 (Continued)

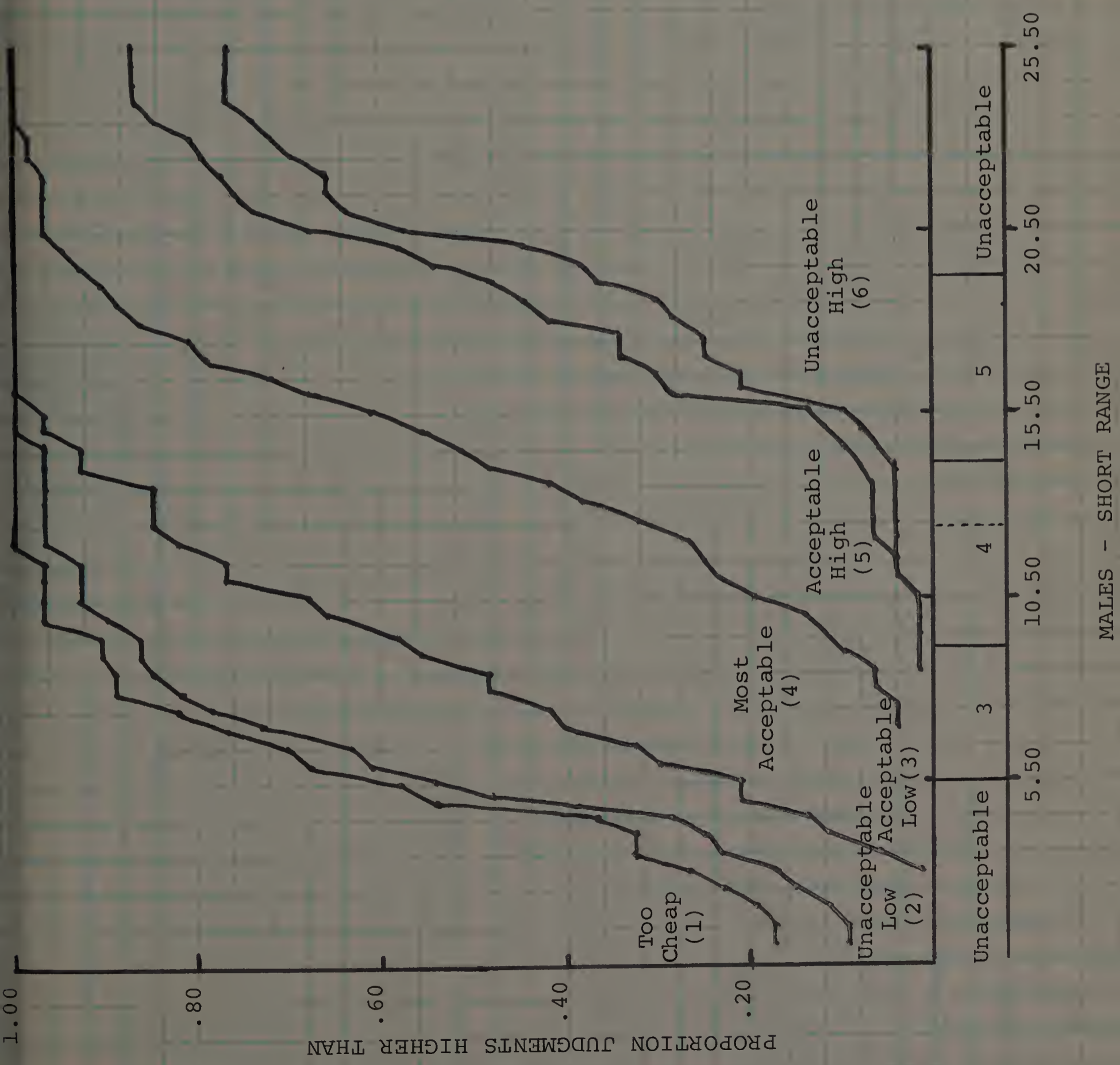
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42.00	0	0	0	0	0	1	15
43.00	0	0	0	0	0	1	15
44.00	0	0	0	0	0	1	15
45.00	0	0	0	0	0	1	15
46.00	0	0	0	0	0	1	15
47.00	0	0	0	0	0	1	15
48.00	0	0	0	0	0	1	15
49.00	0	0	0	0	0	1	15
50.00	0	0	0	0	0	1	15



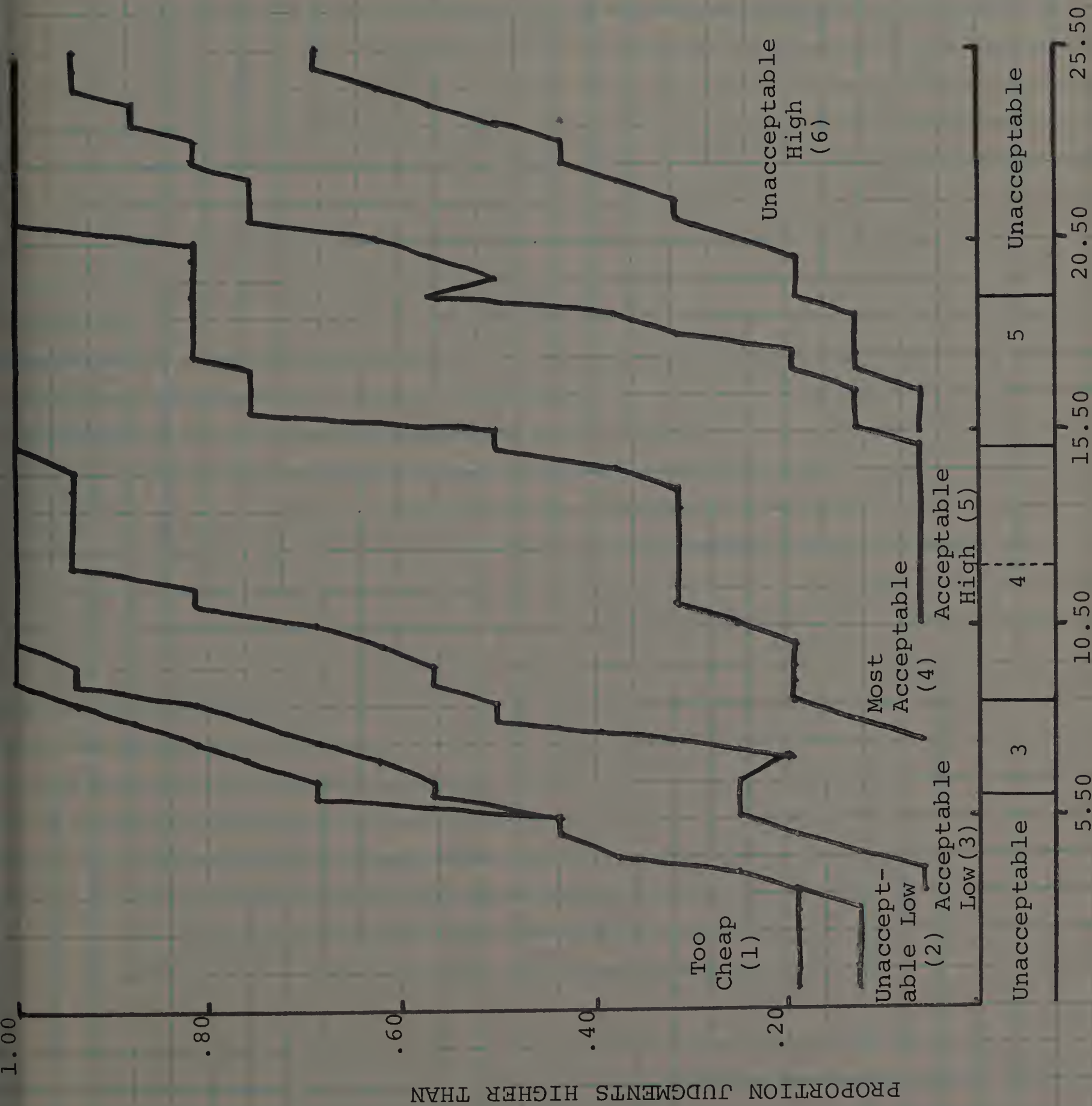
## APPENDIX B8 (Continued)

41.00	1.000	1.000	1.000	1.000	1.000	.938
42.00	1.000	1.000	1.000	1.000	1.000	.938
43.00	1.000	1.000	1.000	1.000	1.000	.938
44.00	1.000	1.000	1.000	1.000	1.000	.938
45.00	1.000	1.000	1.000	1.000	1.000	.938
46.00	1.000	1.000	1.000	1.000	1.000	.938
47.00	1.000	1.000	1.000	1.000	1.000	.938
48.00	1.000	1.000	1.000	1.000	1.000	.938
49.00	1.000	1.000	1.000	1.000	1.000	.938
50.00	1.000	1.000	1.000	1.000	1.000	.938

APPENDIX C1



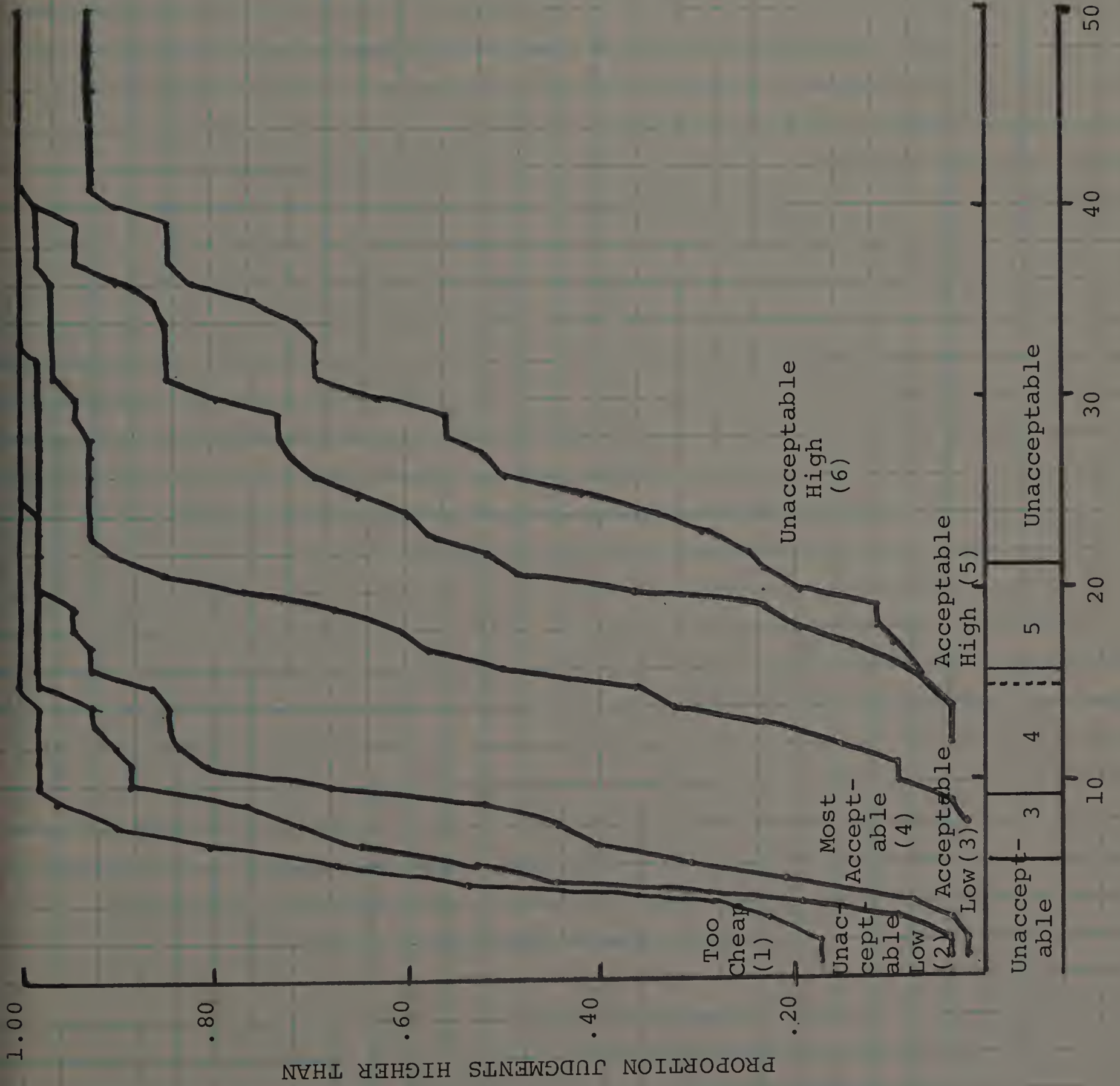
APPENDIX C2



PROPORTION JUDGMENTS HIGHER THAN

FEMALES - SHORT RANGE

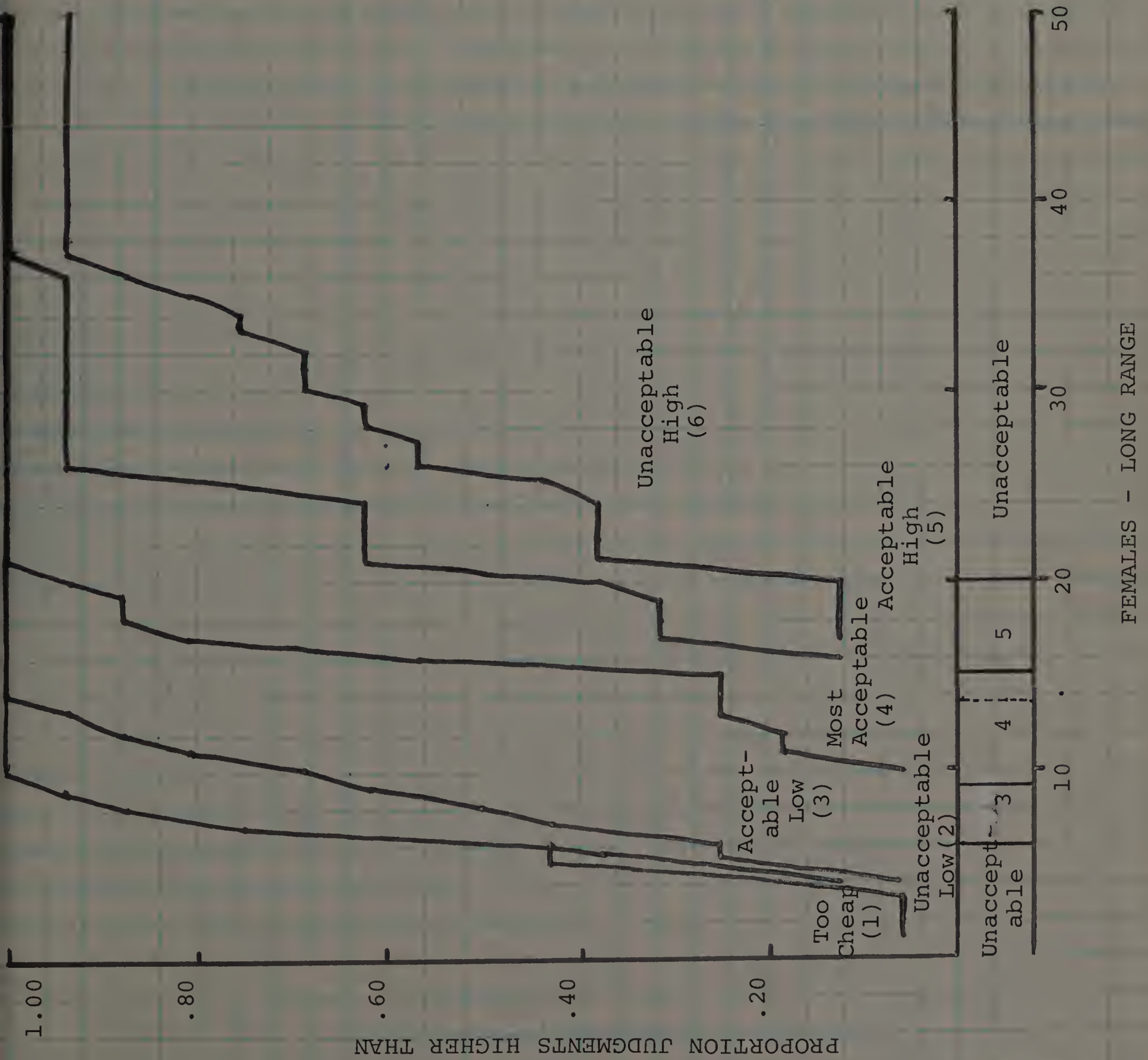
APPENDIX C3



MALES - LONG RANGE

PROPORTION JUDGMENTS HIGHER THAN

APPENDIX C4





APPENDIX D1

## Hypothesis 1

Hypothesis:  $H_0: \pi = 0.95$  (Lower Limit)

$H_A: \pi \neq 0.95$

$$\alpha = 0.01$$

$$Z = (\rho - \pi_0) / \sigma_\rho$$

Reject  $H_0$  only if  $Z < -2.58$  or  $Z > 2.58$

$$\rho = \frac{127}{136} = 0.933$$

$$\sigma_\rho = \frac{\sqrt{\pi_0(1-\pi_0)}}{n} = \frac{\sqrt{0.95(0.05)}}{136} = 0.019$$

$$Z = \frac{0.933 - 0.95}{0.019} = \frac{-0.017}{0.019} = -0.8947$$

Since  $Z = -0.8947 > -2.58$ ,  $H_0$  cannot be rejected.

APPENDIX D2

## Hypothesis 1

Hypothesis: Ho:  $\pi = 0.95$  (Upper Limit)

HA:  $\pi \neq 0.95$

$$\sigma = 0.01$$

$$Z = (\rho - \pi_0) / \sigma_\rho$$

Reject Ho only if  $Z < -2.58$  or  $Z > 2.58$

$$\rho = \frac{128}{136} = 0.9412$$

$$\sigma_\rho = \frac{\sqrt{\pi_0(1-\pi_0)}}{n} = \frac{\sqrt{0.95(0.05)}}{136} = 0.019$$

$$Z = \frac{0.9412 - 0.95}{0.019} = \frac{-0.0088}{0.019} = -0.4632$$

Since  $Z = -0.4632 > -2.58$ , Ho cannot be rejected.

APPENDIX D3

## Hypothesis 3

 $X_1$  = Short Range $X_2$  = Long RangeHo:  $VA = VB$  $\alpha = 0.05$ HA:  $VA \neq VB$ 

$$s_p^2 = \frac{1}{n_1+n_2-2} \left[ \sum_{i=1}^{n_1} (X_{1,i} - \bar{X}_1)^2 + \sum_{i=1}^{n_2} (X_{2,i} - \bar{X}_2)^2 \right]$$

$$s_p^2 = \frac{1}{(68+68-2)} [59.6412 + 64.6332]$$

$$s_p^2 = \frac{1}{134} (124.2744) = .9274$$

$$s_p = .96$$

$$0 = (\bar{X}_1 - \bar{X}_2) \pm z s_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}$$

$$\frac{-(\bar{X}_1 - \bar{X}_2)}{s_p \sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} = \pm z = \frac{-(4.97 - 5.07)}{.96 \sqrt{\frac{1}{68} + \frac{1}{68}}} = \frac{.10}{(.96)(.17)} = \underline{\underline{.61}}$$

$$z = .61$$

APPENDIX D4

## Hypothesis 4

$X_1$  = Males, SR

$X_2$  = Females, SR

$H_0$ :  $VA = VB$

$\alpha = 0.05$

$H_A$ :  $VA \neq VB$

$$s_p^2 = \frac{1}{n_1 + n_2 - 2} \left[ \sum_{i=1}^{n_1} (x_{1,i} - \bar{x}_1)^2 + \sum_{i=1}^{n_2} (x_{2,i} - \bar{x}_2)^2 \right]$$

$$s_p^2 = \frac{1}{16+52-2} [15.91 + 44.02]$$

$$s_p^2 = 1/66 [59.93] = .908 \quad s_p = .95$$

$$0 = (\bar{x}_2 - \bar{x}_1) \pm z s_p \sqrt{1/n_1 + 1/n_2}$$

$$\frac{-(\bar{x}_2 - \bar{x}_1)}{s_p \sqrt{1/n_1 + 1/n_2}} = \pm z = \frac{+(4.88 - 5.31)}{.95 \sqrt{1/16 + 1/52}} = \frac{.43}{.95(.2)} = \frac{.43}{.2755} = \underline{\underline{1.6}}$$

$$z = 1.6$$

## REFERENCES

1. Adam, Daniel. Les reactions du consommateur devant le prix. Paris: SEDES, 1958.
2. Alexis, Marcus; George Haines, Jr.; and Leonard Simon. "A Study of the Validity of Experimental Approaches to the Collection of Price and Product Preference Data," paper presented at the 17th International Meeting of Management Sciences, 1970.
3. Fouilhé, Pierre. "The Subjective Evaluation of Price: Methodological Aspects," in (15), 89-97.
4. Gabor, André and Clive Granger. "The Pricing of New Products," Scientific Business, 3 (August 1965), 141-150.
5. Gabor, André and Clive Granger. "Price as an Indicator of Quality, Report on an Enquiry," Economica, 46 (February 1966), 43-70.
6. Guilford, J. P. Psychometric Methods, (New York: McGraw-Hill Book Co., 1954).
7. Monroe, Kent B. "Buyer's Subjective Perceptions of Price," Journal of Marketing Research, 10 (February 1973), 70-80.
8. Monroe, Kent B. "Measuring Price Thresholds by Psychophysics and Latitudes of Acceptance," Journal of Marketing Research, 8 (November 1971), 460-464.
9. Monroe, Kent B. and M. Venkatesan. "The Concept of Price Limits and Psychophysical Measurement: A Laboratory Experiment," Proceedings, Fall Conference, American Marketing Association, 1969, 345-351.
10. Sherif, Carolyn. "Established Reference Scales and Series Effects in Social Judgment," unpublished doctoral dissertation, University of Texas, 1961.
11. Sherif, Carolyn. "Social Categorization as a Function of Latitude of Acceptance and Series Range," Journal of Abnormal and Social Psychology, 67 (August 1963), 148-156.
12. Sherif, Muzafer and Carl I. Hovland. Social Judgment. (New Haven and London: Yale University Press. 1961).

13. Sherif, Muzaber; Sherif, Carolyn; and Nebergall. Attitude and Attitude Change. (Philadelphia: W. B. Saunders Company, 1965).
14. Stoetzel, Jean. "Psychological/Sociological Aspects of Price," in (15), 70-74.
15. Taylor, Bernard and Gordon Wills. Pricing Strategy. Princeton, New Jersey: Brandon Systems Press, Inc., 1970.
16. Volkmann, J. "Scales of Judgment and Their Implications for Social Psychology." In J. Rohrer and M. Sherif (eds.), Social Psychology at the Cross Roads. New York: Harper, 1951. Chapter 11, 273-294.

